An investigation into teacher perspectives and experiences in integrating HIV and AIDS information across the curriculum at some selected Junior Secondary Schools in the Oshana Region, Namibia.

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Abstract

HIV and AIDS are still among the world's most significant public health challenges. Education is widely regarded as an effective response to the pandemic - a “social vaccine” that can increase young people’s awareness of the dangers of HIV infection and thus decrease their vulnerability to HIV and AIDS. Integrating HIV and AIDS awareness across the school curriculum is therefore one of the strategies being implemented to educate learners about the pandemic. There are challenges; however, related to the central goal of integrating HIV and AIDS education and also to the form – in particular, the pedagogical practices - that this might best take.

This qualitative case study research investigated teachers’ perspectives, experiences, and levels of preparedness with regard to integrating HIV and AIDS information in the main carrier subjects, mathematics and geography, in some junior secondary schools in Namibia.

The study situates debates on curriculum integration and draws on Fogarty’s (1999) models of curriculum integration as a conceptual and analytic tool to examine the nature, form and content of integration. It includes a questionnaire on curriculum integration completed by 53 teachers as well as a component consisting of observations and interviews with four teachers from two schools.

The results reveal patterns that also emerge in earlier studies on curriculum integration. This approach is already widely recognized as challenging and problematic in the context of general education. However, this and other studies show that when HIV and AIDS are brought into the arena, additional factors come into play and further complicate the process, because of the sensitivity of this topic. In addition, the task of integrating HIV and AIDS education has been added to an already overcrowded curriculum. Teachers have not been provided with adequate (or any) training with concrete examples that might facilitate their efforts to integrate HIV and AIDS information into subjects like the ones under scrutiny in this study.

The picture that emerges from examining the evidence on HIV and AIDS integration against Fogarty’s (1991) 10 models of curriculum integration is one in which teaching practices are ad hoc, opportunistic and haphazard right across the sample. The choice of integration

models for implementation of the HIV and AIDS component in these subjects has been largely left to the opportunity, ability and personal inclinations of individual teachers. The results point to a range of responses, with many teachers not teaching HIV and AIDS at all or some hesitantly experimenting with different approaches; all to limited effect in realizing the intended national goals of this curriculum project.

The overall pattern also reveals a degree of frustration among the teachers in the sample, who acknowledged and were concerned at the enormity of the HIV and AIDS challenge facing the country. They recognised the motive behind the policy to have the education system play an important role in response to the HIV challenge, but felt frustrated with the social, personal and practical difficulties of actually implementing the policy within the context of poor (or no) training, knowledge, and support.

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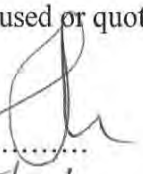
Dedication

I dedicate this work to my dear father, Armas Shifotoka. You are my hero; may your soul rest in peace.

Declaration

I, the undersigned Simsolia Namene Shifotoka, hereby declare that this is my own, and that it has not been submitted for a degree or examination in any other university and that all the sources I have used or quoted have been acknowledged by complete references.



Signed .....

Date 28/01/13

Acronyms

ACE:	Advanced Certificate in Education
AIDS:	Acquired Immune Deficiency Syndrome
B. ED:	Bachelor of Education
BETD:	Basic Education Teacher Diploma
ECP:	Education Certificate Program
ETSIP:	Education and Training Sector Improvement Programme
HAMU:	HIV/AIDS Management Unit
HED:	Higher Education Diploma
HIV:	Human Immune virus
IBE:	International Bureau of Education
ICT:	Information Communication Technology
JSP:	Junior Secondary Phase
JSS:	Junior Secondary School
MBEC:	Ministry of Basic Education and Culture
MOE:	Ministry of Education
MOHSS:	Ministry of Health and Social Services
NAMCOL:	Namibia College of Open Learning
NGO:	Non-Governmental Organisation
NIED:	National Institute for Educational Development
RACE:	Regional AIDS Committee for Education
UNESCO:	United Nations Educational, Scientific and Cultural Organisation
UNAIDS:	Joint United Nations Programme on HIV and AIDS

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CHAPTER 1 INTRODUCING THE STUDY

1.1 Background to the Study

The HIV and AIDS pandemic are a continuing critical concern and focal public challenge for health as well as social and economic development globally. Sub-Saharan Africa is hardest hit. As Meidema, Maxwell & Aggleton (2010:21) reflect, "[T]he majority of people infected with HIV and AIDS in the world are in Sub-Sahara Africa. In 2009, an estimated 22, 5 million people were living with HIV in Sub-Saharan Africa, including 2, 3 million children." Despite developments and awareness campaigns in several countries and regions on the continent, the epidemic continues to take its toll on many lives.

Countries around the world recognize HIV and AIDS education to be significant in the fight against the spread of the pandemic, with many countries introducing various intervention strategies in schools (IBE UNESCO: 2006). Miedema et al (2010:1) points out, "[M]inistries of Education are becoming increasingly aware that with no vaccine or cure for HIV and AIDS in sight, education can be an effective way to protect young people."

National governments in countries such as South Africa and Namibia where the impact of the pandemic is high, have developed policies and revised curricula to address HIV and AIDS-related matters within formal education. Globally, schools are viewed as catalysts and have thus been placed at the forefront of HIV and AIDS education. The role teachers' play as mediators of HIV information, therefore, becomes central in the mitigation of the pandemic. Rispelet al (2006) makes the point, "… education has been described as a social vaccine against HIV and AIDS and schooling reduces HIV and AIDS risks as it increases knowledge of the disease and is correlated with changes in sexual behaviour" (2006: 9). Consequently, many countries have integrated HIV and AIDS education into their national curricula rather than teaching it as a separate subject. This often takes place alongside other HIV and AIDS programmes offered in and out of school.

1.2 Context of the Study

The HIV and AIDS pandemic has had a distinct impact on developing countries like Namibia and has had an effect on the population irrespective of social or economic status. Namibia is one of the many countries in sub-Saharan Africa hardest hit by HIV and AIDS. This has led to a decrease in life expectancy in the country from 58, 8 years in 1995 to 43 years in 2000.

The Namibian Ministry of Education reports that the country ranks as one of five countries in the world most affected by HIV and AIDS; with an overall infection rate of 22% among sexually active adults" (USAID, 2002, cited in Ministry of Education; 2003: 20). This scenario has given rise to an increase in medical service expenses in the country. HIV and AIDS is also recognized as the leading cause of death in Namibia and in Africa and the fourth most common cause of death worldwide (UNESCO 2006; USAID 2002). The Ministry of Health and Social Services (2008:1) as well as the Ministry of Education (2003: 25) acknowledge that HIV and AIDS not only increases poverty and hinder development but also poses a threat to the nation, economically and socially. These ministries argue that if this threat is not addressed, the country may see greater loss of life that in turn may result in negative effects on the investment in education as well as on economic, social, and political growth and progress. The epidemic further challenges the mission of the education sector and its objectives of equity, effectiveness and efficiency as espoused in Vision 2030 Education Policy Framework of 2004.

In response, the Namibian government has prioritized the struggle against HIV and AIDS in all its expansion action plans. This is noticeable in the inclusion of HIV in national strategic policies, for example: the Vision 2030 Policy Framework (2004); the Second and Third National Strategic Plans for HIV/AIDS (the medium-term plans 1999- 2004 and 2004-2009 respectively); and, specifically in the education sector, a national policy on HIV and AIDS (2003)[1]. The country also adopted a multi-pronged approach that calls for committed participation by all government sectors (e.g. health, education, and social welfare) in the battle against HIV and AIDS. Non-governmental organizations have also been included as important catalysts in the fight against the pandemic.

The integration of HIV and AIDS education, together with health and wellness education, Human Rights and Democracy, ICT and Environmental Learning across the curriculum, is an educational imperative initiated by the Ministry of Education (MoE) in the early 2000's (MoE, 2010). This requirement locates responses to HIV and AIDS within the MoE in general, strategically positioning schools to disseminate information on HIV and AIDS prevention, care, and support (MBEC, 2003: 3). The MoE developed an innovative strategic and operational HIV and AIDS plan in 2000, with its implementation in progress since then.

1 See Appendix A for a more detailed analysis of each policy document.

HIV education programmes have been developed with integration across the curriculum as the proposed approach. In addition to HIV information integrated across the curriculum, emphasis is placed on life skills education as well as on the development of HIV and AIDS extra-curricular programmes, with "My Future is my Choice[2]" and "Window of Hope[3]" being prime examples (MBEC, 2002:4). Schools have been encouraged to be proactive; for example, through timetabling activities that emphasize HIV prevention. Schools are also tasked with developing strategies that not only emphasize HIV education integration across the curriculum, but also attend to the social and emotional needs of teachers and learners.

While the integration described above refers to both structural and curricular processes, this study focuses on the latter and examines teacher perspectives, levels of preparedness, and experiences in incorporating HIV and AIDS information into school subjects. Gaining insight into these issues was seen as essential, given teachers' central role as planners, mediators, and agents of social change.

This study, therefore, focused on the junior secondary phase (JSP) that constitutes Grades 8-10, where many learners are between the ages of 15 and 18. As the Ministry of Education states, "[A]t these junior [secondary] grades, HIV and AIDS education takes on new significance as learners in this phase enter the high risk age (15-25), during which relationships begin and are continued. It must be ensured that each and every learner is fully educated about HIV and AIDS and personal, social skills and competencies to wait until full maturity before engaging in a sexual relationship, and to lead a healthy, considerate life" (MoE, 2010:16).

1.3 Problem Statement

I am Social Sciences subject head at my school as well as an Arts and Culture facilitator in the Oshana Region. Concerns associated with HIV and AIDS integration in Life Skills and Life Sciences regularly surface in workshops. Teachers teaching subjects other than Life Skills also express concern about the meaning of HIV and AIDS integration with respect to

[2]This programme is implemented in secondary schools, targeting youth between 15-18 years of age. The main aims of the programme are to provide young people with information and skills to improve their ability to make healthy choices and reduce high-risk sexual behaviours as well as to enable them to (a) protect themselves against HIV infection and sexual transmitted diseases and (b) prevent unintended pregnancies

3 This programme is implemented in primary schools. It was started in 2004 by the Ministry of Education with UNICEF support. The aim is to reach children at an early age so as to provide an opportunity to shape behaviour before children reach puberty.

their subjects. At an arts and culture workshop in 2011, some teachers suggested that while integrating HIV and AIDS education in the arts is important; how to achieve this remains a challenge. Still, others suggested that it is the duty of life skills and life sciences teachers to teach about HIV and AIDS. Others contended that compulsory extra-curricular programmes such as "My Future is my Choice" provide sufficient information on the pandemic. As they see it, there is no need to integrate unless the chapter/topic focuses specifically on HIV and AIDS. Beane (1997) states that it is a fallacy to believe teachers would be willing and able to integrate (in this case, HIV and AIDS information) merely because they are knowledgeable subject specialists.

The assumption by the Ministry of Education in Namibia though, is that teachers will and can integrate HIV information, given that it is a policy directive. This raises concerns that are the focus of this study: namely, teachers' perspectives, levels of preparedness, and experience in integrating HIV and AIDS across the curriculum. It focuses on mathematics and geography specifically; subjects put forward by the MoE as central carriers in which to integrate HIV and AIDS (MoE, 2010: 15).

The national policy imperative compels particularly mathematics and geography teachers to integrate HIV and AIDS into the curriculum. However, no research has yet been conducted in Namibia on (a) whether teachers indeed integrate, (b) whether they have been trained to integrate (levels of preparedness), and (c) how, if at all, they do integrate. This study seeks to respond to these concerns by posing the questions it does.

1.4 The Purpose of the Study

This study aimed to investigate teachers' perspectives, levels of preparedness, and experiences in integrating HIV and AIDS across the curriculum. Results from this study may be used to create better support for teachers to integrate HIV and AIDS across the curriculum at the JSP and by so doing, contribute to mitigating HIV infection rates that continue to escalate notwithstanding the education provided in and out of school.

1.5 Main Research Questions

What are some geography and mathematics teachers' perspectives, levels of preparedness, and experiences in integrating HIV and AIDS information across the curriculum at the JSP?

Sub-Questions

1. What are some geography and mathematics teachers' perspectives on integrating HIV and AIDS information across the curriculum in selected schools in the JSP?
2. What are some geography and mathematics teachers' levels of preparedness to integrate HIV and AIDS information into their respective subjects?
3. What are some teachers' experiences in integrating HIV and AIDS information across the curriculum?
4. What are factors that shape geography and mathematics teachers' experiences in integrating HIV and AIDS education across the curriculum in selected classrooms in the JSP?

1.6 Breakdown of Chapters

Chapter 1 introduced the study by providing a rationale and justification. The chapter also described the context of the study as well as its goal and main research question. The chapter ended with a description of the sub-questions that guided the study.

Chapter 2 presents the literature review. It is divided in two parts with the first part describing the conceptual and theoretical frameworks that orient the study. It briefly introduces the concept of curriculum integration [its definitions and history] in education, as well as the proposed aims and advantages, practices and challenges of curriculum integration. It then describes a theoretical model (Fogarty, 1991) that provides a frame of reference to understand teaching practices associated with curriculum integration in education. The focus in the second part of the chapter is on HIV and AIDS curriculum integration in particular. It highlights some practices related to HIV and AIDS integration in various contexts around the world. This section includes an analysis of research conducted elsewhere in the world that highlights perspectives, experiences and levels of preparedness, related to HIV and AIDS integration. This chapter also reflects on the limitations of this study.

In *Chapter 3,* I discuss the research design of the study. This chapter includes the methodological orientation, sampling strategy and the methods used during the collection of data, as well as the ethical considerations. It also highlights the process of data analysis used in the study.

Chapter 4 includes the presentation of the results of the study. This chapter is divided into two sections. In section 4.1, I contextualize the main study by presenting results from a teacher survey administered to a large group of mathematics and geography teachers in the Oshana district. In Section 4.3, I present the results of the main study, which focused on two schools and four teachers [two mathematics and two geography teachers]. I then introduce the teachers and present the lessons that I have observed. Each teacher's lesson is described with specific focus on the lesson preparation and the ways in which teachers talked about HIV and AIDS during these mathematic and geography lessons.

Chapter 5 provides an analysis and synthesis of the findings in relation to the literature in Chapter 2. Here, I describe and compare the main trends that arise from the findings in relation to the conceptual and theoretical frameworks as well as studies that focused on integrating HIV and AIDS.

Chapter 6 presents the conclusion and recommendations of the study. Here, I conclude the study by highlighting the main trends that emerged. I further offer suggestions and recommendations that might contribute to the effectiveness and successful integration of HIV and AIDS in mathematics and geography.

A list of references and some appendices follow.

CHAPTER 2 CURRICULUM INTEGRATION IN EDUCATION: ISSUES AND DEBATES

2.1 Introduction

In this chapter, I examine literature on curriculum integration within two broad sections, namely curriculum integration in education in general and curriculum integration pertaining to HIV and AIDS.

The first section opens with a discussion on conceptions of curriculum integration in education in general, indicating that curriculum integration has a long history and is supported by arguments that point to range of benefits. This is followed by an examination of a range of models on curriculum integration as espoused by Fogarty (1991). I end this section with a discussion on the challenges of actually implementing curriculum integration in education in general.

In the second part, I examine curriculum integration pertaining specifically to HIV and AIDS. I do this by first examining perspectives on curriculum integration of HIV and AIDS, followed by literature on challenges in integrating HIV and AIDS across the curriculum. What this analysis reveals are some of the unique features and elements that emerge when seeking to integrate HIV and AIDS into subject curricula that profoundly complicate and challenge the process.

2.2 Curriculum Integration in Education

This section includes three parts, namely conceptions of curriculum integration in education, models of integration, and challenges in implementation.

2.2.1 Conceptions of Curriculum Integration

Curriculum integration is not a new phenomenon in education generally. Researchers like Vars (2001: 8) indicate that curriculum integration has been in operation since the 1930's, when philosophical shifts from behaviourist to social constructivist orientations in education advocated a problem-centred approach to the curriculum. These early conceptions viewed curriculum integration not only as a pedagogical approach but also as a way to manage related content. In other words, it was understood as a way of teaching that incorporates

related subject content within a theme or topic. Expanding on this idea (Dressel, 1954, cited in Lake, 2000) defined it as a pedagogical approach to help students construct connections across subjects. To him though, it not only linked subject areas, but also encouraged cooperation amongst learners, and motivated and developed their competencies to perceive new relationships.

Later an expanded view of curriculum integration emerged. Researchers like Goodland and Boyer (1986, cited in Gibbons, 1979) viewed the concept as more than the modification of the curriculum. To them curriculum integration went beyond connecting subject components through a topic or theme-based approach. They considered it as a way of thinking and connecting personal and social life with school knowledge. Also underpinned by social constructivist theories, these researchers advocated a problem-solving rather than only a problem-based pedagogical approach. They called for connections to be made between school knowledge and learners' home experiences, which in their view would allow learners to make sense of relationships between school and real life.

In the 1990's, researchers like Beane (1993, 1995, 1997) and Fogarty (1991) advocated for curriculum integration from the perspective that it develops capabilities essential for life in a modern world. They defined curriculum integration as interdisciplinary and, agreeing with scholars like those above, proposed that it ought to be based on subject matter that focuses on real life problems rather than unique, compartmentalized subject matter. Beane advances that it is not simply an organizational toolthat requires "cosmetic changes/modifications/realignment in lesson plans across various areas/subjects" (1995: 14). Rather, it is a way of thinking about the "objectives of schooling, the sources of curriculum which are problems/concerns (personal and social concerns) posed by life and the use of knowledge" (1995: 14).

Other perspectives include the notion that curriculum integration is an approach that enables learners to think critically and be empowered, and that it ensures that they play an important role in constructing subjective knowledge that will allow them to solve or deal with personal and social challenges (Franzer, 1999; Lake, 2000). These scholars emphasize the instructional or pedagogic value rather than only the technical process of integrating content. They acknowledge the social constructivist origins of the approach, with a key feature being a learner-centred approach to learning, which in their view: (a) prepares and enables learners to

construct knowledge for life-long learning, and (b) deals with real life problems and in so doing bridges the gap between school and home knowledge. Such a curriculum approach, Franzer (1999) and Lake (2000) argue, purposefully integrates knowledge, skills, attitudes, and values within or across subjects to build a deep understanding of main ideas. Central to this is the notion that knowledge construction reflects real life and that by integrating, learners will see the value of what they are learning (Franzer, 1999).

Recent perspectives like those of Van Laren (2007) agree that curriculum integration is an approach to teaching and learning in which teachers can facilitate the search for personal and social meanings amongst learners. However, she adds that it is both a philosophical orientation and a pedagogical approach. Her view is that it has specific practical elements, which include encouraging learners to integrate learning experiences and, in so doing, broaden and deepen their understanding of themselves and the world. Dugan (2009) agrees but advocates for conceptions that not only account for how integration boosts student understanding through teaching across disciplines, but also propose 'natural' rather than contrived connections between such disciplines.

Consistent in most but not all of the perspectives mentioned above is the notion that curriculum integration is both a philosophical orientation and a pedagogical approach. The argument is that it can make links between home and school knowledge, between subjects/disciplines and between the various components in the pedagogical process. In addition, it can develop critical thinking and thereby better equip students to deal with real life problems.

2.2.2 Models of Curriculum Integration

Researchers like Fogarty (1991) point out that teachers use different models and approaches for curriculum integration depending on the school context, policies and resources, as well as learners' needs and challenges. He and others highlight benefits that include efficiency, greater curriculum coverage and bringing together disciplines that share or overlap skills, concepts, values, and attitudes. (Whyter et al, 2000: 4; Goodland & Su, 1992:32). (Tyler 1949, cited in Grant & Paige 2007:3) argues, "[T]he advantage of integration is that children experience comprehensive treatment of a topic and work on different aspects of the central idea." Capra (2000) on the other hand argues that such an approach may offer new ways of seeing the world and new ways of thinking about relationships, connectedness, and context.

Also central to the arguments of these researchers is that an integrated approach potentially introduces interconnections of subjects that might help learners to work in preferred areas of interest and styles, while still encouraging a broader perspective on the subject content.

Several models of curriculum integration have evolved over the past two decades. (Fogarty 1991, cited in Lake 2007: 4) describes ten models of curriculum integration that were helpful for my study of integration of HIV and AIDS in mathematics and science. Each foregrounds a particular understanding of curriculum integration and outlines *what* is integrated. These curriculum models are not discrete but rather represent a continuum in understandings and practices. They begin with simplistic models reflecting low integration and move on to more complex and integrated representations (Lake, 2007: 4). The models were useful to me as both a theoretical and analytical tool to understand teachers' perspectives and concomitant practices. Figure 1 below represents Fogarty's (1991) different models.

Figure 1: Fogarty's Model of Integration

Diagram adapted from Fogarty, 1991

The ten models above may be grouped into three general types of integration; those that foreground integration *within and across themes, topics, and subjects by learners*; those reflecting *integration across subject disciplines;* and then those that emphasize *a single discipline-based form of integration.*

Fogarty (1991) suggests two models that are integrated *'within and across themes, topics, and subjects by learners'*, namely: the '*immersed*' and the '*networked*'. In the *immersed* model, learners integrate by viewing all learning through the perspective of one area of interest. That is, learners themselves make the effort to integrate various components of knowledge. This model places learners at the centre and foregrounds their ability to make connections by enhancing their own learning skills while discovering interlinks between the curriculum and the chosen subject matter. While it promotes independent thinking, this form of integration might narrow learners' focus and may not necessarily encourage critical and analytical thinking beyond the narrow areas of focus.

In the *networked* form of integration, experts (teachers, publishers, curriculum developers) drive the process through careful selection of learner tasks and resources. However, while learners respond within an overall context determined by experts, learners are still situated as the 'integrators' at the centre of the integration process. This form of integration benefits learners in that they become involved in practical activities and by so doing, may develop new insights, skills or concepts. Like the immersed model, this model encourages independence, but the extent to which learners are able to achieve the integration conceptualised by the relevant 'experts', remains unclear.

Five integration models comprise what Fogarty (1991) suggests as forms that work *'across the disciplines'*. These include the *integrated, shared, threaded, sequenced and webbed* models. In the integrated model, priority is on developing skills, concepts, and attitudes across several disciplines. Topics and concepts are coordinated through carefully considering overlapping skills development. Teachers are co-learners and team teaching is encouraged and considered to be an important tool. The integrated model encourages learners to see interconnectedness and interrelations but also distinctions across disciplines. This model requires interdepartmental cooperation with teams engaged in common planning and teaching time; aspects that may be a challenge to teachers. Such a model can also be time consuming.

The *shared model* brings two different disciplines together using overlapping concepts as the organizing principal. It draws attention to common skills, concepts, and attitudes between the two disciplines, brought together by a common set of ideas, topics or content. It promotes shared planning and team teaching. While it has advantages, success rests on teachers' willingness to cooperate, commit time and be flexible.

The *threaded* model is a meta-curricular approach that connects or threads various types of skills (study, social and thinking skills), as well as multiple intelligences and technology together across various disciplines. In this model, teachers incorporate into their teaching approach, practices such as inquiry and self- reflection. Emphasis is on the process as well as the outcome of learning. As a result, students gain knowledge on how and what they are learning. The assumption is that such a model encourages skill and knowledge transfer, while also facilitating future transfer of learning. Implementing such an approach may be challenging given that for the most part, topics and disciplines remain separated in schools.

In the *sequenced* model, topics or units of work are taught independently but are arranged and sequenced to provide a broad framework of related concepts. Teachers can arrange topics and lesson plans sequentially in ways that group similar units of work. However, in the daily event of teaching and learning, decisions on what and when to teach certain topics or content are often predetermined and thus not always in the hands of teachers. Curriculum plans and textbooks often shape decisions teachers are likely to make about what and when to teach, in relation to particular sets of ideas. Not having complete control of what and when to teach within particular aspects of the curriculum may make it difficult for teachers to implement a sequenced model.

A *webbed* model uses a thematic approach to integrate subject matter. Teachers undertake to work collaboratively to connect content in their respective disciplines to a preselected and agreed-upon theme. This model involves collective brainstorming by teachers whereby they determine the topic, concepts and skills to be addressed. The advantage, as proposed by Fogarty (1991), is that it motivates learners and helps them to see connections between ideas and topics. Despite the value learners may derive from such a model of integration, it can be a challenge for teachers who would need to ensure that topics or content are carefully and

thoughtfully selected to be meaningful, relevant and accurate with and across respective subjects.

The third group of curriculum integration models comprises those that integrate *'within a single discipline model'*. These include the *connected, fragmented and nested* models of integration. In the *connected* model, concepts within comparable subjects and conceptions within similar topics across the discipline are connected with each other. Central concepts are associated, leading to the review and assimilation of ideas within a discipline. This means that while the disciplines remain separated, there is emphasis on making explicit connections within each subject area; that is, connecting one topic, one skill, and one concept to the next. It further connects one day's work to the next. The value of this model as Fogarty (1991) sees it is that by relating ideas within the discipline, teachers would help learners to make connections between subject areas, rather than assuming that students would be automatically able to understand and make connections themselves. On the other hand, when disciplines are not related and the content focus remains within the discipline, it can be demanding for teachers to draw lines and compare similar concepts that would need to be integrated.

Fragmented integration is the traditional model in which different disciplines in the curriculum are treated separately and each area is restricted to its own course of study. Relationships between subject areas are kept completely separate. The advantage of this model is that teachers can work individually or as a team. Teachers are also able to contextualize curriculum priorities to ensure effective teaching and learning. The disadvantage is that connections are not clearly drawn- connections, that could enable students to relate subjects or content, or skills, concepts and values. In fact, in this model there is little transfer of learning from one subject to another.

The *nested* model focuses on natural or less contrived groupings of content and skills. It targets multiple dimensions of a lesson as well as paying attention to concepts and skills targeted within a subject. The teacher takes advantage of opportunities available to integrate social, cognitive and content-specific skills and concepts. It gives attention to several areas at once with the view to enriching and enhancing learning. However, the drawback of such a model is that students may be confused and lose sight of the main concepts of the activity or lesson.

What follows below is a brief analysis of the challenges to integration that researchers have highlighted.

2.2.3 Challenges to Curriculum Integration

The benefits of integration notwithstanding, researchers highlight a number of challenges that I have grouped into four broad categories below. These challenges include teacher competency in managing the tension between discipline or subject knowledge and learner needs and skills development; teachers' acceptance of integration; the gap between the theoretical and practical perspectives; and finally the lack of collaboration amongst teachers.

Teacher competency in managing the tension between discipline or subject knowledge and learner needs and skills development

Despite the benefits of curriculum integration, Hopkins (2007:2) makes the point that integration is a challenge, particularly since it may not always be easy for teachers to make connections between domain-specific knowledge (subjects) and critical thinking skills, concepts, and attitudes on the one hand, and learners' needs and the educational contexts on the other hand. Boreham (1999:5) agrees and states that skills do not transfer easily from one context to another, thus posing a challenge when teachers presuppose that they will do so. It would seem that teachers need particular skills and competencies if they are to adopt an integrated approach to the curriculum. It requires skilled teachers who are not only critical of what and how they approach the curriculum, but also how they think about knowledge construction and learning. Teachers would need to be able to analyse content and pay attention to the context and process of learning, while at the same time attending to the particular integrative aspects and a complex web of processes (of integration, teaching and learning).

Teacher Acceptance of Integration

Researchers conclude that the realization of an integrated curriculum to a large extent depends on the level of acceptance by teachers. For example, Kysilka (1998) states that it is important for teachers not to be forced to use integration, but rather that they experience its utility and relevance to their own teaching and learning. They should conclude that such an approach would be important in helping them to do things differently and manage children's needs effectively. He argues that teachers should arrive at this conclusion without being coerced.

Gaps between the Theoretical and Practical Perspectives

Duran, Ballone & Worch (2009) carried out a study in Ohio, United State of America in which they distributed a questionnaire to teachers and interviewed them. The study focused on integrating science, language, and visual arts. The researchers found that teachers often experience difficulty in bridging the gap between theoretical models of integration and classroom implementation. They confirmed that some teachers understand the value and effectiveness of integration, suggesting that it is seen as more authentic because it corresponds with real world experiences and gives more value to knowledge construction.

Lack of Collaboration

In a study by Simanu-Klutz (1997:5) on integrated curriculum, reflecting on life in the Pacific Islands, students claimed that the issue of collaboration in curriculum integration is a challenge and might lead to ineffective implementation if it is not fully considered.

Collaboration includes: collaboration among educators to develop the content of an integrated curriculum; collaboration among teacher-partners to develop the daily learning activities and teaching schedules; collaboration between principals and teachers in developing a flexible schedule for team-teaching; collaboration with parents to obtain their support; collaboration with experts in planning the curriculum and the instructional activities.

Successful implementation, it would seem, must take into account the various levels and phases of integration that might be possible in a school. It is important to keep in mind that curriculum integration is not a goal in itself, but a means towards the creation of integrated thinkers. As Beane (1997: 31) suggests, "[C]urriculum integration requires more than just curriculum change; it requires subject specialist looking beyond established boundaries."

With overloaded curricula, teachers often find it difficult to balance competing demands. Even though integration is advocated as a way to manage an overloaded curriculum, a study by Hopkins (2007) revealed that even when teachers indicated support for an integrated approach, in reality their teaching did not reflect this.

2.3 Integrating HIV and AIDS Education across the Curriculum

As indicated in the introduction to this chapter, in this second part of the discussion I examine perspectives on integrating HIV and AIDS into the curriculum. This discussion also highlights research on the challenges that emerge when seeking to integrate HIV and AIDS into subject curricula.

2.3.1 Perspectives on Integrating HIV and AIDS Education across the Curriculum

Educating young people with basic HIV and AIDS information might enable them to protect themselves from becoming infected. Integrating HIV and AIDS across the curriculum, therefore, is one of the main strategies put forward to educate learners on prevention, treatment and care. Such an approach places teachers as the main mediating tool to effect change. The IBE-UNESCO (2002) report mainstreaming HIV and AIDS; a conceptual framework and implementing principles in Africa, suggests that the role of teachers in integrating HIV and AIDS information is to create prevention-oriented awareness of the disease by generating knowledge, promoting attitude development and change, and ensuring that learners develop social skills that will allow them to be competent and assertive in managing relationships and sexual issues. Education policy makers rely on implementers not only to shape policy, but also to ensure successful implementation. It requires commitment and competence by those tasked to implement.

Since integration goes beyond subject areas to link with real life challenges, HIV and AIDS is one of the current aspects that policymakers propose be integrated across the curriculum to broaden awareness and advocate behaviour change among learners.

A survey carried out by Ndjoze-Ojo & Murangi (2002) in five educational regions in Namibia, examined the impact of school-based HIV and AIDS education in Namibia. They administered questionnaires to 30 schools and 500 students as well as 61 teachers, to explore learner and teacher experiences and perceptions of the effectiveness of the HIV and AIDS programmes in Namibian schools. The teachers reported that it was important to educate learners about the danger of HIV and AIDS. About 70% of the teachers described teaching about HIV and AIDS as so complex and challenging that it deserved a full-time officer at the regional subcommittee level to support and assist teachers to implement integration successfully. In the same vein, about 50% of the teachers suggested that HIV and AIDS information should be taught as a stand-alone subject, or be integrated into the regular school

timetable. Ndjoze-Ojo & Murangi (2002) advocated that teachers should assist learners to understand debates and discussions on HIV and AIDS beyond the formal subject discussion and should be encouraged and helped to address issues related to HIV and AIDS among themselves.

A study by Coombe (2002) reported that HIV and AIDS education was not living up to the demands that the HIV and AIDS crisis imposed. According to Coombe, the current HIV and AIDS prevention programmes were developed with little consultation with the parents, teachers, and learners. Most of the programmes were driven by the Ministries of Education with little, ad hoc and unofficial support from partners in the education sector or other sectors. There had been no effective evaluation of HIV and AIDS education, its implementation and outcomes.

Kelly (2003) reports on the importance and relevance of integrating HIV and AIDS education across the curriculum, proposing that this approach had the potential to combat the culture of silence, decrease stigmatization and discrimination, and promote a change in the behaviours that predispose young people to infection.

A study carried by Duflo et al. (2006) on education and HIV and AIDS prevention in Kenya involved 328 teachers through a questionnaire. This study found that, although many countries incorporated HIV and AIDS education in their school curricula as a measure to limit the spread of the pandemic among youth, there was limited evidence on whether teachers actually taught this information or on its effect on learner knowledge, attitudes, or behavior.

Miedema's (2007: 32) study that reviewed HIV and AIDS teaching practices in 14 Southern African countries found that there was little consistency in the way teachers approached and implemented HIV integration across the curriculum. She found that although Southern African countries may use different terms to describe a particular approach, HIV and AIDS education is usually integrated using one of five approaches. She identified the most common approach as one in which HIV and AIDS is taught as a stand-alone subject. Second, was an approach in which HIV and AIDS is integrated into a main carrier subject, with the third an approach that integrates HIV and AIDS into a limited number of subjects. The fourth approach was one in which HIV and AIDS information was infused across a broad range of

subjects. The final approach identified by Miedema (2007) was one whereby HIV and AIDS information was viewed as an extra-curricular topic that is managed outside the school curriculum. This often took the form of HIV and AIDS integration in peer education programmes.

Khau & Pithouse (2008) carried out a study at the University of KwaZulu-Natal, South Africa, titled "Studying ourselves as scholar-teachers in the age of HIV and AIDS in Southern Africa", which explored the nature and value of HIV and AIDS learning. They designed a graduate course in which educators participated and shared their experiences. This process provided the research data. They concluded that in Southern Africa, high levels of HIV and AIDS have brought about an expectation that all teachers integrate HIV and AIDS-related topics into their subject areas; and found that such integration was supported by teacher education at both the pre-and in-service levels. However, this expectation is not realized in many countries, especially those in sub-Saharan Africa with high HIV prevalence.

A study by Clarke (2008) that focused on teachers and the education response to HIV and AIDS was conducted via questionnaire, classroom observations and interviews. It found that when HIV and AIDS education was integrated across the curriculum many teachers were involved, even those not normally involved in teaching HIV education. However, HIV and AIDS information was not visible among the content of the subjects. Clarke further argued that in most subjects observed, teachers retained a substantial information bias in HIV and AIDS content and methods applied, and the logic of HIV prevention was lost. He also reported that some teachers did not see the relevance of the HIV and AIDS content to their subject, thus they could not make connections between their subjects and HIV and AIDS. Some, he found, did not attempt to integrate the content at all.

A study by Mukoma et al. (2009) investigated confidence and comfort levels in teaching on HIV and AIDS and sexuality amongst teachers in Tanzanian and South African urban and rural schools. A survey was conducted among South African Grade 8 and 9 Life Orientation teachers and Grade 5 to 7 Science teachers in public primary schools in Tanzania. The results show that although teachers taught learners about prevention of HIV and AIDS, integration remained a challenge because little is known of the implementation process and the complex social context in which HIV and AIDS interventions occur, nor of their influences on outcomes.

This study seeks to contribute to this complex HIV and AIDS prevention and intervention field since it focuses not only on teacher perspectives and levels of preparedness like many of the foregoing studies, but also on classroom practice. It seeks to contribute to work in the HIV and AIDS education field that questions (a) the role of schools as primary sites for disseminating HIV- related information, (b) simplistic understandings about the role of teachers as mediators of sensitive information not usually discussed in a public space like the classroom (Baxen & Breidlid, 2004; Baxen, 2010).

2.3.2 Challenges to Integrating HIV and AIDS Education

Researchers have identified a number of aspects that impinge on teachers successfully integrating HIV and AIDS information across the curriculum. Chief of these challenges are: lack of training in integrating HIV and AIDS education; social, cultural and personal identity issues around this expectation, and also curriculum and policy issues.

Lack of Training

Lack of training for teachers in integrating HIV and AIDS into the classroom curriculum was identified as one of the main challenges. The report by IBE-UNESCO (2004:22) on HIV and AIDS prevention in school settings in Sub-Saharan Africa reported that, although teachers were expected to teach about HIV and AIDS, there was a lack of HIV and AIDS integration training. Some teachers were not adequately trained to apply the necessary interactive pedagogical methods, or had inadequate teaching resources for integrating the HIV and AIDS focus.

Winkler & Bodenstein (2005) reviewed UNESCO reports on studies carried out amongst teachers in India and sub-Saharan Africa. While they agree that teacher training is fundamental to the successful delivery of AIDS education in schools, the review showed that efforts to train teachers were often inadequate, if in place at all. They found that teachers in Malawi reported that they had not obtained any training while teachers in Kenya opted out of teaching about HIV and AIDS due to inadequate training. They suggest that teachers require specialized training for them to become comfortable with the issues and guard against letting their personal values conflict with the health needs of the learners.

Campbell (2006) conducted a study that focused on HIV and AIDS integration into the teacher training curriculum in Namibia. Twenty- four teachers gave their perspectives on integration through a questionnaire. She found that 70% of the teachers who participated in the study recognized the cross-curricular nature of HIV and AIDS education but reported on lack of training in integrating it. Some teachers expressed the need to develop their own skills through proper training that would enable them to integrate HIV and AIDS into their respective subjects.

Dufloet al, (2006) found that in Kenya, the government could not extend implementation of the teacher training program on HIV and AIDS education to many teachers due to insufficient trainers, lack of training resources and funds. However, they found that teachers who were trained integrated HIV and AIDS frequently and successfully. On the other hand, teachers who were not trained had difficulties; some felt incompetent and unprepared to teach about HIV and AIDS, and some did not attempt to integrate it. Miedema (2007) found that many teachers were trained to be subject specialists; many of these teachers regarded their subject teaching as their primary responsibility and thus did not feel competent or compelled to teach HIV and AIDS information.

The Khau & Pithouse (2008) study recommends, moreover, that teacher education should take more account of the fundamental mediating role that teachers' experience, levels of preparedness and perspectives play in the uptake of policy more generally, and in curriculum integration specifically.

Social, Cultural and Personal Identity Issues

Social, cultural and personal factors have emerged as major obstacles and challenges to the goal of getting teachers to integrate HIV and AIDS as part of the curriculum. In this section, I discuss literature that highlights social, cultural and personal issues that inhibit teachers from openly discussing HIV and AIDS and successfully integrating HIV information into the curriculum. These issues include: the culture of silence; other cultural and religious issues: and a lack of appropriate terminology for communicating about HIV and AIDS.

The Culture of Silence

Silence pertaining to HIV and AIDS in the community has major implications for how teachers consider what to do in the classroom. For example, a study by Kelly (2003) notes

that one of the complicating factors in teaching learners about HIV and AIDS is the prevailing view in most societies that sex is a taboo topic not to be discussed in a public space such as the classroom. He further indicates that although teachers are usually aware of the knowledge and information gap that exists between home and school, they are often unable to make provision for it. Baxen & Breidlid (2004) similarly point out that the prospect of speaking openly about sensitive issues related to sex and HIV and AIDS education falls outside the 'comfort zone' of many teachers, thus creating a challenge for teachers.

A study by Visser (2004) in Mozambique in which 606 teachers took part through a questionnaire, focused on problems teachers experience in integrating HIV and AIDS. This study confirmed that some teachers did not talk about HIV and AIDS during lessons because they were conscious of parents' and religious leaders' views that were opposed to them speaking about the topic. Teachers reported that parents and religious leaders did not consider them to be qualified to speak about the topic and that parents similarly laid blame on teachers for scaring children, abusing their innocence and harming them by presenting HIV-related information that included, *inter alia*, information on sex and condoms and discourses they reported to be taboo in the community. Visser (2004) found that only one of every three teachers in the study reported to actually broaching the subject during class. His study revealed that a number of teachers reported wanting to talk about HIV and AIDS but found it difficult to integrate, since it was not their culture to talk about sex to children. Some teachers reported that they lacked clear examples and felt frustrated with repeating the same message repeatedly.

The result above is supported by Griffiths' (2005) study which analysed the HIV and AIDS intervention programmes for youth in Africa. The study aimed to examine the process of educating youth in Africa about HIV and AIDS. Three members from different HIV and AIDS organizations were interviewed together with six teachers, and three examination officials. The curriculum and other HIV and AIDS policies were also analysed. The results indicate that teachers were faced with a culture of silence surrounding the disease and felt a lack of enthusiasm to discuss both sex and HIV and AIDS within school. Their reluctance emanated from community perspectives on the subject that do not support schools teaching about HIV-related information.

A manual for integrating HIV and AIDS in school curricula was developed by IBE-UNESCO (2006) through an evaluation and analysis of HIV and AIDS programmes and policies, and discussions with experts as well as teachers, to help curriculum developers and implementers to address the shortcomings in existing programmes more effectively. It highlighted that, teaching of HIV and AIDS is often selective due to the silence and complexity around issues about the pandemic. In most cases, HIV and AIDS education did not address sexual and reproductive development or health, sexual relationships, negative or conflicting messages on condoms and practicing of safer sex. They further found that HIV and AIDS education does not adequately challenge stigma and discrimination surrounding HIV and AIDS, which in turn strengthens the silence surrounding HIV and AIDS. Consequently, education on HIV and AIDS often remains too knowledge-based. Little attention is paid to the development of learners' abilities to deal with daily problems.

In the same vein, Lichtenstein's (2010) study on sensitive issues in the class room, (carried out in America Deep South University with 100 student teachers and a local HIV and AIDS organization, and using a questionnaire and group discussions), highlighted related challenges that teachers might face in integrating HIV and AIDS across the curriculum. Lichtenstein points out that parents, family, peers, school, religion and media influence the messages about HIV and AIDS and sexuality; that these messages can often be conflicting, incomplete, and inaccurate; and that at times might not resemble the information given at school. Consequently, teachers might find it difficult to discuss issues around HIV and AIDS, especially if they have not received any training and support. While it is acknowledged that tradition is often subsumed by modern practices and vice-versa, tension can exist where communities are still very traditional and youth are influenced by both tradition and modernity. This increases the challenge of navigating a way through social and cultural practices that are fluid and sometimes contradictory.

Cultural and Religious Values

A study by Cherian (2004) on identifying problems in HIV and AIDS education in South Africa, in which a group of 16 university students were interviewed, concluded that there were diverse cultural and religious belief systems about the pandemic among African people.. The study also asserts that there is a dominant socio-religious discourse shared by Africans that may work against health promotion and could influence learners to ignore the HIV and AIDS education given in schools. At the same time, it might influence the types of

information that teachers deliver to learners. Breidlid (2002) agrees that tension might exist between 'western intervention strategies' and those in communities that are still very traditional. Influenced by both tradition and modernity, youth might receive conflicting messages which increase the difficulty of finding their way and making decisions in a complex and changing social and cultural context.

Winkler & Bodenstein (2005) agree on the relevance of taking into account the school context, cultures, and religion in any HIV and AIDS intervention; such interventions should be implemented in a way that does not conflict with the values of the learners.

Hopkins (2007) suggests that to deal with challenges of integration, teachers need to have a general understanding of the subject and of the aspects to be integrated so as to make thoughtful decisions about what to integrate at particular points in particular topics or lessons. They should also be sensitive to the level of the learners and able to give reasons for the decisions they make regarding the content and process. Hopkins (2007: 5) states, "[T]eachers cannot teach what they do not know. It is essential for teachers to have a sound understanding of the subject they teach, so that they present information that is current and accurate."

Lack of Appropriate Terminology, Sex, and Teacher Behaviour

Studies by Visser (2004); Miedema (2007); and Campbell (2006) highlight that teachers not only report lack of the 'right' terminology to communicate HIV and AIDS knowledge but also difficulty in discussing sex-related matters with children. They did not have clear examples to elaborate to learners, felt frustrated with repeating the same message, and thus opted to focus on their subject content only.

Certain behaviours by colleagues (e.g. male teachers having sexual relations with learners), they reported, constrained teachers' ability to be frank about issues pertaining to sex, sexuality, and HIV and AIDS; thus making it difficult to integrate HIV and AIDS related information in their subject. Several teachers reported being uncertain of whether information on HIV and AIDS would in fact influence learner behaviour.

Campbell (2006) further reports that HIV and AIDS information was not integrated within the subject content, thus teachers found it difficult to make links between the subject and HIV and AIDS content to be taught.

Curriculum and Policy Issues

Various studies highlight gaps and tensions in the curriculum and other HIV and AIDS policies. Coombe (2002) states that, in sub-Saharan Africa, the current HIV and AIDS education strategic policies focus on curriculum interventions aimed at behaviour change, but there is no evidence of workplace policies in schools on how this should be implemented. She further notes a lack of clear guidelines in the curriculum and other policies on HIV and AIDS education, thus, some teachers report that they lack understanding or awareness of the content of the HIV and AIDS education policy. She makes the point that ministries of education in high prevalence countries fail consistently in their planning and policy formulations to address the issue of how HIV and AIDS education should be practiced in order to achieve and sustain quality outcomes.

The IBE-UNESCO (2003) report on HIV and AIDS, teacher shortage, and curriculum renewal in the Southern Africa region, which targeted heads of national curriculum units, teacher educatorsand ministries of education, found that ministries of education had started to acknowledge their responsibility to address HIV and AIDS issues; however, they still needed to take leadership in developing and implementing comprehensive responses and policies. The report noted that HIV and AIDS curriculum policies did not provide adequate information on the integration process. Several of the participating countries were still developing policies and curricula, a process that was characterized as incremental, fragmentary and ad hoc. According to the report, the following were lacking: clear guidelines on how ministries of education should best respond to the impact of HIV and AIDS; guidance on policy options for governments regarding education and HIV and AIDS; and accessible and comprehensive international guidelines on HIV and AIDS curriculum development.

Overcrowded Curriculum

Miedema (2007) and Duflo et al. (2006) found that HIV and AIDS integration had been added to an already overcrowded curriculum with no stipulation on how it was to be managed, taught or assessed and with no specific time set aside on the timetable for HIV and AIDS education. Miedema (2007) further suggests that when the curriculum is overcrowded, teachers will also be less inclined or able to take the time to facilitate active learning activities on HIV and AIDS. The subject/component may be skipped altogether if there is no specific time allocation and if it is not made examinable.

The IBE-UNESCO (2004) study on quality analysis of curricular and related materials on education for HIV and AIDS, which intended to provide information on how ministries of education and schools address HIV and AIDS education through the curriculum, found that subject areas which included HIV and AIDS education were often mandatory and examinable subjects, but no provision was made to ensure that HIV and AIDS education was taught and that learning outcomes were examined meaningfully. No time was specifically allocated to it, or much too little time.

At the same time it was found that teachers concentrated on the subjects' outcomes rather than integrating HIV and AIDS. Assessment of learning outcomes is thus also a critical element. Some schools tended to focus on the examination and given that HIV and AIDS is not a separate examinable subject, it did not receive as much attention.

Lack of Support for Teachers

Coombe (2002) stated that many teachers work in conditions with little or no support concerning HIV and AIDS education. She found that teachers in high prevalence settings in particular were expected to teach about HIV and AIDS but were neither trained nor provided with the learning support materials, and had little support from colleagues and the community. Coombe (2002) proposes that it is important to support teachers since some may be HIV positive themselves and may be ignorant about the effect of the HI-Virus on their health and well-being. They might be required to reach out to learners with compassion, advice and counseling, yet they too need such support.

A study by Visser (2004) found that lack of support by colleagues and management of schools constrained the efforts of some teachers to integrate HIV and AIDS. Some teachers said that their personal efforts to feel completely comfortable talking about all aspects related to HIV and AIDS were hampered by lack of support from colleagues and management. Thus lack of support from colleagues, community, and school directors were key aspects affecting teachers' ability and willingness to talk about or integrate HIV and AIDS.

The above challenges and weaknesses mean that too often HIV and AIDS information might not be taught in a meaningful and relevant manner. Some crucial issues might easily be

skipped. Overall, these challenges might result in HIV and AIDS education that lacks coherence and comprehensiveness.

2.4 Chapter Summary

Adopting an integrated curriculum in general usually means a great deal of change, mostly for teachers, since the burden of change falls heavily on teachers. Consequently, teachers report challenges such as: lack of teacher competencies in integrating; lack of teacher willingness to integrate; the gap between the theoretical and practical perspectives; and finally the lack of collaboration amongst teachers when implementing curriculum integration in schools.

Teachers report additional and different challenges in integrating HIV and AIDS. The sensitive nature of HIV and AIDS positions teachers in a complex situation, where teachers' social, cultural and personal identities come into play and might influence their classroom practices, including decisions on the type of HIV information to present.

Teachers also have to consider perspectives that they do not normally have to consider in teaching other subjects, such as the values and attitudes of parents, community, colleagues and learners. These values might influence their decision-making on how and when to present curriculum components dealing with HIV and AIDS, and also which HIV and AIDS components to present.

Lack of teacher training, lack of knowledge and teacher competency on how to integrate HIV and AIDS into their subject and classroom is yet another set of challenges. In addition, teachers are constrained by a lack of direction from school policies on HIV and AIDS education that could provide some guidance.

The challenges posed by curriculum integration hamper the effectiveness of HIV education in schools, contrary to the policy expectation that schools can and should play an integral role in disseminating HIV knowledge. HIV and AIDS education is often poorly managed in practice, regardless of calls by Ministries of Education in many countries. When HIV and AIDS is integrated in an examinable subject, only a few knowledge oriented questions actually relate to it. No assessment methods and tools targeting HIV and AIDS information have yet been

developed and made available in many countries. As a result, HIV and AIDS learning outcomes are rarely assessed.

Given the above, support for teachers seems paramount to meet the challenge of integrating HIV and AIDS across the curriculum, with Namibia being no exception as I show later in this study.

CHAPTER 3 RESEARCH DESIGN

3.1 Introduction

This study aimed to investigate teachers' perspectives and experiences, as well as factors that shape curriculum integration in some schools in Namibia. I explored the phenomenon by examining how integration is perceived and practiced through teachers' actions (practices), words and records since the topic is deeply embedded in teachers' personal meanings (perspectives and experiences).

Below I describe the research design decisions I made to reach my goal. I outline the research orientation and follow this with the site and sample descriptions. I thereafter describe the methods used to gather data, the data analysis process, and the ethical aspects that needed to be considered in a study of this nature. I end this chapter by describing the significance and limitations of the study.

3.2 Methodology

This research was qualitative in orientation. Qualitative research is an inquiry process directed towards understanding a social/human problem, based on building a complex picture formed with words, reporting detailed views of informants and conducted in a natural setting (Creswell, 2002). Qualitative research seeks to understand a given research problem from the perspective of the local population it involves. It calls for provision of "complex textual descriptions of the phenomenon" (Babbie & Mouton 2001: 275). In other words, qualitative research allows for rich descriptions on how people experience a given research issue and provides information about the human side of an issue; behaviours, beliefs, opinions and relationships of individuals. Qualitative research, therefore, enables researchers to investigate the social world in terms of the meanings people derive.

Specifically, an interpretive approach framed the study. Angen (2002) defines interpretive research as an approach that assumes knowledge to be inter-subjective and constructed through meanings and understandings developed socially and experientially. Interpretive approaches provide deep insight into the complex world of lived experience from the position of those who live it (Schwandt, 2004). The approach also assumes that through actions and interaction, humans construct social reality (Guba & Lincoln, 1994). Such an orientation was appropriate for this study given that it aimed to gain insight into the lived experiences and

expressions of those experiencing the phenomenon. It allowed the researcher to develop thick descriptions by employing multiple methods, as I show later on.

Within this paradigm, a case study of two schools and involving four teachers [two geography and two mathematics teachers] was used to enable me to investigate the empirical phenomenon [the integration of HIV and AIDS in mathematics and geography at the two schools] within its natural, real life context. A case study is an empirical inquiry that investigates a contemporary phenomenon within a real life context (Yin, 2003:13). Case studies may be used to address descriptive and explanatory research questions (Yin, 1994 cited in Johnson, 2008:49). In qualitative interpretive case study research, the researcher is directly involved in the process of data collection and analysis in order to study the case analytically and holistically, using different methods (Myers, 1999).

For this case study [two schools], the investigation of the teachers' perspectives and experiences in relation to HIV and AIDS curriculum integration was the phenomenon studied. In-depth and sufficient data was gathered about HIV and AIDS integration, in order to examine and understand teachers' perspectives and experiences on HIV integration, as well as gaining insight into factors that shape perspectives and experiences in school settings.

3.3 Research Site

Choosing an appropriate site was just the first in a number of steps in the research process. Gaining access at the level of the district, school and classroom, was another crucial step. The schools where the research was carried out are found in the Oshana Region in northern Namibia. They comprise diverse geographical locations, learner populations, and social contexts. The choice of schools was influenced in part by my residing and teaching in one of the areas in the region, which made it convenient and easy to gain access. HIV prevalence is also higher in the northern regions relative to other parts of Namibia, making it important to obtain perspectives on how local schools position themselves as disseminators of HIV and AIDS information through integration across the curriculum.

Given that the study was in two phases, different approaches were adopted in the sampling of schools. First, all junior secondary schools in the region were targeted for the completion of a teacher survey (mathematics and geography teachers only) on perspectives on HIV integration across the curriculum. Results from an analysis of these survey data were used to

purposively select two schools for the main (second) phase of the research. The main study included classroom observations, interviews, and document analysis of key and appropriate material. Criteria for selecting schools for this component of the study took into consideration interesting and divergent perspectives and willingness by mathematics and geography teachers to participate.

3.4 The Sample

Case study selection and sampling are among the most crucial considerations in case study research as espoused by Gillham (2000: 114). Sampling took two forms. First, I used convenience sampling. Castillo (2009) defines that convenience sampling is a non-probability sampling technique, by which the researcher gathers statistical data from the selected population because of their accessibility and proximity. Essentially, individuals who are the most ready, willing, and able to participate in the study are the ones who are selected to participate. Convenience sampling was used to gain insight into perspectives on integration from all geography and mathematics teachers in junior secondary schools in Oshana Region, as a way to understand and situate the phenomenon in its particular context. To this end, all 50 schools were targeted to complete a questionnaire, with two sent to each school to be completed by a geography and mathematics teacher respectively. I worked in conjunction with the regional education circuit office to distribute the questionnaire early in February 2012.

Two schools were purposively selected for the main component of the research, with a mathematics and geography teacher from each. The final section in the initial questionnaire included a request from teachers to indicate their willingness to participate in the main study. Teachers from eight schools volunteered. Because I was a part-time student and had limited time off to do the fieldwork, I had to consider access and proximity to my home as additional criteria for selection of the two schools. Distances in the region range from 15-50 kilometres between schools. Therefore, the final decision was to use schools within a 20-kilometre radius where teachers were willing to participate and had displayed interest in the topic. I also considered the ease with which access was granted by the regional director and principal.

3.5 Methods of Data Collection

The use of multiple methods of data collection was essential in this study, given the questions to which the study responds. Yin (2003: 87) indicates, “[U]sing multiple sources of data

allow researchers to collaborate and augment evidence from other sources. This enables the researcher to formulate the data more consistently and convincingly, by comparing and analyzing data from different sources." Data gathering enabled me to be directly involved in examining the phenomenon, investigating and understanding teachers' perceptions and experiences as well as the consequences. The study used a questionnaire in the first phase, and observation, interviews, document analysis and field-notes in the second phase.

Phase 1: Junior Secondary Teacher Survey

This phase targeted all Junior Secondary geography and mathematics teachers in the Oshana Region through the administration of a survey. A survey is a list of research questions asked to respondents, and designed to extract specific information. It serves four basic purposes: to 1) collect the appropriate data, 2) make data comparable and amenable to analysis, 3) minimize bias in formulating and asking question, and 4) to make questions engaging and diverse (Patton, 2002: 14). Surveys are useful for reaching large numbers of people in an economical way and are effective tools for gathering basic profiling data (Duff, 2002).

A survey was conducted to gain perspectives on curriculum integration from all geography and mathematics Junior Secondary School teachers in the Oshana region (See appendix B). The total of 100 questionnaires [50 for geography and 50 for mathematic teachers] were sent to 50 schools, through the educational circuit offices. The questionnaires were sent early in February and collected in early March 2012. While 100 questionnaires were expected, only 53 were returned. I made phone calls to follow up on some of the unreturned questionnaires, with no success. The final number, therefore, included responses from 27 mathematics and 26 geography teachers. While the ideal would have been 100% returns, the final number of 53 was deemed adequate since these data did not compromise the main study, and were used (a) descriptively, and (b) to augment results obtained through interviews and observations from a select and smaller group of geography and mathematics teachers.

The results were also used to assist in purposefully selecting the two schools in the region for the main component of the research.

Phase 2: Main Study

This phase included classroom observations, semi-structured interviews, and document analysis of lesson plans and teacher's schemes of work.

Observations

Observations formed an important data gathering strategy in the main component of the study. Kumar (1999) argues that observations are used to collect primary data, while Richards (2003) stressed that observations involve far more than just the mechanical process of zeroing in on observable behaviours. Thus, this study includes systematic, focused observation of case participants in their natural contexts. Observations were appropriate since they gave me direct access to the teachers' actions, words, and social interactions on HIV and AIDS integration during lessons. Richards (2003) defined observation as the technique of obtaining data through direct contact with a person or group of people. There are different types of observation, such as passive observation, whereby an observer simply gathers documents and observes people without doing anything to disturb the situation. In participant observation, the researcher participates in the activities of the persons being observed rather than being an observer. In active observation, the researcher could take a middle position of being an active observer; although participation is allowed it is limited (Patton, 2002). I used passive observation, whereby I observed without interrupting the lesson or anything that took place in the classroom.

The teachers were supportive and provided me with their timetables so that I could plan the fieldwork. I observed three lessons per teacher over a period of a week each time. With permission, I video-recorded all lessons. I also recorded my data using descriptive records. Simpson & Tuson (2003:45) suggest that descriptive recording offers descriptions of classroom events that are considerably less specified in terms of what is selected for attention than those of formally structured records. The observation and video record of lessons by each teacher allowed for a more comprehensive picture of their experiences in integrating HIV across the curriculum. After observation, I transcribed the video records. I also used observational data to inform my probing of teachers during the interviews. Thus, observations enriched the data that I gathered from the interviews.

Interviews

In qualitative case studies, observation is not usually the only data collection technique; it is combined with interviews (Duff, 2002). Interviewing is a technique of gathering data from humans by asking questions and getting people to react verbally (Dowling & Brown (2010:10). Interviews are either structured or semi-structured. Structured interviews are

widely used in surveying opinions, beliefs and perceptions. Semi-structured interviews consist of a list of open-ended questions based on the topic areas the researcher intends to study. The open-ended nature of the questions provides opportunities for both the interviewer and interviewee to discuss certain topics in more detail (Duff, 2002).

Interviews help to explore and probe participants' responses and gather more in-depth data about their experiences and perspectives of the phenomenon. Dowling and Brown (2010:10) state that interviews enable the researcher to explore complex issues in detail; they facilitate personal engagement by researchers in the collection of data and allow them to ask for clarification.

I conducted a semi-structured interview with the four teachers, which allowed me to ask open-ended and follow-up questions. I interviewed the individual teachers after observation; I interviewed each teacher three times. Interview questions drew on the observational data; I used questions to probe certain actions or practices observed. The interviews took place at school in each participant's choice of venue (in the library, teachers' classrooms or under a tree). The interviews did not obstruct lessons since they were carried out during the teacher's free periods, break time or after school. Mostly, an interview took about 30 minutes. All interviews were tape-recorded. During interviews, I also used field notes to write down key words that I elaborated after the interview. I transcribed the tape record immediately after the interviews.[4]

Research Journal

A research journal helps the researcher to remember important details later on and it becomes part of the analysis and interpretation process itself as researchers start to mull over new data and themes (Kouritzen, 1999; Rowlands, 2005).

I kept a research journal during the fieldwork. It included field notes of the observations, where I took note of impressions, questions, and emerging themes. I also recorded key words in my journal during the interviews. This helped me to take account of the research activities and generate reflections on a daily basis.

[4] See appendix C for interview schedules

3.6 Verification and Reliability of Data

An important principle in qualitative research is that both participants and researcher's perspectives of phenomena should be incorporated in order to provide triangulation of data as a way to increase the internal validity of the study (Gillham, 2000:143). Triangulation is the process of strengthening the findings obtained from a qualitative inquiry by cross-checking information. Patton (2001) advocates the use of triangulation for verification and reliability of data. This helps in analysing results and judging the quality of the study. Triangulation was used in order to control bias and establish valid propositions. It was further used to bring together different sources of information that converged towards one interpretation. With the convergence of information from different sources (observation, interviews and survey), I had a powerful argument for the credibility of the interpretation.

3.7 Data Analysis Process

Interpretive research involves data analysis processes that are primarily inductive. Data are organized into categories where the researcher identifies relationships within and among categories. As Rowlands (2005) proposes, data analysis is a process in which the researcher develops a structure to make meaning of collected data. Primary data processing and analysis involve transcribing interviews, typing up field notes and compiling observation sheets, sorting and arranging the data into different types depending on the sources of information (Creswell, 2002).

Data analysis was an on-going process from the commencement of data collection. It involved organizing and preparing data for analysis to produce rich descriptions of the phenomenon studied.

Document content analysis was already underway before the actual fieldwork. Content analysis is used to identify, code, and categorize patterns in raw data and thereafter develop themes (Babbie & Mouton, 2001). This process was on-going, given the nature of the study. I developed a template that provided structure for the document analysis.

Cohen, Manion & Morrison (2005) point out that analysis of interview data involves coding or sorting data into manageable patterns, trends and relationships. Interview recordings were transcribed and typed. I re-read each transcription for accuracy. Teachers were provided with

a copy of the interview as a form of member checking. Interview data were prepared for analysis by coding to identify similarities and differences and develop categories.

I processed the observation data similarly to the interview data. I used colour coding for similar ideas in order to further identify and describe the categories.

3.8 Ethical Considerations

As a researcher, I demonstrated professionalism at all times. I first sought written permission from the Oshana Regional Education Directorate to conduct the research[5]. The relevant letter highlighted the goals, objectives and potential benefits of the study, the process to be followed and how much time was required, as well as the participants of the study. It further indicated how privacy, justice, respect for participants and confidentiality would be ensured.

When permission had been granted at the regional level, letters were sent to targeted schools in advance, in which the participants were informed fully on the goals, methods, intended use of the research and what their participation in the research would involve. Once permission was granted and teachers agreed, I followed up with telephone calls to confirm my schedule and dates for observation and interviews.

Participation was voluntary. Participants were told that they might withdraw at any time during the research. Confidentiality of information supplied by participants as well as the anonymity of respondents was upheld and respected. The data gathering such as observations, interviews, and document analysis did not interfere with normal teaching activities. Some of the information on HIV and AIDS is sensitive. Care was taken to ensure that data were stored safely and that they would be used for the purposes of this research only.

3.9 Limitations of the Study

The study was limited to the northern region of Namibia where high HIV infection rates are experienced relative to the rest of the country. It is a case study limited to understanding teachers' experiences of integrating HIV and AIDS across the curriculum in two subjects only. It also involved 53 of a possible 100 teachers in the first phase and only two schools and four teachers in the main component of the study. For this reason, the results are not

[5] See appendix D for the letters to the director, as well as letters to the geography and mathematic teachers

generalized to the region or the country. However, the patterns that emerged are important and may have consequences for teachers' work and its articulation with disseminating HIV knowledge in schools.

The study focused primarily on teachers and did not include learner perspectives and experiences. This is a limitation given that learners are the recipients and consumers of the HIV information imparted during the curriculum integration process. There were no perspectives from other teachers especially at the school, thus it cannot be generalized to other subjects areas or other schools.

HIV and AIDS is a sensitive topic; some people regard it as taboo and thus some teachers were not comfortable talking about its integration within their respective subjects. This might have implication: might not get the information, may have got teachers performing their practicing. To add to that I did not stay in the field long; I collected data for a period of two weeks only.

My role as a researcher needed to be negotiated with care since I am familiar with many teachers in the region; a position that may compromise the findings.

3.10 Significance of the Study

Despite the limitations of the study, the information gathered can be related to the way in which teachers integrate HIV and AIDS across the curricula. The study can be used to inform policy makers and the ministry of education in reviewing the current policies, developing guidelines for provision of HIV and AIDS education, and supporting teachers in implementing the HIV and AIDS integration process successfully. The study can help to inform the ministry with regard to training, assisting and motivating teachers with appropriate resources, and also with monitoring their progress in integrating HIV and AIDS within their respective subjects. The study can also help teachers to reflect on their HIV and AIDS integration practices and how their social, cultural and personal beliefs might influence the successful implementation of HIV and AIDS integration. Parents, religious leaders and other community members can also be advised to support teachers at all times.

In the long run, this study might contribute to the successful implementation of HIV and AIDS education in all schools in Namibia, and in turn contribute to the eradication of HIV and AIDS infection in Namibia.

CHAPTER 4 PRESENTATION OF RESULTS

4.1 Introduction

The data are presented in two sections. Section 4.2 presents the results of the main study. I start this section by introducing the four teachers who participated in the main study. I follow this with results from data gathered through observations and interviews in the two participating schools. I begin by presenting each of three lessons I observed for each teacher. Thereafter, I describe the planning of the lesson, the integration of HIV and AIDS content, the pedagogical strategy as well as the way teachers talked about HIV and AIDS. I link the lesson to Forgarty's models of integration discussed in Chapter 2. Finally, I include each teacher's comments on the challenges they experience with integrating HIV and AIDS into their respective subjects.

To contextualize the main study within a broader landscape of teacher perspectives and experiences, in section 4.3 I present results from a teacher survey administered to a select group of mathematics and geography teachers in the Oshana district. This survey provided insight into the perspectives and self-reported experiences of a larger population of teachers in relation to integrating HIV and AIDS information into the curriculum. It also includes their comments on their initial training, professional development, and preparedness to integrate HIV-information into their respective subjects. While not the main component of the study, the results from this section provide a backdrop for understanding the pervasiveness of the issues highlighted in the four cases that form part of the main study.

4.2 Main Results: A Case Study of Four Teachers

This section comprises the results of a case study of four teachers. Data were gathered from classroom observations, post observation interviews and focus group interviews with the four teachers, as well as analysis of the lesson plans. I begin with the teachers' profiles, the lessons transcriptions and an analysis of each lesson.

4.2.1 Teacher Profiles

Mary: Geography Teacher at Wisdom Junior Secondary School
Mary is a 40-year-old teacher. She has been teaching social studies at upper primary phase [Grades 5, 6 and 7]

for 15 years. She majored in Social Science (Grades 5-10) at the ODH College of Education, where she obtained the basic diploma in teaching (BETD). Social Science includes geography and history. There was a need at school for a geography teacher, and since she was qualified to teach geography, she became the geography teacher and has been teaching geography, which she enjoys, for 10 years now. Mary still teaches social studies in Grade 7. Apart from her teaching, Mary is a Christian and has a teenage daughter. Mary indicated that she had not received any training on HIV and AIDS integration. She became aware about HIV and AIDS integration from a colleague who attended a Life Skills workshop. She further indicated that in 2007 she had attended a two-day workshop focused on the reformed curriculum. However, HIV and AIDS integration was not discussed at all. Mary stressed that issues about HIV and AIDS should be dealt with by educating learners because they are beginning relationships and are potentially at risk of infection. Consequently, she sometimes integrates HIV and AIDS in geography in order to market learners aware of the need to take preventive measures.

Based on her Christian religious beliefs, Mary says that she cautions learners to abstain from sex so that they will not be infected with the HI-virus. Mary stated in one of her interviews that her main goal in teaching about HIV and AIDS is for behaviour change that will lead to a decrease in HIV infection. She also wants learners to continue with their education and have bright futures. She indicated that some learners might not change their behaviour or abstain because they are not Christians or because they are influenced by their peers or cultural traditions. She expressed confidence that some learners will take care of themselves and avoid being infected.

I observed three lessons by this teacher. The first I observed on the 20 February 2012. Mary taught map work with specific reference to direction and bearings. The second lesson on 22 February 2012 and the third lesson on 24 February 2012 both focused on climatology.

As I show later on in the observation data, Mary cautioned learners to protect themselves and stay away from sexual relationships in all three lessons.

Paul: Geography Teacher at Immanuel Junior Secondary School

Paul is a geography teacher at Immanuel JSS. He is 37 years old and has been a teacher for 14 years. He began his teaching career as a history teacher. Eleven years ago, he was given the responsibility to teach both history and geography to the Grade 9's and 10s. Like Mary, he specialized in Social Sciences at the college where he obtained the Basic Teaching Diploma (BETD). He furthered his education at the University of Namibia on a part-time basis, where he obtained a degree in geography, which he says he enjoys teaching.

Like Mary, Paul indicated that he had not been trained to integrate HIV and AIDS education in his teaching. He had read a phrase about it in the curriculum, which directed teachers to integrate but did not give further guidelines on how it ought to be done. He reported that he had attended a geography workshop where he learnt about integrating HIV and AIDS, albeit to a limited extent. Paul stressed that he integrated HIV and AIDS education in his lessons sometimes because he felt the need to educate learners about the pandemic. During one of the interviews, he stated that he valued his cultural beliefs and customs that had shaped and continued to shape his behaviour and beliefs as a man. For instance, he expressed that in his 'culture', a man is valued by the number of children and women that they have. While he was aware that this practicecould contribute to the rise of HIV infection, he felt that he could not 'run away' from his 'culture'. Paul further indicated that his behaviour constrained him sometimes from providing in-depth detail on HIV and AIDS because he tried to avoid learners' questions that might be too personal for him (e.g. such as questions about having multiple sexual partners).

I observed Paul three times where he integrated HIV and AIDS education in two lessons. The first lesson I observed on 15 February 2012 saw Paul revising a question paper, which consisted of a few questions on HIV and AIDS. These questions were based on a graph on the HIV prevalence rate among pregnant women in Namibia. He added information to educate learners more on how they should prevent themselves from being

infected. During the second lesson on 16 February, he taught map work, focusing on bearings. This lesson, as will be shown later on, did not include anything on HIV and AIDS. In the third lesson, which was observed on 17 February 2012, he gave learners a task to draw a bar graph on the HIV and AIDS prevalence in Namibia in specific years. Paul indicated that he taught learners about HIV and AIDS so that they would protect themselves from HIV and AIDS. Interestingly, he emphasized the use of condoms and being faithful to one partner.

Ruth: Mathematics Teacher at Immanuel Junior Senior Secondary School

Ruth is a mathematics teacher at Immanuel JSS. She is 34 years old. She has been a mathematics teacher for 6 years. She majored in mathematics at college where she obtained the basic teaching diploma (BETD). She furthered her studies on a part time basis with North West University where she completed her Advanced Certificate in Mathematics Education. She became a mathematics teacher because she had liked mathematics since her school days. She reported that she had been one of the best learners in mathematics in her class. She would like to pursue post-graduate studies in mathematics. She said that she loved the subject and regarded herself as a mathematician.

Ruth was not trained to integrate HIV and AIDS education in her lessons, but she supports the idea because, she felt that it had potential to change learner behaviour. She indicated that some learners are interested in learning about AIDS, thus teachers should focus on prevention measures, misconceptions, taking care of people who are infected and misunderstandings about HIV and AIDS. She reported that some learners feel that it is taboo to talk about AIDS. She indicated that if all teachers started to integrate HIV and AIDS, learners would get used to it and make informed choices and more measured decisions. In addition, she felt integration was important because it could ensure that learners would hear the same message (on HIV and AIDS) in all subjects.

I observed Ruth teaching three lessons. She talked about HIV and AIDS in two of the three lessons. She integrated HIV and AIDS in scenarios [statistics on people infected with HIV and the pregnancy rate among school girls] during the first lesson observed on 15 February 2012. In the second lesson, on 16 February, Mary asked learners to mention myths about HIV and AIDS. On 17 February 2012, she asked learners to advise her on how she could help a friend who was HIV positive and who did not want to go to hospital. She stated that she instructs learners to do research on HIV and AIDS issues related to mathematics such as statistics using different sources such as the school library and various books. She also gets them to do calculations such as percentages.

Ruth also expressed that in her 'culture', it is taboo for elders to talk to their children on issues pertaining to sexuality. She proposed to be open in order to discuss the pandemic, however, because her goal was to educate learners despite her cultural values. She wanted learners to be free to talk and share ideas and experiences on HIV and AIDS.

John: Mathematics Teacher at Wisdom Junior Secondary School

John is a mathematics teacher at Wisdom JSS. He is 33 years old and has been teaching mathematics for seven years. He has been a mathematics teacher since he started his teaching career. Mathematics is the only subject he teaches. He enjoyed mathematics at school and that motivated him to pursue a career in mathematics at the college where he obtained a basic teaching qualification (BETD). He furthered his education through a distance education course with North West University where like Ruth; he obtained an Advanced Certificate in Mathematics Education. He adores mathematic because, as he says, it is not a complicated subject. To him, it is simple and fun.

Like the rest of the teachers in this component of the study, John too, had not been not trained to integrate HIV

and AIDS. He expressed that he rarely integrated HIV and AIDS because learners could obtain information from life skills and the mandatory extracurricular programme "My future is My Choice." He said that he usually reserved one mathematics lesson a week to teach on HIV and AIDS. In this lesson he focused on creating awareness and dealing with problems experienced at school, such as teenage pregnancy and discrimination. During an individual interview, he indicated that learners only needed to know that HIV and AIDS existed, how they should protect themselves and not to discriminate against those who are infected. He also indicated that HIV and AIDS information was not applicable in most topics in mathematics, thus making it difficult to integrate. This was complicated, as he saw it, by teachers also being 'parents', making it difficult for them to discuss issues on HIV and AIDS and sexuality; saying that these (issues) "are not usual things" they discuss.

He indicated that teaching mathematic was stressful due to the demands of the subject and the expectation of good results by parents and the school community. Thus, according to him, he focused rather on mathematics than on integrating HIV and AIDS.

I observed John during three lessons. The first lesson, observed on 20 February 2012, was a mathematics only lesson where he did not hold any discussion on HIV and AIDS. He focused on HIV and AIDS during the second and third lessons (on 22 and 24 February respectively). The latter lesson was entirely devoted to the pandemic. There were times when it felt more like a life skills than a mathematics lesson.

The above profiles represent a fairly young cohort of teachers, whose ages ranged between 30 and 40 years. All four teachers were qualified to teach their respective subjects, and had been teaching for more than five years. However, none of the four had been trained to integrate HIV and AIDS information in their subjects and all highlighted the challenges posed by such integration.

4.2.2 Observing Integration of HIV and AIDS Education in Mathematics and Geography

In the following section, I present transcripts from each of the three lessons taught by each of the four teachers observed in the study. I combine the observation data with the individual interview data as well as with a brief content analysis of the lesson plans to gain insight into how teachers plan for and execute integration of HIV and AIDS in their lessons. Included in the discussion are responses from the post-observation interviews; these provide insight on the reasons teachers offer for the practices they adopt in relation to integrating HIV and AIDS education.

I introduce each teacher by presenting all three lessons observed. I follow this with an analysis of the planning, pedagogical strategy, nature of integration, and the challenges that teachers propose constrain them from integrating HIV and AIDS more fully into the curriculum. I refer to Fogarty's (1991) models of curriculum integration (see Chapter 2) to

discuss each teacher's approach to integration. I end this chapter with a brief summary of the common trends that emerged from this part of the study.

Mary's Lessons

Mary's Lesson 1
Date: 20 February 2012 Duration: 40 minutes Class size: 27 learners Theme: Map work
Topic: Map orientations Lesson objectives: Learners should be able to orientate any map

Teacher: *(Enters and stands in front of the class)* Good morning class.
Class: *(In a chorus)* Good morning teacher.
Teacher: I am fine. Sit down. Before we start with today's lesson, can anyone tell the class what do you know about AIDS? Tell me anything that you know about HIV and AIDS.
Learner 1: (Stands up and gives the answer loud) AIDS is killer disease.
Teacher: (*Moving around the classroom*) And what about HIV? What is HIV?
Learner 2: HIV is a virus that causes AIDS
Teacher: "Yes, it is good that you know, AIDS is a killer disease that is caused by HIV and it is killing us. We must fight it…ok?"
Class: "Yes, Miss!"
Teacher: Yes, it is a virus that causes AIDS. (*Moving from rows to the chalkboard*) Ok. Let us have a topic, which we are going to discuss today (*takes a note book and holds it*). Today, we are just going to discuss the map. We are just going to look at the map orientations and directions (w*riting on the chalkboard*). Let's have a look at the compass (w*riting on the chalkboard*) … (*Faces the class and moves towards learners*) Who can tell us what a compass is? Who can tell us what a compass is? Is there anybody who knows what a compass is?
Learner 3: (gives the answer while seating) It shows us which direction you are facing
Teacher: (*Moved to the group next to the door*) Ok. Let us look at this one (*writing the definition on the chalkboard from the text book*).Ok, let us say that this is where you find direction; where you are facing. Now we use a compass to help us find the direction. Yah, I think we can have a look at the chalkboard first. Let us say you are lost in the desert and you have your own compass. You can use that…let's say *(Drawing the compass directions*), Ok. Let's say this is our compass. What direction is this? (*pointing to the North of the circle)* Hmmm?
Class: (Loud chorus) North!
Teacher: (*spot to the South*) And this one?
Class: (Loud chorus) South!
Teacher: (*pointing to the West*) And this one? One person at a time….I does not want a chorus!
Learner 4: West
Teacher: (*Show to the East*) And this one?
Learner 5: East
Teacher: (Pointing at the diagram drawn on the chalkboard) Let us say that we have the needle here. The needle is pointing this direction (*Drawing an arrow pointing to the North*). You can find that this is the northern side and you can find that this we call true North (*Writing TN on the Northern side)*. We can say that the needle of the compass always points to the True North and this is what we call Magnetic North (*pointing at the arrow opposite to true north)*. This is the Magnetic north and I am going to show you how it points. And then we can say True North or Geographical North (GN) is the true direction towards the North pole. (*Draw another line from the centre to the North West with a solid line*) Let us say this is the needle pointing here. This is our True North (*Rub out the solid line and draw a broken line*) and this is our Magnetic North. And you can find that the West of the True North lays the Magnetic North. This is our Magnetic North. And they say that there are some degrees here between the circles. We can now have the difference between the True North and the Magnetic North. Magnetic North is called what?
Learner 6: Magnetic declination
Teacher: It is called magnetic declination. This is the difference between the True North and the Magnetic North and we have some degrees here (*Writing down degrees 235 degree*). You can just find that this is a Magnetic North (*Pointing to the MN arrow)*. The North that is just shown on a magnet on a compass here. This is what we call is just a compass for example if you want to be shown the directions in which you can face at least this is the compass that can show directions.
Class: (Take notes)
Teacher: (Facing the class) Ok, I think we can leave the compass and move to the directions. I think you need to know the directions exactly. Again on directions, we have this (*draw a big circle*) and we are going to do it together. We are going to do it together. At first, we have the main points, and you can tell us the main

directions (*draw two lines crossing each other*)
Teacher: Which side is this one? *(Pointing up*)
Learner 7: North
Teacher: This is North. *(The teacher writes the directions while learners name them in a chorus: North, South, West, East*) In order for you to use the compass, you must know the directions. Again we are coming like this… (*Draw 4 more lines crossing the centre while learners shout the name of the direction: North East, South East, North West, South West*) There are still eight more directions on the compass, what are they? Write them down in your groups
Class: (Discuss and write the direction in groups)
Teacher: (Move around the classroom) Ok. Give me you finding, lets us hear from one group
Group 1: (A learner stood up to give the answers) North, North East, East North East, South East, East South East, South West, West South West, West North West and North, North west.
Teacher: (Pointing at the diagram) And how many are they together?
Class: sixteen
Teacher: There are 16; so if you are using your compass, you should know these directions very well. Otherwise you cannot be able to use the compass. Ok. I think now you will be able to draw your compass and be able to draw up 16 coordinal points or directions. Any question? Ok. If there are no questions, this is all we have to cover today and tomorrow we are going to start with bearings. Make sure that you bring your protractors tomorrow. Ok, I thank you it is all for today. Have a nice day and take good care of yourself.

Mary's Lesson 2
Date: 22 February 2012 Duration: 40 minutes Theme: Weather and climate
Lesson objectives: Learners should be able to record weather observation, interpret graphs of temperature, rainfall, wind direction and wind vane

Teacher: Good afternoon class
Class: Good afternoon teacher
Teacher: Ok, I think you can stop whatever you are doing and let us have a look at this paper that I have here (*Holding a cut off from the newspaper andgiving instructions*). Yah, is there anybody who can read this for us?
Class: (Few hands up)
Learner 1: (*Giving her answer with a low voice*) Valentine's day at school
Teacher: (*Commenting on the learner response*) Ok, Valentines … Valentine's day at school. (*Asking a follow up question, while moving around the class*). And what are you saying about this Valentine's day at school? (*Rephrasing the question while reading in the text*) Hmmm? Can we celebrate Valentine's day at school?
Class: (*Chorus*) Yes!! (*while some say no)*
Teacher: *Valentine's day at school and changed the question*) Aaah…for those who are saying no, why? (*Rephrasing the question*) Why don't we need to celebrate Valentine's day at school?
Class: (*Chorus*)…to enjoy…some…to have fun
Teacher: (*Asking in a calm tone of voice, holding her arms*) Do you know what Valentine is?
Learner 2: It is a day to celebrate for love!!
Teacher: A day for love. And you want to celebrate it at school? Do you have lovers at school?
Class: (*mostly boy…yes! while many girls shouted no! Some learners don't say anything*)
Teacher: Ok, if you have lovers at school, do we need to have lovers at school? Do we need to have boyfriends and girlfriends at school? Hmmm?
Class: (*Shouts and laughs*)
Teacher: Why do you need to have boyfriend and girlfriend while at school? Hmmm? Are you not afraid of HIV and AIDS?
Class: We are afraid.
Teacher: So we don't need to celebrate Valentine's day at school! Ooh! What do you need? And you know what? At these Valentine's day we used to give presents. Somebody can give you a very nice flower and you enjoy it and after the flower (*Pointing at her back)* there will be something behind!
Class: (laughs)….aaah….aaaye!! (*No…No*!)
Teacher: It is true. And these girls, they are not even afraid of teenage pregnancy! Ok let's say boyfriends and girlfriends can bring so many… many things. You might be having this teenage pregnancy; you might be having HIV and AIDS; which is a killer disease, or sexual transmitted diseases. As a mother and a Christian, I don't even want these Valentine's day to be celebrated at school. Stay away from boyfriends and girlfriends until you get married. Ok. Let's go ahead with our lesson for today *(paging through her textbook and thereafter writing on the chalkboard*) We are going to talk about climatology. What do we mean by climatology? What is climate?
Learner 3: It is a study of climate
Teacher: Very good (*writing on the chalkboard*). Climatology is the study of climate, and we have people who

study climate. How do we call these people? Hmmm?
Teacher: What do we mean by climatology?
Learner 4: It is a study of climate
Teacher: Very good (*writing on the chalkboard*). Climatology is the study of climate, and we have people who study climate, climatologists (*Moving around the class*). What is the difference between climate and weather?
Learner 5: Weather is the condition of the atmosphere over a short period of time, and climate is the condition of the atmosphere over a long period of time.
Teacher: Ok. Climate refers to the condition of the atmosphere over a long period of time (*Writing it down on the chalkboard*). Ok let's say, for example, a long period of time such as seasons, while weather is such as a day. (*Writing it on the chalkboard*) And now we come to the weather element and then we come to the instruments…hmm! And then we come to the units. (*Draw a table on the chalkboard with three rows, and titles them; first row, weather elements; second row, instruments and the third row units)*. I think we can come to number one, who can give us one example of the weather elements that you know
Learner 6: (*Stood up and gave the answer*) Temperature.
Teacher: The weather element; we have temperature and then the instruments which we use to measure this temperature is what?
Class: (*Chorus*) Thermometer…Wet and dry bulb thermometer…Minimum and Maximum thermometer
(*Writing it on the chalkboard*) …And which unit do we use to measure this…which unit do we use to measure this…this thermometer?
Learner 7: Degree Celsius!
Teacher: (*Writing it on the chalkboard*) Degree Celsius and the second weather element is what?
Class: (Chorus) rainfall…Air pressure
Teacher: Air pressure, and which instrument do we use to measure air pressure? Somebody who did not say anything today, I will just going to point. (*pointing at a boy*) Yes!!
Learner 8: Barometer
Teacher: And the unit?
Class: Hector Pascal.
Class: The third weather element is? Which one is the third weather element? (*Pointing at a boy*)
Learner 9: Humidity…measured with wet and dry bulb thermometer in Degree Celsius
Teacher: Good! And then we come to number four weather element number four? (*Point at a girl*)
Learner 10: (*Speaking low and looked shy*) Rainfall
Teacher: We have rainfall (*Writing it down*). And which instrument do we use to measure rainfall?
Class :(*Some raised their hands while others shouted the answer so loud*) Rain gauge in millimetres!
Teacher: (*Writing the answer down*) Ok and then now we come to weather element number five.
Learner 11: Wind direction
Teacher: Wind direction (*Writing it down*) Very good!! We have the wind direction, and which instrument and unit do we use to measure that wind direction? Ok. Let me just check who did not say anything today. (*Pointed at a boy*) Yes!
Learner 12: Wind vane and units is directions
Teacher: Good answer, and then we come to number six.
Learner 13: Sunshine
Teacher: (*Writing it down*) Sunshine, we have sunshine. And which instrument do we use to measure this sunshine?
Class: (*hands up and chorus*) Sunshine record…Hours per day
Teacher: Hours per day, yes…and the last one. (*Pointing at a girl*) Yes!
Learner 14: The wind speed, measured with cup anemometer
Teacher: Good…and the unit are knots. (*Writing it down)*. Ok I think this is all that we supposed to have today means. We were just talking about climatology, weather and climate. The people who study weather/climate we call climatologists. And we had the difference between weather and climate. We heard that climate is the condition of the atmosphere over a long period of time, while weather is the condition of the atmosphere over a short period of time. And we are coming to the weather elements; these are the temperature, measured by maximum and minimum thermometer and the unit degree Celsius; air pressure measured with barometer, HPA units, humidity which is measured with wet and dry bulb thermometer in percentages. Rainfall, measured in rain gauge, unit millimetres. Wind direction, wind vane and units are directions. Sunshine, we use sunshine record and hours per day. Wind speed, cup anemometer and unit are knots. Is it clear?
Class: Yes!
Teacher: Questions?
Class: No questions!
Teacher: No questions. (*Holding up the Valentines paper that she introduced at the beginning*) Ok. Just make sure that when you see these articles in newspapers; please try to bring them at school. Not only for these

Valentine's Day ones, but make sure that the pamphlets that can have anything on HIV and AIDS. You can cut them out and bring them so that we can discuss them and learn more about AIDS. Thank you very much. Good day.

Mary's Lesson 3
Date: 24 February 2012 Subject: Geography Duration: 40 minutes Topic: Weather and climate
Lesson objectives: Learners should be able to continue using the instruments of Grade 8 and 9

Teacher: Good morning class
Class: Good morning teacher.
Teacher: I am fine. Sit down. Ok. Is there anybody who listened to the radio yesterday?
Class: (Chorus) Yes…some no!!
Teacher: What did you hear? (*Moving her hands up in the air while moving at the back of the class*) About may be just in the surrounding.
Class: (*Chorus*) Nothing …(*some boys say)…*soccer
Teacher: I heard something, maybe that time; you were not at the radio. I heard that most of you people, most of the young people in Namibia are affected… affected and mostly infected by HIV and AIDS. Do you think it is true?
Class: (*Some voices from the back and middle of the class at a low tone*) Yes… *(Some said no*).
Teacher: And if it is so, where do you think the infection came from? Hmm?
Class: (Chorus and shout) some learners say from people others, said from animals…
Teacher: Is it from animals? If it is from animals, how did people get in contact with animals?
Class: (*Shouts*) No! ... (*Few learners at the back say yes*).
Teacher: So you been in contact with animals?
Class: (*Disagreement and noise especially at the back of the class*)
Teacher: (*pointing while asking the question*) And why is it that most of the young people are infected and most of them are affected?
Learner 1: They do not use condoms, they are not faithful and some were born with AIDS
Teacher: Ok, good answer. Others you can just keep your answer and after the lesson, you can write some suggestions and put it here (*holding a small basket*). We are going to discuss later and not today. You can write anything that you want to know or ask about AIDS and just put it in here, because many people here they are not open, we will be discussing what you want to know about AIDS. Let us go ahead with our geography lesson for today. We are going to look at how to measure the temperature (*writing down the word on the board*). What do we mean by temperature?
Learner 2: (*stands up and gives a response calmly*) It is how hot or cold, the condition.
Teacher: And we know that this temperature is measured with maximum and minimum thermometers. Ok, what I want you to do today… is… just to have a look at how we can plot this on a graph (*Standing next to the chalkboard*). How we are going to plot it on the graph and let us have a look on page 50. I think Gobabis is already done. Let us do for Swakopmund. You are going to give me the figures for maximum and minimum … at first (*Drawing a horizontal and vertical line*)…this is your, and then maybe let's say how many months can we find on that? *(Coming to read in the text book*) (*Draw one horizontal dividing line*) Seven and make sure that if you are drawing these (*Indicating the dividing lines she drew*) you have to use your ruler and measure exactly the same with this one and the same with everything (*Showing the two lines, and drawing two more lines*) and then you can just do it like this (*drawing more lines and counting them mentioning the months*) January, February, March (*drawing more lines*) April, May, June and July. Ok let's say that you are… (*Writing the first letter of each month on each line*) January, February, March, April, May, June and July (*Writing at the left side of the graph*). Ok let's say this is temperature in degree Celsius. (*Dividing the first line in 5 units*) Ok we start from 0, 5, this one?
What is the highest maximum temperature for January?
Class: (Chorus) 26!!
Teacher: (*Indicating with a star on twenty six at the chalkboard*) 26 again! And then March?
Learner 2: Twenty three
Teacher: (*Demonstrating how to plot and reads out loud*) 15, 16, 17 and 18 (*Plot at 18*). And then June? June is how many? Come and do it on the chalkboard
Learner 3: (Stands up and goes on the chalkboard and plots at 17)
Teacher: Good! *(Joining the dots together with a solid line*) and then you have to draw this like this...like this *(While drawing*). This is a graph…a line graph and then you end up there. And then we come too…*(Showing the line and write next after were it ends*) This is the maximum; the one which you can find on top, and then the minimum for January it was?

Class: 20 (*Plotting at 20degree Celsius*) This is 20! (*Staring at the learners*) Ok. Do the rest in your groups now
Class: (Discussing in groups and drawing to complete the line graph)
Teacher: (*Joins the dots together with a broken line*) Ok. Let us just plot it. And then as we come to…now you know how… (*Writes after the minimum line*) This is the minimum. (*Showing on the chalkboard*) Is it clear? Or is there anything or any question?
Class: No!
Teacher: (Looking in the textbook) Ok, if there are no questions, we are going to have a look on the…to calculate the daily average temperature *(Writing it down on the chalkboard and goes back to the textbook*). Let's say we are going to calculate the daily average temperature (*completing the statement on the chalkboard*). We are on page 52. I think day one is already done for us. We can take any day from those days up to 31, you can take one so that we can see the average temperature…the daily average temperature and we can calculate it. Can we take any day from that…apart from day one?
Learner 4: Day 17
Teacher: And we have the formula (*Writing it down*) Maximum minus minimum divided by two… Hmm? And why do we have to divide it by two?
Class: (*chorus and noise*)
Learner 5: Because you are having two days.
Teacher: Good answer. And what is the answer?
Learner 6: This is 27 minus 16 divided by two…..5.5!
Teacher: (*Moving towards the chalkboard)* Good! Divided by two! (*Showing the numbers of maximum and minimum*) because we have these two things, maximum and minimum-they are two things and this is how we get the daily average, and don't forget to write Degree Celsius! For example we have January; we have to add all the averages we got in January and you have to add number of the days we have in a month, and then divide with number of days in a month. Calculate the annual temperature…the annual…this is yearly!! Ok, let say how many months does the year have?
Class: (Chorus) Twelve
Teacher: (Standing in front of the class) Twelve. You have to add all monthly average. Hmm? (*Writing it down*) For example you have twelve months, and then from there you have to add all the figures that you have in each month. Ok! And then you got the answer. Once you got the answer you have to take the maximum for January up to December) (*reading in the textbook)* From January to December can you take that one on page 23, 24 and 25, can you see? Can you add all together?
Class: Calculating (*Shouting)* 202…204!
Teacher: Hmm! 202 degree Celsius and then you divide it with 12 months. This is the annual temperature. That is how we can calculate it. The annual average temperature. (*Showing on the chalkboard*) Ok. I think you know how to find the daily average temperature and this is for the month and this is for the year. (*Underline the chalkboard and started to writes*) We are talking about the temperature not the rain fall, which one is….can we have? Time is going (*in front of the class*). For homework, do the work on page 25; figure 2.4, answer all the questions below that figure. (*Showing on the notes on the chalkboard*) Just make sure that you are clear and put these in your head…please! Ok. This is all what we supposed to do. And don't forget the homework on HIV and AIDS; to answer the question on why many people are infected with HIV and your suggestions on what you want to know or to learn about HIV and AIDS. I would like all of you to take part, take a piece of paper and then you put it in the basket, and you don't have to write your names. Ok, this is the end of our period *(Holding her books*). I wanted you to discuss this. (*Holding a basket moving around*) do you have something? If you have something just put it in here Just put in your piece of papers; your questions. Thank you all and have a good day.

Planning

Mary had a preparation file where she kept all her lesson plans. She planned all the lessons I observed. Her lesson plans included the lesson objectives, competencies, how she will introduce the lesson, the teacher and learner activities, lesson conclusion, reading and writing activities that learners will do, homework to be given and the lesson reflections. She indicated, "*I always do lesson plans. I designed my own lesson plan format to include different aspects that are not well indicated by the format provided by the ministry*." During the first and third lessons, she indicated in the lesson plans that she would introduce the

lessons by "*[A]sking learners' questions from the previous lessons*", while in the second lesson; she indicated that she would "*[A]sk learner's to describe the weather for the day, and then ask them to tell the weather elements that they know*." Mary introduced her lessons differently to her prepared plan; with questions on HIV and AIDS and not on the subject content as planned. When asked during the post observation interview why she followed this pattern, she stressed that she, "... *heard in the local radio programme* [h*ow can we improve our education*] *that teachers can use some minutes at the beginning or conclusion of the lesson to educate learners about HIV and AIDS*." Thus, rather than integration being viewed only as an imperative from the Education Department, Mary included information on HIV and AIDS due to hearing about its value through a radio programme. She further stated, "*I introduce the lesson with HIV and AIDS information when it is difficult for me to teach it as part of the content. Mostly I integrate it in the content when I am teaching population geography*." Mary did not include any information about HIV and AIDS in her lesson plan. When asked why she had not included the introduction of each of her lessons in her lesson plan she indicated, "*I don't think there is a need to include HIV and AIDS in the lesson plan because there is no formal guideline on how to integrate HIV and AIDS and it is hardly assessed in population geography [two or three questions] only*."

As an experienced teacher of 15 years, Mary's lesson plans rarely reflected the lesson presentation. In most cases, she wrote two or three statements that give little description or guidelines on the ensuing lessons. In this regard she said, *"[T]he lesson plan is not really important; what is important is the actual teaching and learning.*"

This notwithstanding, she indicated in the lesson plan that learners will share ideas, discuss and give feedback during the lesson presentation. While this may have been planned, it was not part of the actual lesson during the observations. She also reflected that all the lessons were successful since the basic content was covered. She said, "[*L]earners participated well and they gave correct answers which shows that it was successful.*" The lessons plans provided no insight into the ways in which Mary considered integrating HIV information into any of the three lessons observed.

Content Focus

With regard to HIV and AIDS, Mary focused on making learners aware of the dangers of the pandemic by beginning each lesson observed with an aspect of HIV and AIDS. She

emphasized abstinence because of her Christian beliefs, as she reported in a post observation interview. Mary stated that "*I am a Christian, and thus educate learners to abstain from sex until they are married."* While she made links between relationships and HIV infection, the information on the pandemic did not link to what learners did in the carrier subject; thus minimizing its impact.

Furthermore, the teacher did not elaborate on any of the responses from learners. Instead, Mary repeated the learners' responses and went on to introduce the geography content as a separate entity, as I outline below. This pattern was true for all three lessons observed.

Pedagogical Strategy

Mary introduced each lesson with a brief discussion on HIV and AIDS. In the first lesson, she said, *"[B]efore we start with today's lesson, can anyone tell the class what you know about AIDS?*" As illustrated in the observation data earlier, Mary's other lessons commenced in much the same way; each time, she would pose a question that led to a brief discussion on HIV and AIDS. An important feature in this teacher's pedagogical approach was the manner in which she separated HIV and AIDS information from the subject (geography) content. This pattern of complete separation of content was consistent in all three lessons observed. It was almost as if I was observing two lessons, whose only common feature was the facilitator and learners.

The teacher also transitioned from the HIV discussion into the geography component of the lesson with little attempt to link the two. Put differently, in all three lessons, Mary abruptly ended the discussion on HIV and AIDS and started the geography topic without an integrative transition. In Lesson 1, for example, she said,

> *Yes, it is a virus that causes AIDS. Ok. Let us have the topic, which we are going to discuss today* (*takes a note book and holds it*)"

In lesson 2, she said,

> "*As a mother and a Christian, I don't even want these Valentine's Day to be celebrated at school and stay away from boyfriends and girlfriends until you get married. Ok. Let us go ahead with our lesson for today. We are going to talk about climatology. What do we mean by climatology? What is climate?*

In the third lesson, Mary said,

> *Ok, good answer. Others you can just keep your answer and after the lesson, you can write some suggestions and put it here (holding a small basket). We are going to discuss later and not today. You can write anything that you want to know or ask about AIDS and just put it in here, because many people here they are not open, we will be discussing what you want to*

know about AIDS. Let us go ahead with our geography lesson for today. We are going to look at how to measure the temperature (writing down the word on the board). What do we mean by temperature?

Another aspect in Mary's lessons that stands out was her interaction with learners. While on the surface she seemed open and interactive, a critical review of the lessons demonstrates a teacher-centred approach that left little room for learners' perspectives. Mary acknowledged learners' responses, but did not use these to challenge or reinforce a point. This was especially true in the first two lessons. Even when learners provided opportunity for engagement with the HIV information, Mary let the opportunity slip, as the following excerpt from Lesson 2 suggests:

> *Teacher:* (*pointing while asking the question*) And why is it that most of the young people are infected and most of them are affected?
> *Learner 1*: They do not use condoms, they are not faithful and some were born with AIDS
> *Teacher:* Ok, good answer. Others you can just keep your answer and after the lesson, you can write some suggestions and put it here (*holding a small basket*). We are going to discuss later and not today.

Mary's pedagogical strategy was teacher-centred and did not enable the learners to share ideas or interact with others. The HIV and AIDS content was not reinforced by asking further questions.

Nature of Integration

Mary included a component of HIV and AIDS in all three lessons observed. She used the same strategy each time, namely beginning the lesson with a discussion on HIV and AIDS. Two aspects are instructive in her lessons. The first relates to the HIV and AIDS information not being reflected as part of the lesson plans of all three lessons. That the teacher had lesson plans for each lesson demonstrates forethought. Careful planning went into the lessons, yet the HIV and AIDS component seemed 'added on' and contrived. This pattern of 'ad hoc' integration of HIV and AIDS information was reflected not only in the way she introduced HIV and AIDS components into her lesson, but also in the way she attempted to assess what learners had learnt. For instance in the third lesson she had planned that she would give homework on rainfall (a graph and calculation of the total and average rainfall) but instead, she gave the homework on HIV and AIDS information. She said, *"This is all what we supposed to do. And don't forget the homework on HIV and AIDS, to answer the question on why many people are infected with HIV and your suggestions on what you want to know or to learn about HIV and AIDS.* When asked about this during the post observation interview, Mary stated, "*I integrate HIV and AIDS sometimes at any time of the lesson, depending on*

the type of information that I am giving. But mostly, I integrate in the introduction or during the lesson presentation."

In relation to Fogarty's models of integration, Mary's HIV and AIDS information was treated and discussed separately from the subject content. This suggests a 'fragmented' model in which geography and HIV and AIDS aspects were treated separately; with each area restricted to its own course of study. In Mary's case, HIV and AIDS issues were not related to the geography content and the relationship was tenuous between geography and HIV and AIDS.

Challenges in Integrating HIV and AIDS Education

Mary expressed during the first interview that she enjoys teaching geography but finds it difficult to integrate HIV and AIDS in the subject. Mary was not trained to integrate HIV and AIDS. She pointed out that there were no guidelines on how to integrate and there is a lack of materials and support to promote HIV integration in her school. She further indicated that her Christian faith constrained her from discussing HIV-related issues such as the use of condoms. In this vein, she pointed out "*Religious leaders and parents disapprove of teachers talking about sex before marriage to the learners*." Mary also indicated that some teacher behaviour made it difficult to talk about HIV and AIDS more openly. She gave the example of some male teachers who have sexual relations with learners, saying, "*Some male teachers are involved in sexual relationship with learners, in this regard learners lose respect on teachers and might not trust the information that they give*." She also mentioned that there were many social problems associated with HIV and AIDS such as poverty, gender violence and discrimination but finding a way to integrate these in geography was very challenging.

Mary saw her role as Geography teacher and not Life Skills teacher. She said, *"I educate the learners to be safe but I cannot go further to discuss more about relationships since I am not a life skills teacher."* This was evident in all Mary's lessons, with lessons focused on geography rather than information on the pandemic.

Paul's Lessons

Paul's Lesson 1 Date: 15 February 2012Duration: 40minutes Class size: 30 learners Topic: Map work Lesson objectives: Learners will be able to answer various types of questions on different topics in map work, and to prepare learners for the final examination using the previous national question paper

Teacher: Good afternoon, class?
Class: Good afternoon Sir!
Teacher: (Distributes the learners' answer sheets) Ok, let us go through the question paper that you wrote a test on. As you all know, this was the final national examination question paper for Geography for last year 2011. Which means this test was just to prepare you for your final examination. You have to learn how to answer questions. I want all of you to do well and go to Grade 11. Ok, now, everybody received your paper and results. Check how much you got out of 130 Marks and take it from there to work hard.
Teacher: (Moving around) What is the answer for question 1?
Class: Ratio scale
Teacher: Good, it is ratio scale. Next question, write down a scale that will be as twice as large as the scale on the map. We said the bigger the number of the scale, the smaller the scale. Is it?
Class: (Shouting) Yes! First one…second one!
Teacher: We said the bigger the different scale, the smaller the scale. This one is bigger than the other scale. So it is only Franco who got this right. Ok the scale of the map is what? (*Answering the question himself*) One to fifty thousand. One centimeter represents fifty thousand centimeters. Write down the scale that would be twice as large as the scale on the map (*Illustrating to learners on the chalkboard).* You just divide that by two. Fifty thousand divided by two is one to twenty five thousand. This one is twice as big as the scale on the map. Ok, let us quickly do the next one. What are the main economic activities? This now brings us to the question of …what... map symbol…symbols that are used in a map. What type of economic activities can be found in this area?
Class: (Few learners shouting) Farming…mining!
Teacher: (staring at learners) What type of farming?
Class: Crop farming
Teacher: (Moving towards learners) It is crop farming. You can see that there are some … a lot of cultivated land. So see how the question paper for last year was easy. Which makes learners to fail, now a learner from Grade 9 gets an A ... which means you are not serious with your work. Let us move on with the next question. In which direction is the most people travel in?
Learner 1: North West direction
Teacher: (Pointing to the\western direction) It is North Western direction. Very easy. Come to a question that confuses a lot of you; use the scale on a map to calculate the distance between the road at the junction at Z, and the junction at Q. I don't know how many learners got this one. What will you do to get direction of a particular place? First of all we measure! Did you measure? How many centimetres did you measured? Hmmm?
Learner 2: 19 centimetres (*some learners shouted the answers…16..some said 15)*
Teacher: (*repeating after every shout*) 16 centimetre? … 15 centimetres? 60? You could have measured for example maybe (*Writing it down*) 6, 2; 6, 3; 6, 4 to 6, 5. What? Centimetres! So if you measure in millimetres, this is going to be 62milimeters. What did you do after measuring the distance? We want to find the answer in kilometres. You multiply the distance with the scale!!Calculate it in your groups
Class: (Discussing and calculating in groups)
Learner: 3: It is 3,
Teacher: Three what?
Class: (Shouting) Kilometres
Teacher: (Repeating after the learners) It is 3 kilometre. We multiply with the scale and divide with 100 thousand, because there is 100 thousand centimetres in 1 kilometre.
Teacher: Ok, next question. State the height of the highest point in the area of Quado region's south eastern part. I think only two learners who got this question. The south-eastern part of the map, where is it?
Learner 4: (stood up holding a question paper and showed the class the southern-part of the map)
Teacher: Can you all see where the Quado region is in the map?
Class: (Shouting) Yes sir!
Teacher: Now tell me the height of the highest point.
Class: (Shout) 146 metre
Teacher: (Repeating after the learners) 146 Metres. Ok, Let us go to the next question. *(Reading in the question paper)* The graph in Figure 2 below shows the trends in HIV prevalence. So we look at line graphs and bar graph. It shows the percentages of people who are HIV positive. It has the percentages from 0-25. And we have the years when the survey was undertaken [1992, 1994, 19 96, 1998, 2000, 2002, 2004 and 2006]. We don't know now what happened for those years that the statistics are not given. We have few questions here, I will add some questions. Number one: In which year did the highest percentages of HIV amongst pregnant women occur? What is the answer?
Learner 5: 2002
Teacher: What shows you that it is 2002? The graph itself shows you that the number also shows that 22% is the highest and the graph also indicates that very… Very correct. That the rate was about 22%. You do

mathematics, yes?
Class: Yes!
Teacher: What is 22% of 2million people? Let say in Namibia we have 2million people. What is 22% of 2million people? If there are 2million people in a country and 22% are infected…let me get 22%... how many people do you think were infected in Namibia? How many? What percentage of people? If there are 100 thousand people, there will be 22 thousand people. So if you multiply that 22… I am not a Mathematician of course I will just…so for us the simplest way we can do is to multiply 22% multiply by 20. Is it? 0 ×2, 2×2=4, 2×2=4…so we will have about 4040 of people who are sick in this country. 4040 thousand out of 2million people, it means almost everybody is sick. Is it? Why do you think the HIV prevalence was very low in 1992?
Learner 6: Because the percentage was too low.
Teacher: Too low again! I am asking you a question, why do you think the percentage was very low in 1992? Why? Why?
Learner 7: Because there few people who are infected
Teacher: Yes, that is also one reason. Few people were affected, then why were few people infected? Tabula!
Learner 8: They did not follow the rules!
Teacher: They did not follow the rules of what? Natural rules?
Learner 9: Some people they practice sex without using a condom.
Teacher: Yes! Without using condoms…contraceptives! What type of contraceptive do we use to protect ourselves against HIV? Give me one. Priscilla! What contraceptive will you use? Tell us… *(Standing next to the learner pointing at her).* She doesn't know…and if she doesn't know, she will soon be infected.
Class: (*Laughed at a girl and whispering*) You will soon be infected!
Teacher: What should you do? Class
Class: Abstain from sex
Teacher: Abstinence! Especially to the learners. I used to tell the learners that at least if you are in Grade 10, the only thing you can do amongst the ABC [Abstain, be faithful and condomise] of HIV. Choose the first one! The A! Which means what? Abstain. Delay sex…delay sex is what? We call it what? Is it not abstinence?
Learner 10: Abstain if you are not with a partner but delay if you are with a partner. Don't be involved in sex
Teacher: Yes!!! I like that! What do we say is delay… to delay for example…ok let us look at…number one abstinence means no sex! Especially for those who are still very young. If you are in Grade 10, you know already if you are infected you will die tomorrow. Be faithful! Who are the people to be faithful? Condomise, we know already! Most of … every time people have sex… when they … especially with different types of… we have prostitutes, we have … (*does not complete the idea*). Alright the question which confused a lot of learners now. By what percentages did the HIV among pregnant women increase? A key word is by what percentage? What percentage? From 1996 to 2002. Show how you arrived at the answer. What… how do you get that? Anybody? Who can remember? Yes! What did you do?
Learner 11: 22%-15,4 = 6.6%
Teacher: How did you come up with that? Huh?
Learner 12: I took the percentages in 1996…Then for 2002, then I subtract.
Teacher: (moves close to the learner) Then you subtract. Good! That is what you supposed to do there. By what percentages? We are saying what? To subtract means you are doing what? You want to know the…?
Class: Difference!
Teacher: Now, so the HIV in1996 was how many percent?
Learner 13:
Teacher: Good, it was 15, 4%. Ok, the last one on this one. What was the percentage increase between the HIV pregnant ladies from 1998 to 2000? Do that! 1998 to 2000! In 2000 it was 19, 3% and 1998 it was 17, 4. What was the percent increase? Those who have calculators
Class: (Shouting) 1,7%
Teacher: So you can easily see from which year to which year many people contracted HIV in Namibia. You know that many people died in Namibia from which year?
Class: 1996-2002!!
Teacher: (*Clapping hands)* Huh…everyday was a funeral!
Class: (*laughed*)
Teacher: Kehesiku ne siku! (*Day by day*) why?
Learner14: Because people did not know information about HIV.
Teacher: Why did the percentage dropped from 2004 to 2006?
Learner 15: Because some are using condoms, some are abstaining and some are becoming faithful
Teacher: That's it! So it is for us now to check ourselves. Ok, let us quickly come to another question. The most expensive question in this part is three marks. Use the graph and describe the trend in HIV prevalence. Now this question, some you could not answer
Learner: In 1992, the rate was low and in 1994 the rate increased up to 2002, and in 2004 it decreased a little bit

Teacher: Let us move on to the next question. Only five minutes left. That one is a bar graph. You can also illustrate the information about HIV. For example, in this case we have information about the population… about migration. [We have information] about how people move. Why people are moving and which age group is moving from one part to the next? This is very simple [yet] some learners failed to answer this question. Did you answer that question? [*pointing to a learner*] What do we mean by rural/urban migration?
Learner 16: It is the movement of people from rural to urban area
Teacher: Rural area to urban. If you fail Grade 10 this year, what will you do next year?
Class: (Shout) Home…others…town
Teacher: You will be home if you don't go to NAMCOL. At least you must migrate to town. You know what? Maybe you can get a job! I used to meet some of my Grade 10 learners who were here last year, in town. Why are they there? Maybe they are upgrading, maybe there is a centre for NAMCOL. It is also education; some are just looking for a job. Ok. According to the graph which gender migrates a lot?
Teacher: (Moving towards learners) But some of you don't know what gender is. Which gender group migrate the most?
Learner 17: 20-25 Male
Teacher: Gender means male or female! Just like one learner… (*Laughs*) when we were writing English and there is a place where you write your sex…male or female… This learner wrote… he said ok, sir me I know very much, instead of writing M of F; he just said sex…is true two times only. …oh! You are just thinking about sex at that age?
Class: (*Laugh loud*)…that is not true sir!
Teacher: So there are some of you who do not know the meaning of gender, either you are male or female. Alright, Which age group shows the large group? What do we mean by age group? The age bracket…maybe yes. Which group now?
Learner 18: 18-44 years
Teacher: And the other one?
Learner 19: 35-29 years
Teacher: (Reading in the question paper) Complete the weather station model. And then you should put all the features that should be put there.
Learner 20: 15knots!
Teacher: And the dew point at the left bottom corner, as simple like that! And there were other learners again, when we talked about cloud cover, they put a line like this (*drawing on the chalkboard)*. That was…we said the cloud cover is what?
Learner 21: 4 over 8
Teacher: Yes the answer is correct here… because 4quarters means half. But we wouldn't like you to do these things like this. What you have to do here is draw a compass, put a point at the middle here, put a line, you separate that circle. Octal is what?
Learner 22: 8 out of 8.
Teacher: That is the meaning of octal. So you have to divide this place into eight (*drawing and counting*) 1, 2, 3, 4, 5, 6, 7, 8! This is 8 over 8. So 4 octal means (Counting) 1, 2, 3, 4! Only do like that! Simple as that! Is it difficult?
Class: No!
Teacher: Ok, lastly give the direction of the wind blowing from?
Learner: North East!
Teacher: Good. That is all for today, we will continue next time. Revise all the questions and remember the weather instruments.

Paul's Lesson 3
Date: 16 February 2012 Subject: Geography Duration: 40minutes. Class Size: 27 learners.
Topic: Weather and climate. Lesson objectives: Learners will be able to draw and interpret graphs on a given information

Teacher: Afternoon learners
Class: Afternoon, Sir
Teacher: Thank you; sit down. Just to wrap up what we did on recording data on the graph. Use your book; the geography practical. From the previous work, you just have to underline. Then there is something that I want you to draw on the chalkboard. Draw graphs on statistics for a line graph (*Pointing at the information written on the chalkboard*) can we quickly draw on the chalkboard? (*Reading on the chalkboard*) below…can you clearly

see on the chalkboard?
Class: (Chorus) Yes!!
Teacher: (*Pointing at a table on the chalkboard*) Below is a table. This is a table showing the percentage of people infected with what?
Class: (*chorus*) HIV and AIDS
Teacher: Where?
Class: (*Shout and chorus*) In Namibia
Teacher: In Namibia during the period indicated. (*Showing the years on the table*) The period starts from 1996 to 2001. Ok. Now the instructions now. (*Reading the instructions on the chalkboard*) Draw a bar graph to show this information. Now the instructions which you have to follow are this "Draw a framework that shows the years along the baselines" …understand that?
Class: (*Chorus*) Yes!
Teacher: On the axis on the left hand side. Do you understand that? Then use the scale. How many centimetres? How many centimetres?
Class: (Shouting) One centimetre...one kilometre!
Teacher: This is not kilometre, it is centimetre. It is one centimetre. (*Writing it down*) To how many percent?
Class: To 10%
Teacher: … and 1cm for the years at the base line. This is where you are going to indicate the years, but you must measure. How many centimetres?
Class: One centimetre
Teacher: Ten percent and then you are going to divide the spaces between. What do you need to have for you to do this? You need a ruler. Just take your book and underline where you stopped. I even want you to do it on the next page, just on the new page. Just follow the instructions and quickly finish so that we can also do this on the chalkboard to see whether you are going to do it correctly or not. Ok you can do that. When you have a problem, you can call me. On a new page, just follow the instructions; the information is already given there. Draw this profile- use a scale of 1cm for 10% and the scale of 1cm to show the period and the number of years from 1996 to 2001. You have only 35minutes to do that.
…35 minutes only. So the first important thing that you have to do is to draw a profile and measure correctly. Measure a centimetre using a ruler…Use a ruler to measure.
Class: (*Measuring, borrowing rulers and talking*)
Class: (Moving around the class) Let us does that…let us do that…You measure using the instructions that is on the chalkboard. Use the instructions on the chalkboard. Write on a new page … On a new page! Use this statistics…let us see how was the line graph (*Showing the figures*) How the graph went from 1996 to 2001.
Class: (Moving to others, discussing and moving chairs)
Teacher: (*Moving around the class*) Let us do that quickly…quickly!! (*go to his seat and took a ruler*) Who does not have a ruler? You can use this one
Learner 1: (*Came to get the ruler*)
Teacher: Sit with someone who has a ruler so that we can do that quickly. Use a ruler. One centimetre is the scale that you are going to use. (*Pointing on the information provided on the chalkboard*) All you have to do is to draw the line graph. Copy anything from the chalkboard. Do you understand?
Class: (Chorus) Yes!
Teacher: Copy the information and draw the graph. (*Drawing, moving to other learners to borrow rulers, pencils or pen)*
(*While standing next to the chalkboard and staring to learners*). All you have to do there is to draw a graph. (*Moving around the class helping learners*) Just copy the information and draw a graph. Use a ruler, do you understand that?
Class: Yes!
Teacher: (*Moving to the next learner*) You have to do it on the second page. (*Moving around observing how learners were drawing and assisted them*) Let us do that quickly time is running out…time is running out! A scale is one centimetre; don't use zero, use the scale of one centimetre.
Learner 2: (*Moves from his seat to borrow a ruler*)
Class: (*Busy drawing and moving from one seat to the next*)
Learner: (*Asking with a low voice*) Who has two rulers?
Teacher: (*Helping out one learner and demonstrating to him how to draw and then he moved to the next learner pointing at her*) You don't even have a ruler! *(Moving to the other row where many learners did not have rulers*) This has to be done now, go and get a ruler!
Learner 4: (Moves out of the class to go borrow a ruler)
Teacher: (*Standing in between rows*) Quickly…quickly finish!
Class: (*Continues to draw and talks with peers*)
Teacher: (Standing next to one learner) Follow the instructions … what do the instructions say? Draw a

framework that shows the years along the baseline. (*asking the learner*) Which one is the baseline? (*Showing him*) This is the baseline…this is where you are going to base your time line…can you see? (*Moves to another group to guide them*) Quickly … quickly… (*asking one learner*) Is this a centimetre? (*Then moves to the next learner and shows him what to do. He further moves to the next learner*)
Learner 5: (shouts): I am done already!
(*A boy raises his hand but the teacher is busy helping another learner. the former drops his hand. After few minutes he raises his hand again making finger sounds*)
Teacher: (*Telling learners who were still writing*) You are too late, it is time! We will continue next time. For homework, read the synoptic weather map. I want us to revise it a bit. Ok. Have a good day.

Planning

Paul planned for all the three lessons observed. Like Mary, he designed his own lesson plan format that included learners' prior knowledge, lesson objectives and competencies, introduction, lesson presentation, learner's task/homework, conclusion and reflections. Paul indicated the teaching method that he was going to use as well as the procedure he planned to follow. He did not include the HIV and AIDS information that I observed in his lessons. For the first lesson, Paul planned to revise the 2011 final examination question paper which learners had written. Paul provided a rationale for this in the post-observation interview by stating, "*Learners wrote the test in the final examination question paper for 2011 to prepare them for the final examination because it is set at the national level and some learners find it difficult to do well.*" The lesson was delivered as per the lesson schedule with the teacher asking questions and the learners giving answers. During the post observation interview, Paul stated that the geography examination paper focused strongly on graphics, maps and tables. For this reason, he encouraged learners to practice so that they would be better prepared to give correct answers during the examination. The question paper used in the first lesson consisted of different components. It covered most of the topics in geography such as map work, climatology and population geography. HIV and AIDS formed part of population geography and the question paper for the 2011 examination included a graph on the HIV and AIDS prevalence rate amongst pregnant women in Namibia from 1992-2006. Although Paul revised the questions in the question paper, he also probed learner responses and consequently generated additional questions to extend the discussion on HIV and AIDS. He encouraged discussion on the statistics rather than only on the response to questions. When asked about this aspect of his lesson, Paul stressed, "*I did not plan to ask further questions but I did that to give more information on HIV and AIDS, not just the numbers but the reasons why the numbers increase or decrease and what should be done to fight against HIV and AIDS.*" Thus, rather than planning deliberately integration, Paul was opportunistic in this lesson.

In the second lesson Paul planned to teach bearings and directions. He did not talk about HIV and AIDS at all during this particular lesson. It is for this reason that the lesson is not included above. He gave reasons why he had not mentioned HIV and AIDS in the lesson during the post observation interview. He said, "*I integrate HIV and AIDS sometimes and when it is appropriate. In this case I could have asked questions on bearings including HIV and AIDS, but time did not allow me to do that.*"

Paul's third lesson was on weather. He planned for learners to draw and interpret graphs using given information. He prepared a poster with the information on people infected with HIV and AIDS in Namibia from 1996-2001. The lesson was planned as a practical activity, where learners drew a graph using statistics and scales he provided. The lesson was executed as planned, with learners drawing the graph and the teacher assisting them individually. There was no interpretation or questions on the line graphs drawn, during or after the activity. As I observed, I found it difficult to make the connection between weather studies and the poster learners made with HIV and AIDS information.

Content Focus

Paul discussed HIV and AIDS information based on the statistics in the question paper; but did so in an opportunistic manner rather than as deliberate action. During the first lesson, the question paper gave information on the number of pregnant women infected with HIV and AIDS between 1992 and 2006 in Namibia. Learners were asked to work out the percentages for the respective years and describe the trends in HIV and AIDS prevalence. Paul extended the HIV and AIDS content to create more discussion by probing and asking further details on how HIV spreads and how it may be prevented. He cautioned learners not to be involved in sexual relationships. He gave reasons for this in the post-observation interview by saying, "[*A]bstinence! I used to tell the learners that at least if you are in Grade 10, the only thing you can do among the ABC of HIV, choose the first one! The 'A' which means what? Abstain."* He also encouraged learners to protect themselves from the pandemic. He asked follow-up questions such as "*Why did the prevalence rate among pregnant women increase*?" *How can you protect yourself from HIV and AIDS?*" He cautioned learners to abstain and delay their sexual debut. He encouraged those who could not abstain to use condoms to avoid teenage pregnancy.

During the second lesson, Paul taught about bearings in map work. The class discussed and practiced how to find bearings from one place to another. They also discussed direction. Learners completed a practical activity on bearings. No HIV and AIDS information was discussed during the second lesson.

The third lesson focused more on drawing a line graph and the accuracy of representation. It did not necessarily emphasize the content of the graph, which in this case, was about trends in HIV and AIDS infection.

Pedagogical Strategy

While Paul taught differently from Mary, the ad hoc nature of his integration of HIV-related information was similar. His approach with regard to the HIV and AIDS content was opportunistic rather than planned. The difference, though, was in the pedagogical strategies he used. Paul did not contrive or 'force' the HIV focus. Rather he took the opportunity when the content presented itself. For example, in the first lesson, HIV and AIDS information was part of the question paper and thus formed part of the lesson presentation. Paul encouraged discussion not only on geographic concepts but also on HIV and AIDS. He probed and used learners' responses to ask further questions regarding HIV or rephrase, either to emphasize a point or to enable learners to interpret geographic concepts. He added general and follow-up questions on HIV and AIDS beyond what was expected in response to the question paper. In so doing, he reinforced both HIV information and the geography concept, as the following excerpt illustrates:

> *Teacher:* Why do you think the HIV prevalence was very low in 1992?
> *Learner 6:* Because the percentage was too low.
> *Teacher:* Too low again! I am asking you a question, why do you think the percentage was very low in 1992? Why? Why?
> *Learner 7:* Because there few people who are affected
> *Teacher:* Yes, that is also one reason. Few people were affected, then why were few people affected? Tabula!
> *Learner 8:* They don't follow the rules!
> *Teacher:* They don't follow the rules of what? Natural rules?
> *Learner 9:* Some people they practice sex without using a condom.
> *Teacher:* Yes!! Without using condoms…contraceptives! What type of contraceptive do we use to protect ourselves against HIV? Give me one. Priscilla! What contraceptive will you use? Tell us… *(Standing next to the learner pointing at her)* she does not know…and if she does not know she will soon be infected.

The insert above also depicts the difficulty of integrating HIV and AIDS information in the curriculum due to its sensitive nature. In the example, Paul asked a learner about the type of

contraceptives one could use. Rather than the discussion remaining at a general level, Paul asked a female student what type *she* used. When this particular student (Priscilla) did not reply, the teacher commented that she would soon be infected. I recorded this interaction and commented in my field-notes how embarrassed and uncomfortable this learner looked. She also looked angry. The other learners made fun of her, repeating the teacher's comment, "*You will soon be infected*." Thus, while Paul was open to talking about information on HIV and AIDS, at some point he seemed unable to manage the material in ways that were responsive to its sensitive nature and to learners' possible responses and experiences Paul also seemed to trivialize the information on HIV and AIDS, and, by so doing, to minimize the impact of the message. While Mary minimized the impact of the information by maintaining a distinction between the carrier subject and HIV and AIDS information, Paul seemed to do so by trivializing what was presented. The following excerpt illustrates the point.

> *Teacher:* So you can easily see from which year to which year did many people contracted HIV in Namibia, from which year?
> *Class:* 1996-2002!
> Teacher: (*Clapping hands)* Huh….everyday was a funeral! Day by day! Why?
> *Class:* (*laughed*) [Learners stated that people did not have information, they did not use condoms or abstain or be faithful.]
> *Teacher:* That's it! So, it is for us now to check ourselves.

Clapping hands and making light of the consequences of the pandemic by referring to the high number of funerals seemed to downplay the impact of the discussion and the information provided. While Paul encouraged learners to 'check ourselves', the reason learners put forward for the high prevalence was a lack of information and not necessarily risky sexual behaviour, which Paul did not comment upon. In addition, although Paul taught about HIV and AIDS, his primary concern was the examination preparation, rather than the importance or significance of the graphic information, which in this case was HIV and AIDS-related. Thus, he guided learners on how to respond to questions to obtain better marks but did not convincingly raise learners' awareness of the significance of the information or the consequences of risky sexual behaviour.

In the third lesson, Paul planned to use a class discussion as a teaching method but there was little evidence of this during the observation. The teacher gave instructions on how to draw a line graph with some learners working in groups and some individually. The teacher monitored and rendered assistance as and when learners requested.

Nature of Integration

Paul followed a more integrated model than Mary. He integrated HIV and AIDS information within the geography context, sometimes using the latter to reinforce a geographic concept. However, he admitted to being opportunistic rather than using a systematic approach to integration. In other words, it was the type of examination question that came up, rather than deliberate and planned action that allowed Paul to discuss HIV and AIDS. Opportunistic as it may have been, integration in this instance linked naturally to the carrier subject and thus did not appear to be contrived. However, Paul emphasized examination preparation and how to gain good grades by responding to questions in the examination in particular ways; for example, when he said, "*Ok, let us quickly come to another question. The most expensive question in this part is three marks. Use the graph and describe the trend in HIV prevalence.*"

In the third lesson, Paul provided information [years and the percentages of HIV and AIDS infection] on HIV and AIDS. He instructed learners to draw a graph presenting the information by using the correct scale, and moved from one learner to the next, helping them to draw correct graphs. He also instructed learners to assist each other. Unlike the first lesson, this lesson did not include any probing, discussion or questions on the HIV and AIDS information in the graph. The teacher made no linkages between how to draw a graph (geography content) and HIV and AIDS information.

It is difficult to locate Paul's form of integration within Fogarty's models of integration, given that (a) it was opportunistic, and (b) uneven in each of the three lessons I observed. This notwithstanding, Paul tended to apply a 'sequenced and integrated' model during the first lesson by teaching the geography and HIV and AIDS units within the same content. The content in this lesson lent itself to a discussion on the pandemic, which Paul took advantage of. HIV and AIDS information was already integrated in the question paper discussed. He extended the type of HIV and AIDS information to create awareness of the pandemic. The teacher also accommodated HIV and AIDS information in his topic on weather. Rather than drawing temperature or rainfall graphs, learners drew a graph on the HIV and AIDS prevalence rate. Although HIV and AIDS was integrated with the content [statistics], learners did not learn anything about HIV and AIDS, given that the teacher focused on technical accuracy in developing a graph rather on the content. The lesson plan, however, had focused on weather, which was not reflected in the content the teacher presented in the lesson; an

aspect that confirms Paul's opportunistic stance towards integrating HIV and AIDS into the geography curriculum.

Challenges to Integrating HIV and AIDS

Like Mary, Paul indicated that he was not trained in integrating HIV and AIDS education in his lessons, and had received support in doing so from his colleagues only. He also highlighted that he lacked teaching and learning support materials and policy guidelines for this purpose. Unlike Mary, whose religious values and beliefs discouraged her from speaking openly about HIV-related issues, Paul indicated that cultural and societal values and constrained him from openly discussing HIV related issues. He stated that he did not feel comfortable talking to learners about certain issues related to HIV and AIDS in a way that might contradict his behaviour as a man with multiple partners. He said, "...I am a man and in my culture a man is described by the number of children and women he has. I am concerned that learners might ask me personal questions regarding my manhood." Like Mary, he was also of the view that some parents would not approve of teachers teaching learners about HIV-related information such as safe sex practices. He said, "Some parents believe that teachers are exposing learners to sexual relationships by talking about sexuality and condoms, and learners are too young to learn about sex."

Ruth's Lessons

Ruth's lesson 1 Date: 15 February 2012. Subject: Mathematics. Duration: 40minutes Class size: 27 learners Topic: Number and percentages. Lesson objectives: Learners will be able to understand the concept of percentage increase and decrease
Teacher: How are you? *Class:* Fine, how are you Ms!! *Teacher:* Take out your books. Let us do the corrections for number one up to three. I want your attention everybody! Stop writing; otherwise you are not going to get what we are discussing. *(Face the class and moves closer to learners*) Who is going to do the first one? *Class:* (*raising their hands and makes finger sound*) *Teacher: (Pointing to one girl*) Sue! *Learner 1:* (*Sue stands up so actively, takes a piece of chalk from the teacher and goes to the chalkboard to write*) 35 *Teacher:* (*Starring at the class)* Keep quiet and pay attention! (*Writing on the chalkboard while holding her notebook where she is has the answer. Looking at the answer on the chalkboard and asks the girl)* Money? Sue! 35... Money? Is it now dollars or cent? What money is it? *Class:* (*Few learners shout: Dollars!!*) *Teacher: (Asking the class*) What is it? Is it what money? Is it hmm? C*lass: (shouting the answer)* Namibian dollar *Teacher:* (*Rubbing off the wrong units and correcting the answer*) Always, we must remember to write our units. Who can come and do number two and three? *While Learner 2 and learner 3 are writing their answers on the chalkboard, the teacher writes the instructions/class activity on the other parts of the chalkboard*) *Teacher:* Do the two answers correspond with your answers? *Class:* (*One by one*) Yes, yes, yes…yes. Few learners say 'No'.

Teacher: Mark your work with a pencil and write the correct answer. Yesterday we learnt how to get the quantity, the increased quantity or amount. Today, we are going to learn how to get the percentage decrease, okay? (*Moving towards groups)* So, it's like we are reversing, we are learning how to reverse. Yesterday we learnt how to go forward. Now today we are going to learn how to reverse. Okay let us look at the example: 'The number of learner who got pregnant at school S increased from 16 to 24 learners'. What was the percentage increase? What was the percentage increase? We should use a certain formula. (*Writing the formula on the chalkboard*) Percentage increase is equal to increase or decrease amount divided by original, original amount. Okay, in your book you must write it properly: times hundred. That is the formula that we use to find the percentage increase and the percentage decrease.
Teacher: (*Pointing at the question)* Okay. Let us look at the, how we should solve this one. Following this formula, okay… (*Reading from the chalkboard).* So we say our percentage increase is equal to increase or decrease amount, which one, which one is a…. What is the difference amount? Increase amount? What is the increase amount? Here we have 16 and 24. Which amount is an increase amount?
Class: 16
Learner 1: 24
Teacher: 24, So this means the increase amount; it means the difference between them. To 24-16.original amount, what was the original amount before it increase or before it decrease?
(*Pointing at one boy)* Sheni?
Learner: (*With a low voice)* 8!
Teacher: 8? …8? We cannot see even 8 there, you are almost there but 16, the original amount was 16 before it increases. Okay. We multiplied by?
Class: (*Chorus)* 100!
Teacher: (*Moving from the chalkboard to learners*) Aaa…aa... before we proceed, why do we, what do you think of this school? Why do you think, why did the pregnancy increase? Why? What do they do and what they don't do? (*Using hand signal)* There is something that they do and there is something that they don't do, that's why this pregnancy rate increased. What is that? *(All learners are quiet for a while and the teacher asks a follow-up question. She gives learners a hint)* (*Moving around groups*) They don't use what?
Class: (*Few learners reply with low voices*) They don't use condoms…
Teacher: They don't use condoms. They might also be? Infected by?
Class: (*Some learners shout… 'Not faithful' but teacher ignores this*) "AIDS!"
Teacher: They might be also infected by HIV. So you must be careful… Heh! Hmm…! You must be careful… be safe! (*Some learners look down while responding and one holds his hand in front of his mouth*). So now, what is the, the answer? First, we must solve this one, 24-16=?
Learner 2: (Actively raising his hand and gives the answers) 8
Teacher: The answer for the next question?
Learner 3: (talking calmly) 50 percent
Teacher: (*Pointing on the chalkboard)* 50 percent! Don't write dollars here. We are finding the percentage, okay. So, it means that 50 percent of the learners, I mean the, the, the amount increased by 50 percent. So, you must be careful so that it should not happen here at our school! (*With a serious expression)* Okay. Now let us look at the other example. The other example- of percentage decrease. The number of people tested HIV positive in town B, declined. What does decline mean? Can somebody raise their hand, what does decline mean?
Class: (Passive)
Teacher: (With an extended stare) You don't know? What do you think it means? (*Standing still and using a hand signal)* Decline! So, decline is the same as decrease. Okay. So, decline is the same as decrease: From 750 in 2010 to 6oo in 2011. What is the percentage decrease? Again, here we use the same, the same formula *(looking at the chalkboard)* The same method. But, there are some little differences. Okay, now can we calculate that one… how will you calculate this?
Class: (Shouts) 750!
Teacher: Minus?
Class: 600
Teacher: (*Looking at the class)* What is the original amount?
Class: (*Shouts)* 750!
Teacher: (*Pointing to the question)* So, the amount was 750, we multiply by?
Class: (*Chorus)* Hundred
Teacher: (*Calmly*) By hundred, Okay. So as you can see here the procedures are exactly the same. The difference is just this one is a percentage decrease the other one is a percentage increase. So what is the answer here? *(Pointing to a boy who did not raise his hand)* Yes! Zocky! Can you try!
Learner 4: 150!
Teacher: Ok. 150 over what?

Class: (*Chorus*) 750!
Teacher: Times?
Class: (*Chorus)* 100
Teacher: (Looking at the learners) The final answer now?
Class: (*Using their calculator to find the answer*) Twenty percent.
Teacher: (Moving around the class) But why do you think the amount of people decreased? What happened maybe in this town? You raise your hand, what happened?
Class: (*Passive)*
Teacher: (moves around the class) They are lucky or are there… What happened? Yes
Class: (Some learners raise their hands very actively, and the teacher points to one of the boy whose hand is raised very high)
Learner 5: T*he learner stands up and gives the answer loudly)* They are using condoms!!
Teacher: They are using condom… and what else are they doing? Mmm!
Learner 6: (Confidently) They learn how to protect themselves, they are more educated,
Teacher: (*Moving around)* Yah… they become more educated on how to protect themselves….What else...hmmm? (*Pointing at another learner)* Yes!
Learner 7: (*With a low voice)* They abstain from sex
Teacher: (*Repeating L7*): They abstain from sex. What else? *(Pointing at a boy)* Johannes
Learner 8: (Calmly) They are faithful to their partner
Teacher: They are faithful to their partner. Okay. So thank you very much that was brilliant! Ok. Now you can start copying. On the other side of the chalkboard, I will write a class activity that you have to complete in your groups. You do it in your groups. I will come around and see.
Class: (*Copying the notes*)
Teacher: (Moving around the class): Copy down everything. Hee?
Class: (Few voices) Ok!
Teacher: (*Pointing on the chalkboard)* Okay, mmm… just a minute. On the other side, there is your class activity that you can do in your groups. Discuss now in your groups, if you need help just raise up your hand. , start now because of time,, it will only take you few minutes
Class: (*Discussing in groups)*
Teacher: (*Moving around)* You are done?
Class: (*Shout)* Yes!
Teacher: (*Telling group 2*) we are waiting for you. Ok, I can see most of the groups are done. Which group is going to do it on the chalkboard?
Class: (*Hands rose from group 1. Learner from group 1 goes to the chalkboard*)
Teacher: (*Instructing the class)* Now let us see, let us all pay attention now. Let us see whether she is doing it right. Whether the… their group understood the instructions.
Teacher: Moving closer to the chalkboard) Is it a percentage increase or decrease?
Class: (*Some learners*) Increase, (*some learners*) decrease
Teacher: Increase. Did all the group answers correspond with the answer on the chalkboard?
Class: (*Shouting)* Yes…no!
Teacher: Ok. For all those who got it, good work, and if you didn't get it, do the correction. (*Standing at the front of the class)* Ok. So, this is the end of our lesson today. So, homework on page 37, in Discovery book, number 1 up to number 4
Class: (*Taking their text books)*
Teacher: (*Repeating*) Number 1 up to number 4, page 37.
Class: (*Paging their text books)*
Teacher: Thank you, study hard and have a good day.
Class: Same to you.

Ruth's Lesson 2
Date: 16 February 2012. Subject: Mathematics. Duration: 40minutes. Class size: 27 learners
Topic: Numbers and values. Lesson objectives: learners should be able to round numbers to one, two or three significant figures, and find reciprocal values

Teacher: Afternoon class!
Class: Afternoon Miss
Teacher: Sit up straight, everybody. Ok, now we can do corrections on the chalkboard.
Can we start with our corrections? Before we start with our corrections, I want you to tell me three things that you know about, three things that you heard in the community or in region or that, you heard people saying about HIV and AIDS that you think are not true. What are they? Anything about HIV that you think is not true that you have heard your friends saying or from someone in the community or someone somewhere. You just say one and then the other person tell us another one.
Learner1: Sharing cups
Teacher: Sharing a cup ...what did you say about sharing a cup?
Learner2: Maybe somebody was drinking water and one of his friend borrows her cup and they say you will be infected
Teacher: They say you will become infected from drinking in a cup with somebody who is infected, is that true?
Class: No!
Learner3: When you kiss someone who is infected with HIV and you are going to be infected
Teacher: When you did what? When you do what? When you kiss someone who is infected you will also be infected, is it true?
Class: No, (some say yes (*class starts to laugh*)
Teacher: Some say yes, why you are saying 'yes'? Okay, what else? The last one
Learner4: When you are sharing a shaving blade for your hair
Teacher: No, what else? Okay that is three basically. Now what, which ones are true now?
Learner 5: Kissing. If someone is having a wound and you are, all of you also have a wound
Teacher: Okay. What else and the last one…people…yes
Learner6: If you do unprotected sex with…infected… (*class laughs*)
Teacher: If you are doing unprotected sex with somebody who is infected. The last one ... the very last one… Can we have the last one? That is all that you know? Yes? Okay, you seem to really know a lot about that one. Is not funny, we all need to know. Yes you can try the last one
Learner 7: When you are sharing needles
Teacher: Yes, those are sharp objects. Sharp things… like what? Can you give us one example of those? Uumbi, uumbi (blades, blades), niinima iikwawo (and other things) those are what we are talking about razors, okay. Now I think we can start with our corrections. Who is going to do the first one, number one? Who is going to do number one? Let us not waste time, next time you must read more on those things so that you can come and tell me more, muuvitekoo (do you understand?)
Class: Yes!
Teacher: Ok. Let us do the corrections. (*Pointing at the learners randomly)* You can do the first one, the second one and the third one. People hurry up, hurry up, so that we can finish this corrections.
Class: (*movements of chairs and tables as learners stand up to go to the chalkboard. Three learners write their answers)*
Teacher: The rest of you pay attention and concentrate on what we are writing see whether it is correct or not. (*Looking at the answers on the chalkboard)* Okay, what about the first answer? Is it correct? (*Reading on the board*), one hundred and sixty six percent, is it correct?
Class: (chorus) Yes!
Teacher: Mark you answer with a pencil and do corrections next to it… with the pencil. What about number two? Is it correct?
Class: Yes
Teacher: And number three? Do you agree with number three?
Class: Agreed … Yes!
Teacher: (Moving around) People you must mark your work, everybody … (*moving around class and stopping at one learner*) Where is your book? You left it? Now you are just sitting like that. Look at his book and what he has done. It should be the last time; don't leave your book at home again. (*Standing at the centre of the class; between groups)* Okay, those who did not get it; that are the correct answer. So you must make a correction. I give you one minute to finish (*Starts writing on the chalkboard, while learners start whispering*).
Teacher: Okay, stop for a while; do not copy the other information… stop writing that. Okay, this is finding the reciprocal value, example X. suppose now this X represents all the numbers, whole numbers, and ok. So, this X represents all the whole numbers because you cannot write all the numbers on the chalkboard. So, we use a letter to represent anymore numbers. So, if you are given any number and you are told or you are asked to write it in a reciprocal; we write it like this (*pointing on the board, then starts writing again*). We write X to the power minus one, this number is equal to? I understand that we already learn something like this, what is the answer? What do you think what is the answer? What happen if the power is negative? What do we do

normally … this is equal to?
Learner 8: One over six (*softly*)
*Teacher: (Moving closer to the learner)… o*ne over?
Learner 8: One over X
Teacher: One over X, so this one is now what we call the reciprocal of that specific number, okay. Coming to a fraction, this number represents a number and now this one is a fraction and this letter represents a number *(pointing as she explains)*. Okay, so now if it is a fraction like this one (*pointing on the board*) and you are asked to write in a reciprocal value, what you do here is just turn the numbers around. The denominator becomes a numerator and the numerator becomes… What you think … what would be the answer in this case? If the denominator becomes a numerator and the numerator becomes a denominator … so the answer will be? You know what are numerators and denominators?
Class: Yes (*softly*)
Teacher: Okay, now what can we do? What do you think… if the numerator becomes a denominator, how we, how do we write it now? Mmm? Yes, you want to try? Mhm? Okay, what I mean (*starts writing on the chalkboard without waiting for a response from learners*). This is a numerator …and this is a denominator. Now a numerator becomes a denominator and a denominator becomes a numerator. How will we write the answer now? Yes *(pointing to a learner*)
Learner 9: B will be on top and A will be under
Teacher: You are right! That is the reciprocal … that is the answer… very easy neh! So, in fraction we just turn it around. The one that was on top you put it down and the one that is down you put it top. Only if it is fraction. But if it is a number, just a whole number like this X (*showing X on the chalkboard*), we just write it this way. Okay, now tell me; what is a reciprocal for number 4 (*repeats this 3 times).* Is number 4 a whole number or a fraction?
Class: Whole number
Teacher: Whole number, okay. Now let's say if the number that stands for 4 is letter X. Now, how will we calculate our reciprocal? How will we get it? That answers using number 4, reciprocal of number 4? (*Repeats a few times*).Just the same way we use the number here. We use it the same way with number 4, because this X replaces a number, anymore number. Yes (*pointing at a learner whose hand was not up*)
Learner 10: (Very low) X
Teacher: X? No, no. this time X is out, it is just this number 4, okay. Number four replaces X. (*learner raises his hand).* Yes, I can see some hands
Learner 11: Four
Teacher: Four to the power of?
Learner 11: Negative 1
Teacher: Negative 1, this will become…?
*Learner 11:*One over 12
Teacher: That's it, and then you are done, nothing else. Is it difficult?
Class: (*chorus*) No!
Teacher: Not at all neh? Okay, in this case 1 over 4, how do we write it? Let me make it two, two over 4 (*writing on board*). How do we write it that is a fraction is in 4?
Learner 12: (*raises his hand*) It is 4 over 2
Teacher: Good! We are done to reciprocal. Is it difficult?
Class: No! Not at all!
Teacher: Okay, before you do this one, I want you to look at this one for rounding 1, 2 and 3 significant figure. Before we round off, starting round of here. I want to tell you that this one- if you are talking about significant figure (*Pointing at learners),* some of you are writing and you are not listening. Tomorrow or later, you won't know what this is all about. This is the first (*writing on the chalkboard*) significant figure, the second significant figure, the third significant figure. Okay. You must round to 1 significant figure, mean that you round that number so that there is only one number, not after the comma. After the comma are decimal places. When they talk about significant figures, they mean that you round off that specific number. You can say in this case, there will only be… if I say I round to 1 significant figure, there will only, how much, which number will be left?
Class: Two
Teacher: Okay, if I say round to 2 significant figures, what is the answer?
Learner 13: Two; Eight
Teacher: Two significant… there must only be how many numbers?
Class: Two numbers
Teacher: Two numbers, so what are those numbers? Remember this word; you are rounding off. We are still rounding off, okay. So what will be the number here, if we have to round off to two significant figures?
Class: (*learners raise they hands*)Twenty

Teacher: Twenty? Did we round off? No, we didn't, we didn't. So what will be the answer? (*pointing to another learner*) Yes?
Learner 14: Ninety-five
Teacher: Ninety-five is (*laughing)* far, this is the first (*pointing to the number on the chalkboard*), this is the second and there must be only two numbers… what will be the answer? We must round, remember to round. So whenever we round we look to the next number. The first time we say it's two because here (*pointing on the board*) there is zero, do you remember the rule of rounding?
Class: Yes
Teacher: The second one we look at the number… this we can round of this number, we look at next number. Does this number *(pointing at the number on the chalkboard*) allow us to stay at two, at zero, or we need to go up?
Class: (Few learners) One
Teacher: It becomes one (*Pointing at the number)…* this one. Look at our eight here, this zero should become one. If it was from five down, five up, it becomes one… but if it is from four going down it stay ?
Class: Zero
Teacher: It stays the same. Okay. So now, if they say round to three significant figures what will be the answer? This (*pointing on the chalkboard*) 8 becomes?
Class: Nine!
Teacher: Nine! Then we have two hundred and nine! Okay. So now you should copy this and if you were listening very carefully, hopefully you will get everything here, okay. Okay, that is the end of our lesson. Remember to go and find out those things, which are not true about HIV so that next time you will tell me more, okay.

Ruth's Lesson 3
Date: 17 February 2012. Subject: Mathematics Duration: 40minutes. Class size: 27 learners Topic: Money and finance, compound interest. Lesson objectives: Learners should be able to calculate the compound interest earned on an amount over a period of 2 or 3 years

Teacher: (*Writing the date and topic on the chalkboard*) People keep quite (*then faced the class*) Good morning class!
Class: (In a chorus) Good morning teacher!
Teacher: (Moving closer to learners) How are you?
Class: (In a chorus) Fine how are you teacher?
Teacher: I am fine. Yesterday we talk about compound interest. How many methods did we learn about?
Class: (Shouting) Two
Teacher: Two methods. Today I want us to go through those methods on the chalkboard together. Ok! Which method does u prefer?
Class: (Shouting) Second one … *(Few learners)* first one!
Teacher: No, you raise up your hands people... (*Pointing at a girl)* Yes Julia!
Learner 1: Second one!
Teacher: (Standing next to the girl) The second one? The one with the formula?
Learner 1: Yes
Teacher: (Moving to the back of the class, looking at what learners are writing) Ok! I do not know what you are doing there. Some of you are keeping yourself busy I do not know what you are doing. Can you please pay attention now! Ok. What is the formula that we supposed to use?
Learner 2: (Stands up and gave the answer) A is equal to (P plus 1) over hundred …N to the power of square
Teacher: (Wrote down the formula on the chalkboard) Ok. That is the formula that we supposed to use. What does P stand for? What does P stand for in that formula? *(Moving around)* Hah? What does P stand for? You should rise up your hand because if you are talking together like that, then I cannot hear what you are saying.
Class: (Discussing in groups and some in pairs)
Teacher: What does P stand for? What am I supposed to write in the place where there is P, if I have to start calculating? Which amount?
Learner 3: Forty five thousand!
Teacher: Forty five thousand. So this P stands for the principle. We call it a principle amount. Okay and the principle amount is the original amount that is given to us, before interests… before anything. Is that clear?
Class: (In a chorus) Yes!
Teacher: So, this P stands for principle amount, the original amount which is forty five thousand. (*Pointing at 1)* one is just part of it. It is not from the statement but it is always there. It is a rule. It is part of the formula. Is that right?
Class: (In chorus) Yes!

Teacher: So don't go and ask yourself where 1 has come from. It is just a rule you must just take it that way. Ok! So now we have plus and R, what does R stand for?
Class: (mumbling and whispering together)
Learner 4: (*gave the answer with a low voice*) It stands for Percentages.
Teacher: Yes *(Writing on the chalkboard)* We should write 18.5 percent, but R stand for rate…rate. At what rate is this interest going to be calculated? Which is the percentage? And the N stands for what?
Learner 5: Square
Teacher: (Staring at a learner) Square? (*other learners raising their hands up*) Yes! (*directing to another learner*)
Learner 6: Year
Teacher: (Pointing at the first example on the chalkboard) It stands for number of years. How many years is this person going to take to pay back the interest, the amount that he borrowed?
Class: (In a chorus) Two!
Teacher: Two years. So Now the two years is the one that you are going to put here. (*Writing on the chalkboard)* The year taken. Ok. If they are three, you put three. What about if its six years, I mean not six years but six months?
Here there is only a place for a year. What if it is six months, what should we do?
Class: (Few learners shouting) Put half
Teacher: Why do you have to put half? (*Pointing at a boy)*
Learner 7: Put half, because six months is a half of the year
Teacher: Good! (*Smiling)*I can see that you are thinking fast. That is good. Half a year. So you put half. What if it is four months?
Learner 8: (*Answering softly*) a quarter of the year
Teacher: (Staring at a learner) A quarter. A quarter is one over?
Learner 8: Four!
Teacher: One over four, because four months is a quarter of a year. So means that if it is not a full year, you make it a fraction. Is that clear to everybody?
Class: (In a chorus) Yes!
Teacher: Ok. Now, can you give me the answer for this one? What is the answer? Use your calculator to find the answer.
Is there anyone who is having a problem press down on your calculator? Anyone who need assistance? You just press it as it is on the chalkboard.
(*After few minutes)* Did u get it? It seems like you are having difficulties using your calculators. Did you get it?
Class: (*One by one*) yes, yes, yes!
Teacher: What is the answer? (*Facing the class)* You are making noise, lower your voice!
Learner 9: Sixty three thousand… ninety two, one hundred and ninety point thirteen cent.
Teacher: (Writes the answer as the learner speaks) Ok. Remember do not put cents again. Some of you are doing it. *(Showing at the answer on the chalkboard)* That is the way we supposed to write it. Any question before we proceed? Do you remember how to calculate the simple interest?
Class: (In a chorus) (Some learners) Yes.... *(Some)* No!
Teacher: (Showing on the chalkboard) This is compound interest. Suppose now they say; calculate this one on a simple interest… simple interest. How do we do it? (*Writing on the chalkboard*) how do we do it, if it is a simple interest? Can somebody assist us on this one? You did it in the previous grades. *(Pointing at a learner)* So, yes come. What I want you to do first I just want you to write the formula. Then somebody else will come and proceed.
Learner 10: (Came and wrote the formula on the chalkboard)
Teacher: Ok. Is that formula complete or is it correct or what are you saying about the formula of the simple interest? Do you know you are doing?
Class: (Passive)
Teacher: This is clear that you do not know the simple interest even though you have learnt it in the previous year. Heh? You forget already! Ok, anyway it is Alright. It is not completed. Ok. Because we used to divide the hundred and here we multiply (*Correcting the formula*). Ok! So simple interest is equal to what? What does P stand for?
Class: Principle amount
Teacher: Principal amount which is?
Class: 45 percent
Teacher: What is the rate?
Learner 11: Eighteen point five
Teacher: Eighteen point five. *(showing at the previous answer given)* Times what? (*pointing at the formula*) This stand for what

Class: (In a chorus) Years!
Teacher: P stands for what? What does P stand for? (*Pointing at a learner)*)
Learner 12: Stand for time.
Teacher: Ok, so, the number of years they are two (2) So divided by hundred. Calculate that one. Did you get the answer?
Learner 13: Sixteen thousand and six hundred and fifty
Teacher: Ok. That is sixteen thousand. Hmmm! Now, are we done like that with our interest? If you borrow forty five thousand and just give sixteen thousand back and we are talking about interest, are we done like that?
Class: No!
Teacher: No! We are not done. Some of you at this stage you think you are already done. That is what you people do. It is very wrong.
Ok. Now, what do we do with this amount if it is not the final amount?
Class: (Few learners) We divide…We divide to get the answer
Teacher: We divide with what here? Which number? (*Pointing at a girl)*
Learner 14: Forty five thousand
Teacher: What will be the final answer?
Class: Six hundred and fifty
Teacher: Six hundred and fifty. Ok. If you are given a choice to borrow money from the bank, and they ask you, are you going to pay the interest on compound interest or are you going to pay the simple interest, which one are you going to take?
Class: (*One by one)* Simple interest, simple interest, simple interest
Teacher: Why are you going to take the simple interest?
Learner 15: It will not cost you more money
Teacher: Simple interest is cheaper. You are not going to give back more money on compound interest. Ok. Any question?
Class: (In a chorus) No questions!
Teacher: This is how we supposed to write it, without putting cents, without putting other funny things. Heh! Ok. Anyway the answer is correct, is it?
Class: Yes
Teacher: And always we indicate… If we are talking about money we indicate that it is the dollars. If it is donkeys or cats, you write cats. Ok. Any question? I hoped that you… what you need to do… please study that formula so that you can remember it like your name. Is that clear?
Class: (In a chorus) Yes!
Teacher: Ok. Before I give you the homework, I need advice from you. Heh! I have a friend, who is HIV infected and she's just staying at home, she does not go out. She does not even go to the shops; not even to the hospitals, she is just home. Now I want you to help me on what I should tell her? Tell me anything that you think that I should tell her. I want to help her so that she can live a normally life like any other person. What should tell her? Can I just leave her? What should I tell her? Definitely I should not leave her, what should I tell her?
Learner 16: Who is that one?
Teacher: No! It's my friend; there is no need to know who she is. She is just a person who needs help. What important here is not to know who the person is, you just need to help her. What can I do? What can I tell this person? *(Pointing at a learner)* Yes! What can I say? What can I tell her?
Learner 17: Tell her to go to the hospital
Teacher: I must tell her to go to the hospital. What else? What else should I tell her? Hum? What else?
Learner 18: Tell her to go to the doctor so that she can get advices on what to do. And you must tell her that it is not the end of the world but it's the beginning of her new life.
Teacher: I must tell her that this is not the end of the world but it is the beginning of her new life. Ok. Thank you. What else must I tell her?
Learner 19: You tell her that she is not the only person
Teacher: Ok. What else must I tell my friend?
Learner 20: May be she feel that when she go to the shop people can see that she is negative but you cannot see whether she is positive or sick, if she do not want to follow instructions just leave her.
Class: (Laughed and shouted) Just leave her!
Teacher: Don't make fun of my friend… people! *(Making hand signal while moving around the class)* Who is going to help my friend? I cannot leave her? People are saying no, you can't leave your friend like that. What can we do?
Learner 21: *(Talking calmly)* You can pray for her or take her to the church to feel good and confident again
Teacher: Ok, thank you very much for advises, if you have a friend or a family member who is having the same problem you must also ask people how you can help them, don't leave them, we must help each other.

Ruth's Lessons

Below is a summary analysis of Ruth's lessons that describes her planning, the HIV and AIDS content covered, the pedagogical strategy used, the nature of integration identified and the challenges Ruth experienced.

Planning

Ruth planned for all the lessons observed. Her lesson plans included the lesson objectives and competencies, correction of the previous homework, introduction, teacher's and learners' activities, homework, conclusion and reflections. Like Paul, Ruth's lesson plans provided descriptions of the progression of the lesson. Unlike the two teachers above though, Ruth indicated the type of HIV and AIDS information (including questions) to be integrated in the lesson. In the first lesson, she indicated that she would "*include HIV and AIDS in the scenarios; teenage pregnancy, HIV increase and decrease.*" During the lesson, Ruth used it as the following excerpts indicates

> *Yesterday we learnt how to get the quantity, the increased quantity or amount. Today, we are going to learn how to get the percentage decrease, okay! Yesterday we learnt how to go forward. Today we are going to learn how to reverse. Okay let us see at the example, the number of learners who got pregnant at school S increased from 16 to 24 learners. What was the percentage increase?... Before we proceed, why do you think this school S, why do you think the pregnancy increased?... The number of people tested HIV and AIDS in town B, declined. What does decline mean? Decline from 750 in 2010, to 600 in 2011. What is the percentage decrease?*

In this instance, the teacher integrated HIV-related information with the subject content. Put differently, Ruth included a focus on teenage pregnancy and HIV in her lesson plan and was thus able to use information on teenage pregnancy to reinforce the mathematical concept of percentages.

During her second and third lessons, Ruth indicated in her lesson plans that she would incorporate HIV-related information into the lesson. Regarding the second lesson, she said, "*During the lesson, learners will share ideas on facts and myths about HIV and AIDS.* While during the third lesson, she indicated that as part of the conclusion, she would "... *ask learners to give [her] advice to help [her] friend who is HIV and AIDS positive and does not want to go to hospital*." In both instances Ruth adhered to her plan. However, unlike the first lesson where she integrated the HIV information into the subject content (in other words,

used the information to reinforce the subject), the HIV information in the latter two lessons remained separate from the subject itself. During the post-observation interview, she indicated "*HIV and AIDS integration requires proper planning to make sure that the information that you are giving is appropriate to the content you are teaching*." Unlike Mary and Paul who recognised the importance of providing learners with HIV related information but did not necessarily plan to integrate this into their subject, this teacher recognised the importance of planning *for* integration.

Content Focus

Ruth's lessons included HIV and AIDS information differently. In the first lesson, Ruth was able to integrate the HIV-related information into the subject by asking about the percentages of teenage pregnancy. However, while this was the case, Ruth did not ask questions about teenage pregnancy to reinforce how it can predispose learners to HIV or how it could impact on learners' future. She said in the post observation interview, "*I think that learners are aware of the impacts of teenage pregnancy thus I didn't have to spend more time discussing the issue*."

In the second and third lessons Ruth taught about HIV and AIDS separately from the mathematic content. Although this information appeared in the lesson plan, the mathematics was not connected to the HIV content at all. During the second lesson she instructed the learners, *"Before we start with our corrections, I want you to tell me three things that you know about, three things that you heard in the community or in region or that, you heard people saying about HIV and AIDS… that you think are not true."* Thus, overall the impact of the HIV information was minimized: learners were not probed about the information in lesson 1, and in the second and third lessons there was a sense that the lessons were taught for the researcher to see how the teacher could integrate HIV and AIDS.

Pedagogical Strategy

Ruth's lessons were active. She asked questions and learners were given a chance to write answers on the chalkboard, mark their own work, and discuss in groups. She urged learners always to give individual answers rather than the class calling out the answer. This motivated learners to be active; they raising their hands keenly, especially on mathematics- specific questions. Learners were active in giving answers related to HIV and AIDS during the first lesson only, when the teacher used scenarios that formed part of the mathematics content.

Thus, learners seemed comfortable with giving responses that related to mathematics rather than when the HIV and AIDS content seemed added on or apart as in with the second and third lessons I observed. Learners seemed reluctant to respond when asked about HIV-related information that was not related to the mathematics content or topic under discussion. The teacher probed and hinted, with little response from learners, as reflected in the following excerpt.

> Teacher: I want you to advise me on what I should tell her to do. Anything you feel like... what should I tell her to do? I want to help her so that she can live normally, like any other person. What should I tell her? I must just leave her? What should I tell her? Definitely, I should not leave her; what should I tell her? If you don't help me then I will just leave her.
> *Learner*: Who is that one?
> *Teacher*: No! It's my friend. There is no need to know who is… just a person who needs help. What is important here is not to know who the person is, you just need to help a person who I mean what can i do, what can I tell this person? Yes! What can I say? What can I tell her?
> *Learner*: Tell her to go to the hospital

At some point in the lesson, learners made fun and laughed at the responses from one or two learners, as highlighted in the following excerpt from the third lesson.

> *Teacher*: Ok. What else must I tell my friend?
> *Learner 20*: May be she feel that when she go to the shop people can see that she is negative but you cannot see whether she is positive or sick, if she do not want to follow instructions just leave her.
> *Class: (Laughed)* Just leave her….
> Teacher: Don't make fun of my friend… people! *(Pointing at a learner)* Who is going to help my friend I cannot leave her? People are saying no, you can't leave your friend like that. What can we do?

The teacher did not develop the discussion or add to the learners points. She only repeated learners' responses even when discussion was possible. She said, "*Ok, thank you very much for advises, if you have a friend or a family member who is having the same problem you must also ask people how you can help them, don't leave them, we must help each other."* This might not have encouraged learners to reflect on issues of stigmatization, medication and supporting people who are infected with HIV and AIDS.

Nature of Integration

As described earlier, Ruth discussed HIV and AIDS-related issues using two methods. In the first lesson, the HIV content was aligned to the mathematics content making it easier for learners to manage and respond. Put differently, she used the HIV content to introduce and reinforce a mathematical concept and focused on mathematics rather than on HIV and AIDS. Thus, while she used an HIV related topic and integrated it with the mathematical concept, Ruth privileged and foregrounded the mathematical knowledge in the lesson.

In the second and third lessons, Ruth managed the HIV related material much like Mary, where the HIV information was kept separate. Like the other two teachers already discussed, Ruth seemed to 'add on' HIV-related material that seemed unrelated to the topic at hand even though, unlike the previous teachers, she had included it in her lesson plans. During the post observation interview, Ruth offered a personal insight into her teaching strategy when considering how to integrate. She said, "*I use scenarios and I always make sure that I put it in a way that it will not affect any of the learners emotionally*." Ruth pointed out, "*Sometimes I change mathematical/textbook scenario into people with HIV and AIDS in a certain town/country, to let learners to calculate statistics on people infected/affected, orphans and so on.*"

Like Mary, Ruth's second and third lessons seemed unrelated to the mathematical content despite her lesson plan depicting the content she was going to discuss.

Challenges to Integrating HIV and AIDS

Like Mary and Paul, Ruth had not been trained in integrating HIV and AIDS-related lesson content and reported that she had no appropriate material or other professional support in this respect. Thus, she found it a challenge to integrate HIV and AIDS awareness apart from using scenarios or asking general questions on HIV and AIDS. She indicated that learners are not ready to talk about HIV and AIDS openly since it is still regarded as taboo in the community, and it is against their cultural norms to talk about sex with elders. She said, "[*T]raditionally, it is regarded as a taboo for parents/teachers to talk about sex and condoms."* She also made the point that she disagrees with this sentiment and that she instead chooses to talk openly about HIV and AIDS because it is her responsibility to make changes in learners' lives and help them to change their behaviour.

Ruth also emphasised that integration is not an easy task because HIV content is not integrated in the mathematics content and textbooks; teachers have to be innovative to integrate it successfully. She indicated that she can integrate during the lesson but she rarely integrates it in mathematics assessment since it is complicated and requires lots of work. She said, *"Mathematic needs more time to consult with all the learners, thus more time is spent on the subject outcome."* She further made the point, *"[I]t is not really important to assess*

about HIV, what is important is to give the necessary information that can help to change learners' behaviour."

John's Lessons

John's Lesson 2 Date: 22 February 2012. Subject: Mathematics Duration: 40minutes. Class size: 27 learners Topic: Money and Finance. Lesson objectives: Learners will revise the test and answers all questions correctly
Teacher: (*After writing the date and faced the class*) Good afternoon class! *Class: (In a chorus)* Good afternoon teacher… (*some*)Fine, how are you teacher? *Teacher: (Moving closer to learners)* Fine. Right! Now take your answer scripture out. Where I mark you wrong you are welcome to see me. (*Laughing*) You know that I am not a computer, sometimes I can make mistakes. (*hold his question paper*) Ok, now let us take it out. This was the second test. Now you were given a column there which consist of equipment's and some of the outfits …right! (*He drew a big rectangle shape on the chalkboard, coping it from the question paper and asked few questions*) What is the first point? What is the first diagram was for? *Class:* (*In a chorus*) Shoes! *Teacher:* (*Repeating on learners' response*) Shoes! Neh? *Class:* (In a *chorus*) Yes! *Teacher:* (*Draw the shoes and wrote below it*) N$ 700.00 per pair. (*Draw a trouser and writes below it*) N$ 200.00 Per pair. *(Draw a ball and write below it*) N$ 100. 00. I am not a good drawer. Ok You see where I played the trick? Last time when I gave you something like this for the exercise, neh? *Class: (In a chorus)* Yes! *Teacher:* I gave you something like this for your exercise and then I simply changed the percentages' there plus the question. Right? *Class:* Yes. *Teacher:* (*Pointing at the top right corner of the rectangle*) Last times it was 15% but now I changed it and make it 10%. Some people did not even look at that one and simply started to answer like the previous one. (*Writing on the chalkboard*) All the sports outfits were 10% off, and equipment's 20% off, aright? *Class:* Yes. *Teacher:* (*Showing on the chalkboard*) So the only difference was here, the 10% was 15% last time. So I just changed it, now before we actually come to the question papers itself, so categories' this one (*Showing the items on the chalkboard)*. There are two categories here, some are outfits and others are equipment. Which one are outfits and which one are equipment? Which one? Just give me any example of equipment. *Learner 1:* (*A boy raised up the hand and the teacher gave him a chance*) Shorts *Teacher:* (*Asking for clarification*) Shorts are equipment? *Learner 2*: (*A boy stood up and gave the answer*) Soccer ball *Teacher:* Ok. Like soccer ball is equipment. Yah, the shoes are the outfits. I think that you are having a problem with English. So you cannot tell which one is equipment and which one is an outfit? In grade 10! Oh aaye! *(Meaning... no)* like the grade 4! Ok now let us quickly look at the question, time is running out. So we had a sport shop has marked down all the sport outfits and equipment. So they were all marked off (*Pointing at the items on the chalkboard*). So the sport outfits were off by 20% and equipment by 10% off. Now check it out number 1. Letter a).Now Peter has to change the price ticket of an aircraft to the same price. You know they are the same. This is now the selling price before the sale (*Pointing to the money below the items in the question paper*). So now the prices have to be changed to the sale price. Now the first one was calculated, the new selling price for the soccer ball, which is equipment. (*Writing on the chalk board)* The soccer ball is how much? *Teacher:* (*Pointing at one girl*) Iyaaa…kaadona (*yes... girl*) The next one? *Learner 3:* N$ 37. 00 *Teacher:* That is the prize for the soccer ball, right! Now we want to know now what would be the new selling price if you apply the sale. How will you find out that one? *Class:* (*Some learners shouting*) 100! *Teacher:* 100? Represent what? 100 represent what? *Class:* (*Shouting*) Percentages *Learner4:* (*A learner stood up and gave the answer*) Minus 20! *Teacher:* (*Asking a follow up question*) Minus 20 what? *Class: (Shouting*) some…25…some 80 *Teacher: (Shaking his head)*Ooh…it is just like ten minus two, Oh!Yeerere hot!! 80% now you have it. But does that mean that now that is the new selling price?

Class: No!
Teacher: Right. How will I get a new selling price?
Learner 5: 80% over 100
Teacher: (*Wrote it down)* 80 × price of the soccer ball N$ 379.00 right!! Work it out...calculate!
Class: (*Calculating using their calculators*)
Teacher: (*Instructing learners*) You multiply this one first (*Pointing at the 80×379)*
Class: (Shouting) two hundred and...?
Teacher: (*Asking learners*) Two? Did you say two? I don't need a final answer; I want it just step by step. (*Showing on the chalkboard*) You multiply this one first, how much will you get?
Class: Three…five…some said three zero… zero!
Teacher: Three zero…zero comma (*Some learners shout*) aayekapena coma (*means there is no comma*)
Learner 6: (*A boy stood up and gave the answer*) Three thousand, three hundred and twenty.
Teacher: Ok. Three thousand, three hundred and twenty. Aright! Like that one nee! Out of 100, aright. Then you get how much? Three hundred and three! (*Move closer to learners*) What are you talking about now? Do you have a different answer from others?
Class: No
Teacher: Now when you multiply, Is this what you got? (*Pointing at 320*)? If you multiply with 80, it will give you some thousands
Three Zero two comma one two (302, 12)…some said three hundred and twenty. Bring the calculator. Three zero three zero comma one. It is just like that exactly. Now you divide it by 100 and then you get what? Three hundred and thirty, point twenty cents. So that is now the new selling price, so the sale prize will be that one. Now you know. Aaa…into the next one. Did you do that one? Or you can use the other method also. That one saying if you got 15%, 20% of this amount× by 370.90 how much will you gets? And show your answer before you subtract. Work it out.
Class: (*Working it out in groups*) 700…some said 75,8
Teacher: 75, 8nee? (*Writing it on the chalkboard*)
Class: Yes!
Teacher: Aright, and then which means that the 20% that was taken off from this amount (*Pointing at 75, 8*) and now you have to subtract it from the price. (*Writing it down on the chalkboard 375-75,8*) you still have get this same answer (*Pointing to the previous answer of the first method $303,20)*. Ok, is it? Nee?
Class: Yes
Teacher: Ok. Let us hurry up a bit, time is going. A club has four players who will need shoes. So they are four *(Writing it down on the chalkboard*) each of them will need a pair of running shoes, and a pair of shorts. All those players, all those items will be how much? (*Pointing at a boy*) Daniel!! A pair of shoes and a pair of short. All those items will be? I do not need the amount. I need the number…the items.
Learner 7: Eight items
Teacher: Right, because here we got four pairs of shoes and four shorts and that is eight! Ok. Let us now go to the next question. *(Pointing at a girl)* Maggy! This one is yours. Now calculate the same. I mean the price of the shoes after the sale (*Writing it on the chalkboard*). Now a short is in which category? Equipment or outfits? Maggy!
Learners 8: Outfits
Teacher: (*Instructing the learner*) Now how much each cost after the sale? You take what? Quickly!! You do not know what to do? Aaah…I do not want you to do it on paper, just tell us what to do on the chalkboard. You go by as saying what?
Learner 9: (*Speaking low*) Percent…Minus 10% is equal to 90%
Teacher: (*Instructing the learner*) Ok. Next step. Now what should we do from here? You see, you either go for the first method or you can go for method two. You cannot mix up things. Just use one method. Who can try this one?
Learner 10: 90 times 259
Teacher: Aright. How much is that one? Let us simply multiply it now quickly. 90×259 is how much? How much is that?
Learner 11: Twenty three thousand three hundred and ten (23310).
Teacher: (*Writing the answer on the chalkboard*) N$ 233, 10. So after the calculations that is what you are going to get. Ok. That is the price of the shorts. So now we need also the price of those shoes. (*Pointing at a girl*) Apollo! That one is yours!
Learner 12: (*Stood up and Gave the answer, and then sat down*) Ten out of 100, Times 700 and…(*then he kept quite*)
Teacher: Why are you saying 700 and? Ok how much will you get? Let us just find the final answer there
Class: (In a *chorus*) N$ 70.00!
Teacher: Ok. Now do you mean it will be ... *(Pointing at the answer given)* this is now the cost prize after the

sale? It was N$ 700.00 and now you are selling it for N$70.00?
Class: No!
Teacher: What is now the selling price?
Learner 13: N$700 -70.00 equal to N$630.00
Teacher: N$630.00! Aright. The 10% is that one! Ok, now we know. Ok. Let me take you to the question, roman three (iii) calculate the total cost of the players sport outfits if the club bought these items on sale. If they bought on sale and they are four, each player has to get this one (*Pointing at N$ 233.10*) Is this the total or shorts?
Class: Shorts
Ok. If each player supposed to get this (N$ 233.10) and also N$630.00 for soccer boots, now how much that will cost for four people? How will you do it? (*Pointing at a boy*) Yah…… Kristof!! You do it how
Learner 14: Times four
Teacher: Can I make it like that one: Shoes × 4 (*Instructing another boy*) Daniel! Help him out. Iyaa…we can continue from where he stopped.
Learner 15: (*Stood up and gave the answer*) Plus 29!!
You speak so optimistically but…aaa!
Class: (Laughs loud)
Teacher: (*Looking at his time and wrote on the chalkboard*) Ok. Now let us do it quickly…4×shoes +4× shorts (4×shoes + 4×shorts)
Ok. Now? Ok. 4×630+ 233 Plus 4×233. Aright!! 4×233. Aright, as simple as that one. Which one can we work out first? Should I add or multiply first?
Class: Multiply
Teacher: Ok. How much is this one 4×630?
Learner 16: (*A boy gave the answer*) N$ 2520.00
Teacher: Aright and that one four shorts?
*Learner 17:*N$946.40,
Teacher: and all together?
Learner 18: Three thousand, five hundred and sixty two and forty cents.
Teacher: Aright! That is what you could have done. Most of you got it wrong. I just do not know because you used six, you did not read the questions. I think you memorized the other question which was similar to this one. Yah! (*Instructing learners who were standing*) get seated. The first part is done. Now we go to the number two. This was very easy nee? (*Reading the instructions and put more emphasis on what the questions asked*) Express the following as percentages. That was very easy, and some of you did not get it right. *(Mentioning one learner while writing on the chalkboard)* Queen! Let me hear from you. a) Two over five (2/5). I want it to be expressed as percentages and also b) 0, 05. Common fraction and then a decimal fraction. If you want to convert something into percentages all that should come into your mind is what? You got it now but you did not get it in the test. 8×1 then you gets 8. Aright, so that is how the test was. Ask some questions please! Because I would like to ask you some questions. Are you sure you do not have questions? Not even comments? No complains about your marks or something?
Learner 19: (*Raised his hands up*)
Teacher: Do you have complained or question or comments or suggestion?
Learner 20: Complains!
Teacher: Complains? I would like to hear complains later but I want the questions to come first. Ask me some questions and then…. the complaint later.
Lear21: (*Talking calmly)* I do not have a question
Teacher: (Moving closer to the learner) Aaaah…..Can I ask you a question?
Class: Yes!
Teacher: This question goes on like this. (*Using hand signals)* It also applied to everyone in the class. Now supposed…before I give the punishment …Actually…*(Laughs*)… No! I am not saying I am going to give you a punishment. The punishment I will give it to those who fails the test. Now suppose you are in the class and then…how many are you?
Class: (*Some*)...38, others 35, (*while others said)* 33
Teacher: You are thirty three! *(Writing down 33 on the chalkboard*) Aright, suppose 33 wrote the test. How many people failed this time? How many failed?
Class: (Some learners said) 21! (*Some learners)* 3! (*Some learners*) 5!
Teacher: There are only five (5) people who failed the test and 28 passed the test. Now with these five (*Drawing an arrow from five facing down*) it is only that we do not mention those things of our status. Now let us say that among these five people, there are two people (*writing two below one arrow*)…two people who are here they are infected with HIV and AIDS (*2HIV*)
Class: (*Laughs and noisy*) Aaaaye…Oh…No...No…Oh infected? (*Some learners looked down while some hold*

their mouth) No sir we are not infected!
Teacher: (Standing at the front and talking calmly) Come on guys…! We are just assuming. Ok!
Class: (*Calm down a bit but still laughing and whispering to each other*)
Teacher: Ok. Now let us say that I am going to give a punishment. Do you think I should punish the learners who are infected the same way as I will punish the other three who are not infected? Or there should be a difference? And if it is so, why do you think so? Ok now … (*Showing on the chalkboard*, *circling two*) I mean these two are HIV positive, these three are they are ok; they are negative. If I am to going to punish them can I punish them the same way or should there be a difference?
Learner 22: (Looking down and talking low) You have to punish them the equally.
Class: (Shoutingsome laughs and whispering) majority said Yes! Few said no!
Teacher: The reason behind being?
Learner 23: Because all of them failed.
Teacher: Ok. Because they all failed. Who is having a different idea? (*Pointing at a girl)* Zondi! What do you think?
Class: (*Looking at Zondi and laughs loud. Zondi looked down holding her mouth*)
Teacher: If it was you? Just put yourself in their shoes. How would you like to be treated? How will you be punished?
Class: (*Laughs more at Zondi, who was just seated as if he did not know that the teacher was referring to him. Zondi replied with a low voice)* I am not infected!
Teacher: (*His voice changes and looked so serious this time*) Aaaye! Zondi stand up and speak loud. I did not say you are infected. We are just assuming!
Zondi: (*stood up scratching her head and holding her mouth at the same time looked shy*) No idea.
Teacher: (*Moving around the class)* Who is having an idea? I want your ideas on this please! The last idea.
Class: (*Quiet and no response*)
Teacher: No one has an idea? I think I the first answer is correct. I will also follow his advice. I will just punish them the same way unless perhaps if one of them is seriously sick and then is taking medications or is very weak.
Class: (*Shouting*) Oh…aaaye...that is not fair!
Teacher: Obviously! If someone is sick, I mean he comes to class but he is having some sickness, can we even punish him?
Class: No…some…Yes!
Teacher: We don't have to punish sick people! We will end up just killing him but the whole thing is that we must treat them equally. Treat other equally, no discrimination…Ok!
Class: (In a chorus) Ok.
Teacher: (Packing his books) Is there any question or comment? I am done, so have a good day people.

John's Lesson 3
Date: 24 February 2012Subject: Mathematics. Duration: 40 Minutes. Class size: 27 learners. Topic: HIV and AIDS Lesson objectives: Learners will be able to prevent themselves from being infected by HIV and AIDS
Teacher: Good afternoon class?
Class: Good afternoon teacher!
Teacher: Today's focus is on HIV and AIDS. Aright…Aright! (*Writing the topic on the chalkboard)*. HIV and what?
Class: (*Shouting the answer*) HIV and AIDS!
Teacher: What is HIV stands for?
Teacher: Raise your hands. (*Pointing at a boy*) Yaah, Juno!
Learner 1: Human Immune Deficiency...Deficiency…Virus!
Teacher: Aright! Are we together? Ok. So it is simply stands for Human Immune Virus. Are we together? And what does AIDS stands for? (*Repeating the question*) what does AIDS stands for? (*Pointed at a girl*) Iyaah!
Learner 2: Acquired Immune Deficiency Syndrome
Teacher: I said our lesson for today is about what…?
Class: (*Loud chorus together with the teacher*) HIV and AIDS
Teacher: (*Reminding learners with an extended stare while moving around*)…And remember HIV and AIDS affects us on a daily basis. Are we together? (*Repeating slowly*) It affects us on daily basis. (*Stood in front of the class and stared at learners*) Now what is the difference between HIV and AIDS? What is the difference between the two?
Class: (*Many learners raised their hands making sounds with their hands up to be recognized by the teacher*, while some shouting the answer, some made sounds with their fingers) *(spot one girl whose hand was not up*) Aaa…Stephy!

Learner 3: (Loud and confident) HIV is a virus and AIDS is a disease!
Teacher: (*Writing it down on the chalkboard and motivate the answer*) It is a disease, Right! Yah, it causes HIV. Aright! Now how do people contract HIV and AIDS? (*Rephrasing the question with confidence while moving around the class room*) How do people get infected by HIV and AIDS?
Class:(*Few learners raised hands*)
Learner 4: Through blood transfusion, and unprotected sex.
Teacher: (Moving around) But here I want you to make clarity on this one (*Underlining the word 'through blood contact)*' Now let say I am not infected and you are not infected and our blood contact, does that means that you can get HIV?
Class: (*Many learners raised their hands up*)
Learner 5:(*Stood up and speaks calm*) Sharing sharp objects
Teacher: (*Wrote it down on the chalkboard*) Sharing sharp infected objects like needles. Ok. Lets' go back at number one (*Pointing at blood contact*)… (*Moving hands sideways, holding fingers and moving around*) If you are infected by the virus and your blood comes in contact of someone who is not infected and maybe that person is having a wound (*Making hand signal*) You might be infected. Ok. Going on to the next answer which is through unprotected sex…through unprotected sex... aah…aah…if you do not use protective measures, then you are at risk of being infected. And sharing of sharp objects, for instance you are using needles and they have been used by a person who is infected, then if you use them and get contacted with your blood there is possibility for you to be infected. Ok. Those are the ways in which a person can be contracted or can be infected by HIV and AIDS. Ok. Now how can you protect yourself against HIV and AIDS?
Class: (*Hands up, some finger sounds and shouting*) Use condoms...abstain…be faithful....no sex!
Teacher: (*Commenting with the face expression/changes and hands moving as well as finger pointing at learners*) Use condoms! Are we together?
Class: (Laughs and some learners hold their mouth)
Teacher: You have to make sure that you use condoms constantly... (*In slow motion*) at all times! Aright! The other method is by abstaining from sex. Simply means you need to refrain from being 'finyafinyas (*indirect language of running around looking for something*) are we together?
Class: (Laughs so loud, the teacher was just smiling).
Teacher: Aright! You don't need to have a boyfriend or girlfriends…are we together?
Class: (Hands up again, few learners this time)
Teacher: (*Points to one boy*) Yes!
Learner 6: (*Stood up and gave the answer*) Be faithful
Teacher: You need to be faithful to your partner! Are you faithful people?
Class: (*Some said yes, while some said no while some did not say anything; they were just looking down*).
Teacher: (*Moving around the groups*) Do you have boyfriends or girlfriends?
Class: (*Some said yes others said no*)
Teacher: Aright. If you have a boyfriend or girlfriend you must (*Hold his finger*) be very faithful to each other
Ok. Those are some of the measures that we need to protect ourselves against HIV and AIDS. Now we are talking about people who are infected by AIDS! By the virus. Now these people have got also the rights, ok…they got rights, are we together? Hmmm…same applies to all of us …they got also the rights also. Now what rights do these people have? What are the rights people who are infected with HIV and AIDS has?
Class: (Few *hands up*)
Learner 7: (*So confident*) They got rights to education...to go to school and treated like other kids
Teacher: They must come to school and they must not be chased away or discriminated. They got the rights also. Right! Ok, (*pointing at a boy whose hand was not up*) Ken!
Learner 8: (*Giving his answer with a low voice*) They got rights to work.
Teacher: Yes! These people have the rights to be employed. Are we together? They must be employed, they must have jobs, what else? What else? They must be employed, they must have jobs, what else? What else? What else? (*Asking learners*) Can I discriminate these people?
Class: (*Loud*) NO!!
Teacher: Can I say no, you don't need to get in contact with me because you are infected?
Class: (*Loud*) No!!
Teacher: So there is no need to discriminate these people. Do not discriminate others because he or she is infected, they are our friends and families. So We must support them and take care of them. What else? They also got the right to do what?
Learner 9: (Laughing) To get children
Teacher: Yes! They got rights (*Both the teacher and learners repeated the answer*) to get children. If you are infected you also have a bright future ahead of you. All you need to do is to think positive, eat healthy, be happy like others and remember that we love you. If you know someone who is infected, treat them well and do not discriminate them. AIDS can infect everyone, what if you discriminate someone today and tomorrow it is you

who is infected? And most importantly make sure that you are safe. We said, use condoms consistently; Every round must have a condom
Class: (Laughed so loud and repeat after the teacher) Every round must have a condom!
Teacher: (Smiling) Yes, you must use the condom at all times. Be faithful and the best option is for you learners is to abstain…stay away from it. Yes, that was all about HIV and AIDS in the lesson for today any question? Any question?
Class: No questions!
Teacher: (*Packing his books*) Thank you for your participation and have a good day

John's Lessons

Below is the summary analysis of John's lessons and views. It includes his planning, the HIV-related content covered in his lessons, the pedagogical strategy used, the nature of integration and the challenges he experienced.

Planning

John planned for all the lessons observed. He used a different lesson plan format from the other teachers observed, which gave little information on the lesson procedures. During the interview, he indicated, "*Lesson plans are not really important; what matters are the practices."* He did not include information on HIV and AIDS in his lesson plans except for the third lesson where he had a very brief lesson plan that focused only on HIV and AIDS; its objectives were to "Educate learners and create awareness on HIV and AIDS". The lesson plan had little information in any of the components. John stated, "*I have a lot to plan in mathematics, if I have to plan for HIV that will be extra work on my shoulders*." John talked about HIV and AIDS in two lessons. In the first lesson, he taught only about percentages and standard forms. No HIV and AIDS-related information was given or discussed during the lesson. During an individual interview, John stated that "*I do not talk about HIV and AIDS every day and today's topic could not accommodate information about AIDS.*" During the second lesson, John taught about money and finance; the class revised the questions on the previous test on percentages, standard form, bills and income tax. John used the classroom situation to talk about HIV and AIDS. He related HIV and AIDS infection to the learners themselves; asking how the learners who failed the test ought to be punished if some of them were HIV positive. The third lesson felt as if he was teaching about HIV and AIDS for the researcher.

Content Focus

John's first two lessons focused mainly on mathematics. He taught about mathematic for the entire first lesson; and in the second lesson asked learners a question related to HIV and AIDS at the end of the lesson. Asked about this in the post-observation interview, he said, "*I asked that question to create awareness on discrimination against people who are infected by HIV and AIDS because there are some learners who are infected."* During the third lesson he focused on HIV and AIDS for the whole lesson; it felt like a life skills lesson. He said that he took one day a week to teach about HIV and AIDS since he found it challenging and also time-consuming to integrate the subject with mathematics.

He introduced the third lesson by asking what HIV and AIDS is. The class discussed how it spreads, how they should protect themselves and the rights of infected people. Learners knew the content discussed, thus everyone wanted to give the answer.

> *Teacher: What is the difference between the HIV and AIDS?*
> (*Many learners raised their hands making sounds with their fingers up to be recognized by the teacher*, *while some shouting the answer)*
> *Learner 3: HIV is a virus and AIDS is a disease!*

Paul stated in the post observation interview, *"I want to educate learners to take good care, to protect them and be safe. I also want them to know that all people either infected or not, are having the same human rights. I want learners to be able to make wise decisions because I care about them."*

Pedagogical Strategy

John rarely talked about HIV and AIDS during mathematic lessons. During the first and second lessons, he used a question and answer method. He also instructed learners to discuss and write the answers on the chalkboard. Learners were very active during mathematic lessons. During the third lesson, the class atmosphere was different; the teacher did not use the same strategy he had used in the first and second lessons. Learners seemed disruptive and more distracted than in previous lessons, most of the time chorusing responses. Learners laughed at others when some learners responded to questions posed by the teacher. Many learners seemed uncomfortable with the topic. Learners seemed constrained about speaking because he associated infection directly with the learners themselves.

> *Teacher: If it was you? Just put yourself in their shoes. How would you like to be treated? How will you be punished?*
> *Class: (Laughs more at Zondi, who was just seated as if he don't know that the teacher was referring to him… [Zondi replied with a low voice]* I am not infected

Teacher: (*His voice changes and looked so serious this time*) Aaaye!! Zondi stand up!!
Zondi: (*stood up scratching his head and holding his mouth at the same time looked shy*) Aaaa... aaa ... *aaye!! No idea.*
Teacher: Who is having an idea man? I want your ideas on this please!! The last time!

Nature of Integration

It is difficult to relate John's lessons to Fogarty's models of integration. John took advantage of the opportunity to talk about HIV and AIDS separately from mathematic. He incorporated elements of learner self-reflection although these were not based in the mathematics content; for example, learners were asked to tell how they would like to be treated if infected by HIV and AIDS, although there was no further probing or encouragement of further discussion. Despite acknowledging the importance of integration, John did not make any connection between mathematic and HIV and AIDS, thus keeping the content of each quite separate in the lesson.

. He said, "*Every subject teacher should integrate HIV the way that suits them best. Integration within the content it is not easy, we are experiencing so many difficulties. In most cases, you don't know how to integrate and which information to integrate and sometimes you have fear that you might offend some learners who might be sick or infected because you don't know their status."*

John acknowledged a number of difficulties with integrating HIV information into a subject. These had to do with his lack of training, not knowing learners' HIV status, and the difficulty of making decisions about integration.

Challenges to Integrating HIV and AIDS

Like the other teachers in this study, John experienced challenges in integrating an HIV and AIDS component with mathematics. He was not trained, received little support from colleagues, and had no materials to support such integration. John further indicated that HIV-related material is not integrated with the mathematics content in the syllabus or textbooks. He raised the following concern: "[*T]eaching mathematics is stressful, there is high subject demand and the parents and community are expecting the good results and high passing rate at the end of the year, thus the focus should be placed on learning outcomes than on HIV and AIDS information.*" John emphasised that HIV and AIDS information needs proper planning, thus it is time consuming. He noted that teacher roles had changed: "*[O]ur role have*

changed; we are not just teachers but social workers too at school in dealing with problems related to HIV and AIDS." He added that teachers are also parents and that in addition discussing HIV and AIDS-related issues and sexuality with learners complicated their roles as teachers. He regarded HIV and AIDS information as 'unusual things'.

4.3 Chapter Summary

The teachers who were observed all noted that integrating HIV and Aids-focused information into their lessons presented many challenges. They pointed out that no time had formally been allocated for HIV and AIDS discussions in class and in teacher development courses. Policies and other available resources such as textbooks offered limited information on how to integrate HIV and AIDS education. Teachers more over pointed to a lack of support from colleagues, community and the education directorate personnel in the region.

The teachers further indicated that the influence of their own cultural, social and personal beliefs and practices made it difficult for them to talk openly about HIV and AIDS to learners. All the teachers did, however, discuss HIV and AIDS-related issues during some or all of their observed lessons. In doing so they tended to use an adhoc approach instead of deliberate, planned action. HIV and AIDS information was generally addressed separately from geography and mathematics content with few connections made.

4.4 Teacher Survey Results

A questionnaire was utilized to gather data on teachers' perspectives and self-reported experiences in relation to integrating HIV and AIDS education as described in Chapter 3.

I begin with a demographic profile for teachers, which highlights age, years of teaching experience, years of experience in their respective subject specialization, and teacher qualifications. I thereafter present participant responses to participation in professional development in general and in training on HIV and AIDS integration in particular. In addition, I report on the challenges and support teachers claimed to have received with regard to integrating HIV and AIDS information in their lessons.

The results also reflect the availability and uses of policies that teachers reported informed their decisions on HIV and AIDS integration. Moreover, the frequency, nature and form of integration was reported, which includes information on *how* and *how often* they reported to

integrating HIV and AIDS; how they made decisions on when to integrate HIV and AIDS information, and the types of HIV and AIDS information they report to integrating.

The results further provide details on the availability and use of learning support materials that teachers use in order to integrate some focus on HIV and AIDS.

Finally, the results highlight suggestions related to integration by the geography and mathematics teachers who responded to the questionnaire.

4.4.1 Demographic Profile

Table 6 below shows that 26 geography and 27 mathematics teachers participated in the questionnaire.

Table 1: Main Subject Taught and Age

Subject taught	Age						Total
	20-25	26-30	31-35	36-40	41-45	Over 46	
Geography	3	4	6	6	3	4	26
Mathematics	5	4	6	7	3	2	27
TOTAL	8	8	11	13	6	6	53

The majority of geography teachers fall within the 31-35 and 36-40 age categories. The same is true for mathematics teachers. Seven geography and nine mathematics teachers are 30 years and younger, with only seven geography and five mathematics teachers respectively over the age of 40. Forty of the 53 teachers are 40 years or younger; a result that indicates a cohort of teachers who are still in the prime of their teaching career.

Tables 7 and 8 below respectively indicate teacher's years of teaching experience in general and years of teaching their particular subject specialization. As Table 7 indicates below, 33 of this cohort have 10 years or less teaching experience.

Table 2: Years of Teaching Experience

Main subject taught	Years of Teaching Experience

	0-5	6-10	11-15	Over 15	Total
Geography	9	6	6	5	26
Mathematics	8	10	4	5	27
TOTAL	17	16	10	10	53

When asked about years of experience in teaching their subject specialization, teachers reported less experience in this than teaching in general. This was particularly true amongst geography teachers as Table 8 below indicates.

Table 3: Years of Experience in Teaching Mathematics and Geography

Main subject taught	Years of Experience in Teaching Subject Specialization					
	0-5	6-10	11-15	16-20	Over 20	Total
Geography	5	5	7	8	1	26
Mathematics	7	9	2	7	2	27
TOTAL	12	14	9	15	3	53

In summary, not only is this a young geography and mathematics teacher cohort; the results also reveal that at least more than half have ten years or less teaching experience. Importantly, participants' years of teaching experience exceeded their years of experience in teaching their subject specialization. As will be indicated later on, this result has consequences for how this group of teachers interacts with policy and the curriculum imperative to integrate HIV and AIDS information into the subject curriculum. The limited experience in subject specializations is corroborated by teachers' qualification, as illustrated in Table 9 below.

Table 4: Teacher Qualification

GEOGRAPHY					
College Certificate or Diploma		**Undergraduate Degree and Certificate**		**Post Graduate Degree**	
BETD	16	B. ED	5	BETD + ACE+ B. Ed (Hons)	1
ECP	1	HED	4	BED + B. Ed (Hons)	1
		BETD+ ACE	5		
		BETD+HED	1		

Total (26)	**17**		**15**		**2**
MATHEMATICS					
BETD	20	B. ED	7	BETD+ ACE + B. Ed (Hons)	2
		BETD+ACE	2		
		BETD+HED	4		
Total (27)	**20**		**13**		**2**

All the teachers possessed a basic teacher qualification with the majority (37) holding a diploma. Only four teachers completed post-graduate studies amongst this cohort, which did not always provide direct information on their subject specialization. Teachers who completed a BETD, H.ED or B. Ed would have completed at least three years in their respective subject specializations.

The results, therefore, show that the geography and mathematic teachers in this cohort had the requisite teaching qualifications to teach their specialization. What is unclear in the results is the degree of preparation offered (in the initial teacher education programme) for integrating HIV and AIDS-related information into the curriculum. Similarly, as I illustrate in the next section, not many teachers had obtained specific training in integrating HIV-related information during professional development courses they claimed to have attended.

4.4.2 Professional Development and Teacher Support

The section below describes the self-reported professional development courses attended by respondents in the last four years (2007-2011). It outlines the type and duration, as well as whether courses were conducted by the MoE or by other service providers. Included in this section is a description of the teachers' responses to specific training on HIV integration.

Table 10 below presents the professional development courses offered by service providers that geography and mathematic teachers reported to have attended during the last four years.

Table 5: Professional Development by provider

Subject Specialization	Service Provider and Number of Teachers		Total
	MoE Subject Workshop	Training by organizations other than MoE	
Geography	8	5	13

Mathematics	13	4	17
Total	21	9	30

A total of 30 (17 mathematics and 13 geography) teachers reported to having attended professional development workshops presented by either the education department or non-governmental agencies. The majority were those held by the MoE, most of which were five days or less in duration, as Table 11 below reflects.

Table 6: Professional Development: Duration of Training

Subject	Course/ Training	Duration and Number of Teachers	
		0-5 days	1-3 weeks
Geography	Education Department subject workshop	7	0
	Training by organizations other than Education Department	2	4
Mathematics	Education Department subject workshop	8	4
	Training by organizations other than Education Department	3	2

In the questionnaire, teachers responded to an open question about the content of the workshops and/or courses. The majority of those who had attended professional development courses reported that the content was focused either on subject-related content (an aspect of mathematics or geography), on policy or on pedagogy. Some teachers reported on more than one aspect. For example, five geography and seven mathematics teachers indicated that they had received information on the curriculum reform and its proposed teaching methodologies. Four more geography and four mathematics teachers had received specific training on learner-centred education and on how to develop learner support materials. Four other geography teachers indicated that they had been trained in subject content and assessment techniques, while six mathematics teachers indicated that they had learnt about advanced mathematical skills.

The results above point to training that focused on aspects that would enable teachers to be more competent in teaching their subject or that would enhance teaching in general, thus emphasising teacher competence. Little or no attention was apparently paid to providing teachers with support in integrating HIV and AIDS content into their specific subjects, as the next section highlights.

4.4.3 Professional Development and Teacher Support for Integrating HIV and AIDS Education

Table 12 below shows the number of geography and mathematic teachers who received training on integrating HIV and AIDS into their respective subjects in the last four years (2007-2011).

Table 7: Training in Integrating HIV and AIDS Education

Main subject taught	Training in integrating HIV and AIDS information		
	No	Yes	Total
Geography	20	6	26
Mathematics	20	7	27
TOTAL	**40**	**13**	**53**

As Table 12 above indicates, thirty-nine in this cohort of mathematics and geography teachers reported that they had not obtained any training in integrating HIV and AIDS information in the curriculum. Only 13 (seven geography and six mathematics) teachers reported to having obtained some form of training.

Table 13 below depicts the institutions that trained the 13 teachers who reported to having had training on how to integrate HIV and AIDS-related information across the curriculum. Ten of the 13 teachers obtained training from the Ministry of Education (NIED, Regional Education Circuit and RACE), while the rest were trained by various non-governmental institutions.

Table 8: Institutions that held Training in Integrating HIV and AIDS Education

Training in HIV and AIDS integration from 2007-2011			
Institution	Geography	Mathematics	Total
NAMCOL	1	1	2
NIED	1	0	1
Philip Trust	0	1	1
RACE	2	2	4
Regional Education Circuit	2	3	5
Total	6	7	13

Table 14 below indicates the length of the training as reported by the 13 teachers who

received HIV training. Most training was of short duration, with only Philip Trust holding training that lasted more than ten days.

Table 9: Duration of Training

Institutions	Duration of Training				Total
	1-2	3-5	5-10	More than 11	
NAMCOL	2	0	0	0	2
NIED	1	0	0	0	1
Philip Trust	0	0	0	1	1
RACE	2	1	1	0	4
Regional Education	3	0	2	0	5
TOTAL	8	1	3	1	13

In an open question, I asked teachers to report on the content of the HIV and AIDS-related training. All thirteen mathematics and geography teachers stated that they had learnt about teaching HIV and AIDS information while at the same time learning more about their subject content. They further reported that they had learnt about the importance of integrating HIV and AIDS education into their lessons and in assessment. The similarities notwithstanding, there were some differences between the content of learning reported by mathematics and geography teachers.

Some teachers reported on more than one aspect. Four of the geography teachers indicated that they had learnt how to integrate HIV and AIDS during map work and population geography. Two in this group also stated that they had learnt about how to be receptive and open when teaching about HIV and AIDS, while the other two indicated that they had also learnt about using learner-centred strategies to teach HIV and AIDS. A female teacher in this group indicated that she had learnt how to take care of the learners who are infected or affected by the pandemic. She stated that facilitators had taught her about new strategies teachers should use to educate learners about how to avoid further HIV infection. A male teacher indicated that he had learnt to appreciate all learners and respect their HIV status. He had also learnt how to support orphans and vulnerable children. An aspect that had stood out

in the training as he indicated was that HIV and AIDS integration could be fun and educative if teachers were well prepared and were open to talking about issues related to the pandemic.

Two of the mathematic teachers, on the other hand, stated that they had learnt about counselling learners and fellow teachers, while three others indicated that they had learnt to use scenarios and statistics to integrate HIV and AIDS in mathematics. One mathematics teacher had learnt about HIV and AIDS and its impact on the country's workforce, while another indicated he had learnt to use local materials to integrate information on HIV and AIDS.

The picture that emerges so far shows that, for the most part, discussions on HIV and AIDS had been incorporated into the training. However, teachers had not been trained specifically on how to *integrate* HIV into their respective subjects. Despite this though, all 13 teachers reported on participating in this aspect and finding it useful. There were differences in what mathematics and geography teacher reported to have found useful.

Some of the geography teachers expressed that the training had been educative. Four teachers reported that the training had provided practical ideas on how to integrate HIV material in the future. One said, "[*I] like the training because it gave me new information on how I should integrate HIV and AIDS during the lessons*." Another expressed, "[*T]he workshop differs from other workshops due to the fact that the facilitators gave guidance on how we should integrate HIV and AIDS*." Two teachers further indicated that the training had helped them to reflect on their practices and on the importance of HIV and AIDS integration.

Mathematic teachers also expressed positive sentiments towards the training. Four teachers indicated that they were happy to have obtained information on how to teach about HIV and AIDS in their subjects. One said, "*I was happy since we discussed examples of how to teach HIV and AIDS in mathematics*." Another teacher said, "*It was a good experience to share ideas on the importance and ways to integrate HIV and AIDS in mathematics*." A female teacher made the point that she had found "*... the examples of scenarios that [they] can use to integrate HIV and AIDS interesting*." Three of the seven mathematic teachers indicated that they had mostly liked the training on how to help and support learners who were infected by HIV and AIDS since there were many learners who were HIV positive at school and teachers did not know how to assist them.

4.4.4 Challenges to Integrating HIV and AIDS Education

The geography and mathematic teachers who completed the questionnaire expressed *five* main challenges in considering how to integrate HIV and AIDS. These were: subject content demands and thus pressure on time to allocate to HIV discussions in class; limited time allocated to HIV discussions in teacher in-service courses; unfamiliarity with policies on HIV and AIDS in general, and on HIV and AIDS integration in particular; limitations in the HIV and AIDS information that they are able to include in their subject content; and tensions and sensitivity among community members with regard to integration of HIV and AIDS education in school curricula. I discuss each briefly below.

Subject content demands and pressure on time to allocate to HIV discussions

Twelve geography teachers [Two subject-trained and ten not subject-trained] and 11 mathematics teachers [four subject- trained and seven not subject-trained] expressed the concern that their subject requires much time in order to cover all the required aspects, leaving little or no time to allocate to HIV and AIDS. One of the mathematics teachers encapsulated a common response amongst teachers when she said, "[*W]e have too much content to cover in little time thus talking about HIV might take up more time for actual teaching*." A geography teacher put it this way, "*I focus on the competencies that will be assessed at the end of the year, HIV is rarely covered in the syllabus and it is time consuming mostly because we are not trained on how to integrate it*."

Unfamiliarity with policies

Eight mathematics and seven geography teachers raised concerns about their unfamiliarity with the relevant policies. A mathematics teacher pointed out, "*I am not aware of HIV and AIDS integration. I thought it is the responsibility of Life skills teachers and the 'My Future is My Choice' programme.*" A geography teacher commented, "*HIV and AIDS is just a directive in the curriculum and there are no further policies and instructions on how it should be carried out.*" Both excerpts encapsulate the general sentiments by teachers concerning policies that ought to guide decisions on whether or not to integrate HIV information across the curriculum.

Limitations to the HIV and AIDS information that can be integrated

Four mathematics teachers indicated that HIV and AIDS information is not integrated with any mathematics content such as that in the syllabus or textbooks. Thus, integration heavily depended on the teachers, who in many cases reported that they did not know how to proceed. A geography and mathematics teacher each indicated that they found it challenging to decide on the type of information to integrate and, therefore, opted to teach only about how learners should protect themselves from being infected by HIV and AIDS. Two geography teachers indicated that although aspects of HIV and AIDS form part of population geography, there was no assistance available on how to integrate other aspects across other aspects of the curriculum.

Time allocated to HIV-related discussions in in-service courses

Teachers who attended training on integrating HIV education were of the opinion that not sufficient time was allocated to the topic. This they also linked to the lack of resources (e.g. worksheets) that would support integrating HIV-related topics with mathematics or geography. For the most part, facilitators focused on subject content and when they discussed HIV and AIDS, teachers did not feel the information prepared them to implement effectively. One of the mathematics teachers who attended a workshop captured a common response in this way, "[*T]he information provided was not adequate and thus I feel ill-prepared to integrate HIV and AIDS*", while a geography teacher indicated the lack of learning support material to be a limitation to any integration efforts. She said, "[*W]e do not have information because we are not provided with learning support materials or handouts to support us to integrate HIV and AIDS*."

Tensions and sensitivity among community members with regard to HIV and AIDS integration in school

A mathematics and geography teacher who did not receive training on HIV integration reported on the tension between their professional and social lives as members of particular communities. They claimed that their standing in the community impacted not only on the decision on *whether* or not to integrate HIV information into their respective subjects, but also on the nature of the *content* they could consider in doing so. The geography teacher indicated, "*HIV and AIDS is still regarded as a taboo in our community and people are not open to talk about it*." The mathematics teacher said, "[*S]ome parents complain that they are not happy that teachers are revealing to their children issues about sex at a very young age*." A mathematics teacher who had some training stated that many learners are not free to

interact with the teacher when he teaches about HIV and AIDS. In his view, this is due to the power dynamics. He also raised concerns of how such discussions exposed teachers and made them vulnerable. He put it this way: "[*S]ome teachers are concerned about their own HIV status, which they say constrains them from teaching about HIV and AIDS. They feel it may expose their own vulnerability*."

4.4.5 Support with Integrating HIV and AIDS Education in Mathematics and Geography

This section reports on the support (or lack thereof) teachers said they received with regard to integrating HIV-related information in their subject teaching. Table 10 below indicates that for the most part, teachers report to not getting support from officials or school management on how to integrate HIV information in their respective subjects. Teachers indicated that they obtained support mostly within the school, from colleagues, when they were considering integration. Twenty-one teachers reported getting support from colleagues teaching the same subject, while 20 received assistance from colleagues in the same school who teach subjects other than mathematics or geography.

Table 10: Support with integrating HIV and AIDS information in Mathematics and Geography

Support to integrate	Always	Sometimes	Rarely	Never	Missing	Total
Subject Advisory Teacher	2	10	20	20	1	53
Educational Officer for RACE	0	6	19	28	0	53
Subject Cluster groups	0	7	11	35	0	53
The principal of your school	2	9	18	24	0	53
Head of Department	2	11	17	21	0	53
Subject Head	0	14	14	22	2	53
Colleagues teaching the same subject	5	21	15	12	0	53
Other colleagues at the school not teaching the same subject	4	20	13	16	0	53

Table 16 below shows teachers' responses to the question on whether subject workshops discuss HIV and AIDS integration. In particular, the question asked about the frequency with which workshops discussed the when, how, why of integration.

Table 11: Subject specific workshops and HIV and AIDS integration

Mathematics	Always	Sometimes	Rarely	Never	Total
When to integrate HIV and AIDS?	0	7	8	12	27
What HIV and AIDS information to integrate?	1	6	7	13	27
Why to integrate HIV and AIDS?	1	5	12	8	27
How to integrate HIV and AIDS?	0	3	13	11	27
How to integrate HIV and AIDS in assessment?	0	2	12	13	27
Geography					
When to integrate HIV and AIDS?	0	5	7	14	26
What HIV and AIDS information to integrate?	0	6	6	14	26
Why to integrate HIV and AIDS?	1	7	8	10	26
How to integrate HIV and AIDS?	1	3	8	14	26
How to integrate HIV and AIDS in assessment	2	2	9	13	26

The geography teachers reported that they hardly received any information about the pandemic. The mathematic teachers indicated similar sentiments to those expressed by the geography teachers. They too barely obtained information on HIV and AIDS.

4.4.6 Availability and use of Policies and Curriculum Documents to support integration of HIV information

Not only were teachers asked to describe the support they received, but also to indicate the availability of documents that facilitated integration across the curriculum. Table 17 below presents the type of official policies and documents that teachers reported to have available.

Table 12: Policies and Curriculum Documents

Policy Document	Yes	No	Total
The Reformed Curriculum 2010	28	25	53
The latest syllabus for your subject (2010)	46	7	53
The National Subject policy (2010)	44	9	53
The latest teachers' guide for your subject (2010)	37	16	53
The ETSIP policy document (2007)	33	20	53

National Policy on HIV and AIDS for the Education Sector (2003)	27	26	53
Learner Centred Education in the Namibian Context: A Conceptual Framework (2003)	23	30	53
Towards Improving Continuous Assessments in Schools (1999)	43	10	53
National Policy on Orphans and Vulnerable Children (2004)	12	41	53
The school internal policy on HIV and AIDS	10	43	53

The result shows that there were mixed responses to the availability of official policies and documents. Most teachers report to have documents that are subject-specific, such as the subject syllabus, the subject policy and the assessment manual.

As Table 18 below shows, the majority of teachers report not to use the policies in planning how to integrate HIV information in their teaching.

Table 13: Use of Policies in lesson planning

Use of policies in lesson planning	Main subject taught		TOTAL
	Geography	Mathematics	
Always	1	1	2
Sometimes	14	8	22
Rarely	8	12	20
Never	3	6	9
TOTAL	26	27	53

4.4.7 Frequency, Nature and Form of Integration

Table 19 below reflects teachers' reports on the frequency with which they integrate HIV information in their subject. Thirty reported to sometimes integrating, with only two suggesting that they always do.

Table 14: Frequency of integrating HIV and AIDS information in subject teaching

How often do teachers integrate HIV	Main subject taught		TOTAL
	Geography	Mathematics	
Always	1	1	2
Sometimes	16	14	30
Rarely	8	9	17
Never	1	3	4
TOTAL	26	27	53

Teachers were also asked to report on how they made decisions on how and when to integrate HIV information. Only one Geography teacher indicated that the decision on when to integrate HIV and AIDS was taken as a directive from the regional office. The majority reported that they made their own decisions about integrating HIV and AIDS information. The results show, however, that integration was not a regular practice amongst this cohort.

Teachers were requested to indicate the type of HIV information they considered, if and when they integrated HIV and AIDS, as reflected in Table 16 below. For the most part, both mathematics and geography teachers reported giving information on the spread and prevention of HIV and AIDS. The geography teachers focused more on societal issues such as the effects of HIV and AIDS, while the mathematics teachers focused more on statistics. Both sets of teachers rarely dealt with HIV and sexuality.

Table 15: Type of HIV and AIDS information teachers usually integrate

GEOGRAPHY TEACHERS					
Type of Information	Always	Sometimes	Rarely	Never	Total
Definitions of 'HIV' and 'AIDS'	4	10	5	7	26
What HIV and AIDS is	5	15	4	2	26
How HIV spreads	12	12	2	0	26
The Number Of People Infected In The World And In Namibia	2	9	9	6	26
How it affect people's well-being and	3	13	8	2	26
How it affects society	8	12	4	2	26
Society values and norms on HIV and AIDS	0	10	11	5	26
How people should protect themselves against HIV and AIDS	14	10	1	1	26
Learners' role in the fight against the disease	5	12	4	5	26
Stigma, discrimination and social injustices towards people infected and affected with HIV and AIDS	4	10	5	7	26
Sexuality and sexual health	0	5	5	16	26
Social influences regarding sexual health	0	5	11	10	26
Myths and misconception about HIV and AIDS	5	12	7	2	26
Teenage pregnancy	7	13	3	3	26
Accessing and using Condoms	2	11	9	4	26

Violence prevention/conflict Resolution	0	4	11	11	26
Alcohol, Drugs and other Substance use	0	5	14	7	26
Parent/Child relationship	0	2	6	18	26
Making the right decisions about HIV and AIDS	4	13	4	5	26
Antiretroviral drugs and health lifestyle	2	9	10	5	26
Risks and challenges of the epidemic at all levels	2	7	11	6	26
MATHEMATICS TEACHERS					
Definitions of 'HIV' and 'AIDS'	2	9	9	7	27
What HIV and AIDS is	3	8	10	6	27
How HIV spreads	7	11	7	2	27
The Number Of People Infected in the world and in Namibia	8	12	4	3	27
How it affect people's well-being	0	7	10	8	27
How it affects society	0	5	12	10	27
Society values and norms on HIV and AIDS	0	4	14	9	27
How people should protect themselves against HIV and AIDS	8	10	7	2	27
Learners role in the fight against the disease	1	7	11	8	27
Stigma, discrimination and social injustices towards people infected and affected with HIV and AIDS	0	6	12	9	27
Sexuality and sexual health	0	4	11	12	27
Social influences regarding sexual health	0	3	13	11	27
Myths and misconception about HIV and AIDS	2	6	11	8	27
Teenage pregnancy	9	13	3	2	27
Accessing and using Condoms	2	7	10	8	27
Violence prevention/conflict Resolution	0	4	8	15	27
Alcohol, Drugs and other Substance use	0	6	9	12	27
Parent/Child relationship	0	5	10	12	27
Making the right decisions about HIV and AIDS	3	11	7	6	27
Antiretroviral drugs and health lifestyle	1	5	9	12	27
Risks and challenges of the epidemic at all levels	2	6	9	10	27

Teachers were asked to report on ways in which they integrate as Table 21 below indicates.

Table 16: Methods that Teachers use to integrate HIV and AIDS during the lesson

Subject	Integration Model	Always	Sometimes	Rarely	Never	Total
Geography	Empower learners to make an effort to integrate themselves	1	13	6	6	26
	Involve learners in practical activities that integrate subject knowledge	4	13	8	1	26
	Use team teaching with other teachers to integrate HIV and AIDS	0	8	9	9	26
	Use overreaching and overlapping concepts to integrate, draw attention to common skills, concepts & attitudes	4	15	5	2	26
	Include practices such as inquiry and self-inquiry based on real life experience of learners	3	17	4	2	26
	Arrange topics & lesson plans to relate similar units	5	10	10	1	26
	Connect the content of HIV and AIDS to the theme presented at any time	6	15	3	2	26
	Connect similar topic across the content	4	15	3	2	26
	Focus on HIV and AIDS at a time and the subject content at a different time	1	10	6	9	26
	Integrate when it is stipulated by the syllabus and textbook	4	12	7	3	26
Mathematics	Empower learners to make an effort to integrate themselves	0	12	10	5	27
	Involve learners in practical activities that integrate subject knowledge	1	14	9	3	27
	Use team teaching with other teachers to integrate HIV and AIDS	0	7	5	15	27
	Use overreaching and overlapping concepts to integrate, draw attention to common skills, concepts & attitudes	3	7	9	8	27
	Include practices such as inquiry and self-inquiry based on real life experience of learners	0	11	8	8	27
	Arrange topics & lesson plans to relate similar units	1	9	11	6	27
	Connect the content of HIV and AIDS to the theme presented at any time	4	12	4	7	27
	Connect similar topic across the content	0	10	11	6	27
	Focus on HIV and AIDS at a time and the subject content at a different time	5	7	6	9	27
	Integrate when it is stipulated by the syllabus and textbook	1	6	6	14	27

Neither geography nor mathematic teachers seemed to use a consistent or systematic approach to integrating information on HIV and AIDS. Most teachers reported to integrating

information based on real life experiences of learners and to connecting HIV and AIDS information ad hoc to the content they were presenting in a given lesson instead of integrating it within the subject content.

Teachers were asked about the availability of support material to facilitate integrating HIV information.

4.4.8 Availability of learning support materials for integrating HIV Education across the curriculum

Table 22 below presents the number of teachers who reported on the availability of learning support materials for integrating HIV and AIDS education.

Table 17: Availability of teaching support materials for integrating HIV and AIDS Education

Do you have materials	Main subject taught		Total
	Geography	Mathematics	
No	15	18	33
Yes	10	5	15
TOTAL	26	27	53

The majority (33) of teachers indicated that they did not have materials to support integrating HIV and AIDS information. This notwithstanding, more geography than mathematics teachers had some materials to support them with integrating HIV information into their respective subjects.

Teachers were also asked to report on the sources of information and type of learning support materials they used to integrate HIV information, as Table 23 below indicates.

Table 18: Sources and type of learning support material

RESPONSES Geography					
	Always	Sometimes	Rarely	Never	Total
I rely on the main textbook	3	20	2	1	26
I use a variety of textbooks to make decisions	2	16	6	2	26

The school provides LSM on how to integrate HIV and AIDS in my subject	1	7	12	6	26
I buy LSM with own money that helps me	0	6	11	9	26
I use the local environment and people as LSM	1	11	10	5	26
I adapt LSM from other countries that also integrate HIV and AIDS in my subject	0	6	11	9	26
I use LSM from other subjects, such as Life Skills to help me integrate HIV and AIDS in my subject	4	12	6	4	26
Mathematics					
I rely on the main textbook	0	4	9	14	27
I use a variety of textbooks to make decisions	0	5	9	13	27
The school provides LSM on how to integrate HIV and AIDS in my subject	2	4	10	11	27
I buy LSM from with own money that helps me	2	6	10	9	27
I use the local environment and people as LSM	0	6	10	11	27
I adapt LSM from other countries that also integrate HIV and AIDS in my subject	0	8	12	7	27
I use LSM from other subjects, such as Life Skills to help me integrate HIV and AIDS in my subject	3	12	9	3	27

Most of the geography teachers reported on using the main textbook as a guide to integrating HIV and AIDS information. In contrast, most mathematic teachers reported to rarely or never using any learner support material, but the few who indicated that they did use materials apparently relied on materials from other subjects such as those from the life skills curriculum.

4.4.9 Integration of HIV Information in Assessment of Geography and Mathematics

Table 24 below presents what geography and mathematics teachers report with regard to assessment and HIV integration.

Table 19: Assessment and HIV and AIDS information

Subject Taught	Course Competencies	Always	Sometimes	Rarely	Never
Geography	Practical work	0	15	9	2
	Homework	0	17	8	1
	Tests	0	15	10	0
	Projects	1	9	15	1
	End of year examinations	10	12	4	0
	Group discussions	2	16	8	0
	Practical work	1	13	9	4

Mathematics	Homework	0	11	11	5
	Tests	1	8	12	6
	Projects	1	11	8	8
	End of year examination	3	9	5	10
	Group discussions	0	17	5	5

The table above shows that there is a slight difference in the way mathematics and geography teachers integrate HIV and AIDS during formal and informal assessment. For the most part, the geography teachers integrate HIV and AIDS during the end of the year examination and during homework. The mathematic teachers sometimes integrate during group discussion.

4.4.10 Teacher needs to integrate HIV and AIDS Education in Mathematics and Geography

Teachers had strong opinions on how they could be supported in integrating HIV information in their respective subjects. Forty-three (20 geography and 23 mathematics) of the total sample of 53 teachers indicated that they needed to be trained in how to integrate HIV and AIDS information, expressing its importance. They indicated that the curriculum developers should design topics that address HIV and AIDS in relation to both subjects. This, they suggested, would need to include the what, how or when to integrate. They also indicated the need for appropriate learning support materials.

Some teachers though, believed that teaching HIV and AIDS information was best placed in extra-curricular programmes such as 'My future is My Choice' or in the Life Skills curriculum and thus there was no need to integrate it into important subjects like geography and mathematics. Some were of the opinion that Life Skills teachers should take the lead and assist other teachers with integrating and teaching HIV information. Two teachers intimated that HIV and AIDS should be taught as a subject on its own rather than being integrated.

Three geography teachers suggested that in addition to providing the support required in school, the MoE should educate communities, because as teachers they felt pressure from that quarter not to teach on the subject of HIV and AIDS. They felt that some community members disapproved of teachers talking about HIV, sex and condoms in school, believing that they were educating learners to become involved in sex and sexual relationships.

4.5 Summary

The questionnaire results provide an overview of the perspectives, levels of preparedness and experiences of this cohort of teachers with regard to integrating HIV and AIDS information. These results can be summarised in terms of four broad categories analysed, namely: the teachers' profile; training in integrating HIV and AIDS education; models of integration used by teachers; and challenges teachers experience with implementing such integration.

Teacher Profiles

Generally the 53 [26 geography and 27 mathematic] teachers who participated in the study were young, their ages falling between 31 and 40 years. For the most part, teachers had more than five years of teaching experience, and they were all qualified to become geography or mathematics teachers.

Subject Specialization and HIV and AIDS-related Training

In general, the majority of teachers were not trained to integrate HIV and AIDS in their respective subjects. Only 13 teachers [six geography and seven mathematics teachers] reported that they were trained to integrate HIV and AIDS information. Ten of the teachers were trained by the MoE, while three were trained by non-governmental organisations. Eight teachers received training of short duration [1-2 days]. The teachers reported that they were not trained in how to integrate HIV and AIDS information in their subjects, since some of the trainings were in life skills treated separately. The subject [geography and mathematics] workshops did not include information on how the teachers should integrate HIV and AIDS information.

Integrating HIV and AIDS Information in Mathematics and Geography

Most of the teachers indicated that they integrate HIV and AIDS sometimes, while a few indicated that they rarely or never did so. Most of the geography teachers reported that they integrate HIV and AIDS in population geography where it was part of the content. Both geography and mathematics teachers rarely integrated HIV and AIDS information during assessment.

Challenges to Integrating HIV and AIDS Education

The teachers reported on five main challenges. They indicated that there were no directives in the available policies on how they should integrate HIV and AIDS information, thus they

were unfamiliar with policy on HIV and AIDS integration. The teachers also reported that subject demands limited the time allocated to HIV and AIDS discussion, both in their classrooms and, in teacher in service courses. There are further limitations on the HIV and AIDS information that can be integrated. Tensions and sensitivity among community members with regard to HIV and AIDS-related information being taught in schools is also a challenge.

CHAPTER 5 DATA ANALYSIS AND DISCUSSION

5.1 Introduction

My study investigated teacher perspectives, levels of preparedness, and experiences in integrating HIV and AIDS information in geography and mathematics at JSS. The purpose of this chapter is to make sense of the data presented in the previous chapter in relation to the conceptual and theoretical framework as well as related studies on the one hand it seeks to determine the extent that my research goals have been attended to, and on the other hand it considers the contribution this study makes to the field.

The analysis that follows relies on the main results, with those from the large group of teachers offering a broader backdrop to support understanding of the issues raised. I begin with an analysis of the main focus of the study namely, integration of HIV and AIDS information. I analyse the nature and forms of the reported and observed HIV and AIDS integration, using Fogarty's models of integration as an analytical tool. I proceed with an analysis of factors that hinder the integration of HIV and AIDS information across the curriculum, comparing and contrasting my findings with those identified in the literature in Chapter 2.

5.2 Integration of HIV and AIDS Information

5.2.1 Nature of HIV and AIDS Integration in Geography and Mathematics at JSP

A notable feature in the results is that about half of the larger sample in my study reported to rarely or not ever integrating HIV and AIDS information in their geography and mathematics classes. Sixty-one percent of geography and 51% of mathematic teachers in the larger sample of teachers said they simply discussed HIV and AIDS information occasionally. The MoE policy imperatives along with the continued high rates of HIV infection have brought about an expectation – confirming Khau & Pithouse's (2008) suggestions - that all teachers should, and indeed would, integrate HIV and AIDS-related topics into their subject areas. My study confirms results from other studies that although teachers were expected to integrate HIV and AIDS information, they rarely did. Lesson presentations were not always educating young people about the pandemic. Such findings are similar to the results of a study in Mozambique by Visser (2004) which found that policy directives and HIV rates of infection do not necessarily lead to decisions by teachers to integrate HIV and AIDS-related material in their subject lessons. Visser (2004) confirmed that although a number of teachers reported wanting

to talk about HIV and AIDS, many found it difficult simply to discuss HIV and AIDS during lessons, let alone integrate it in their subject matter. Teachers in the present study report similar perspectives.

My study also found that although integration of HIV and AIDS information in subject teaching was a ministerial directive, teachers in both the large and small sample articulated that they were the ones who made the decisions on when, what and how to integrate. There were no demands from their school management or the regional education district that forced teachers to integrate HIV and AIDS information. Kysilka (1999) makes the point that it is important for teachers not to be forced to integrate, but rather that they experience its utility and relevance to their own teaching and learning. However, these decisions being left entirely to teachers, as was the case in the schools participating in my study, had the unintended consequence of teachers making decisions not to integrate at all, given the challenges they faced in doing so.

The results of the main study reveal that generally, teacher practices of addressing HIV and AIDS-related topics in their classes were opportunistic and uneven; that is, teachers might discuss HIV information by injecting it in a seemingly unplanned way at any stage of the lesson. While useful, such practices led to teachers adopting an ad hoc approach, In this context, teachers' omitting to plan systematically what to discuss and how they would introduce and sustain discussions, in turn constrained the depth of discussions. Mostly, teachers incorporated HIV-related information during the introduction or conclusion of lessons, as teachers Mary, Ruth and John were observed to do. Teachers in the large sample also reported not knowing how to integrate HIV and AIDS information. In most cases, this information remained separate from the subject content of the lesson, with tangential links between HIV and AIDS information and the subject in a very few instances. In other words, when HIV information was included, there was little if any link to the focus of the lesson. Such findings are not limited to my study only; Duran, Ballone & Worch's (2009) study in Ohio on integrating HIV and AIDS content reached similar conclusions, namely that teachers often find it difficult to bridge the gap between theoretical models of integration and classroom implementation. They also confirmed that some teachers understand the value and effectiveness of integration, and suggested that while integration is often viewed as more authentic because it corresponds with real world experiences and gives more value to knowledge construction, teacher and teaching practices reveal the contrary to be the case.

Clarke (2008) also found that some teachers might not see the relevance of the HIV and AIDS content to their subject, and as a result could not make the connections necessary for integration.

The above notwithstanding, Paul and Ruth talked about HIV and AIDS in relation to their subject content in several instances. Paul facilitated a class discussion on HIV and AIDS prevalence rates and years presented on a graph, which formed part of the population geography section in the question paper. In Ruth's mathematics class, she aligned the HIV content to the mathematics lesson. She taught percentages using data on the increase and decrease of HIV and AIDS amongst pregnant teenagers as the context for this lesson. Despite traces of integration in the teaching practice of these teachers, both continued to privilege and foregrounded mathematics or geography knowledge. The teacher practices in my study highlighted the challenges teachers face in making links between contextual social realities and teaching practices, despite the calls for (and supposed advantages of) integrating HIV and AIDS education in school curricula. (Tyler , 2004 cited in Grant and Paige 2007:3), Duran (2009), Franzer (1999), Van Laren (2007), and Capra (2000) all recommend that the 'curriculum integration' approach should offer new ways of seeing the world and new ways of thinking about relationships, as well as potentially developing interconnection of subjects and/or topics around a critical social issue like HIV and AIDS.

Even though the topics introduced in lessons by all four teachers observed in this study offered opportunity to make the links these authors propose, the teachers found it difficult to sustain the discussion, reverting instead to subject content. My study shows the complexity and challenges of translating theory into practice. Similar challenges were found by Boreham (1999:5) who reported that during curriculum integration; skills (and content) do not transfer easily from one context to another, thus posing a challenge when teachers presuppose this to be the case. The findings of this study confirm Boreham's proposal that teachers need particular skills and competencies if they are to adopt an integrated approach to the curriculum. Put differently, effective curriculum integration requires skilled teachers who are conscious of the pedagogical approaches that can be drawn on for integrating HIV and AIDS within the subject content.

Interestingly, when teachers participating in this study discussed HIV information, they focused mainly on prevention of HIV infection. In this, regard, they tended to privilege and

advocate abstinence, proposing that learners delay involvement in any sexual relationship until marriage. This reflected teachers' values as Christians. The male teachers, John and Paul, also mentioned the use of condoms as a means of protection for those who could not abstain. John appealed to boys to reflect on the cultural beliefs about having many girlfriends, saying, 'it means you are at high risk of being infected by HIV and AIDS'. The female teachers, Mary and Ruth, addressing the girls, warned them that in addition to the risk of HIV infection, they might fall pregnant.

Kelly (2003) advocates for HIV and AIDS integration that attempts to combat the culture of silence, stigmatization and discrimination while at the same time promoting a change in behaviour. This was rarely observed in my study since the focus in the lessons observed was on how HIV spreads and how learners should protect themselves against infection. However, although studies like Winkler & Bodenstein (2005) recommend that educating young people with basic HIV and AIDS information enables them to protect themselves from becoming infected, this might not be sufficient in enabling them to change behaviour (Baxen, 2010).

Although the HIV and AIDS content provided in lessons observed was vitally important, rarely was it discussed in detail so that learners could reflect more deeply on its real life implications. In addition, brief opportunities were given for only a few learners to ask questions because teachers typically moved back hastily to their subject content.

A practice of limiting the lesson to providing information on prevention falls short of the approach recommended by UNESCO (2002): that is, that the role of teachers in integrating HIV and AIDS information should be not only to create prevention-oriented awareness of the disease but also to generate knowledge that promotes attitude development and change.

Franzer (1999) and Lake (2000) suggest that curriculum integration as an approach should enable learners to think critically and be empowered; also that it should ensure that learners play an important role in constructing subjective knowledge that will allow them to solve or deal with personal and social challenges. This was not the case in the observed lessons. In the classrooms observed in my study, learners were not provided with a platform from which to interact, think critically or debate on issues about the pandemic; the main focus was on getting the correct response from learners and preparing for the final examination rather than on developing information that would promote attitude and behaviour change.

The majority of teachers in both the larger and small sample indicated that they did not plan for integrating HIV and AIDS in their lessons, either because it was not integrated in the subject policy guides and syllabus or because they did not possess the requisite competencies to do so. Winkler & Bodenstein's (2005) study on HIV and AIDS integration in nine sub-Saharan countries found that the way teachers approached integration was often incremental, fragmentary or ad hoc. Many claimed that they did not have clear guidelines on HIV and AIDS curriculum integration.

Despite the abovementioned lack of planning, training and support, most teachers recognized the importance of including HIV and AIDS information in their subject teaching. Beane (1995:14) advanced the view that curriculum integration is not simply an organizational tool that needs "cosmetic changes/modifications/realignment in lesson plans across various areas/subjects. Rather, it is a way of thinking about the "objectives of schooling, the sources of curriculum which are problems/concerns (personal and social concerns) posed by life and the use of knowledge". For teachers to implement integration as proposed by Beane, there would need to be a deeper engagement and change in the way they think about the matter as well as access to clear and concrete models or examples of what integration might look like in their subject.

I observed that learners were actively involved in subject content discussions, but were generally passive in the HIV and AIDS discussions. Boys participated more than girls, who were in most cases, shy. In all the observed lessons, teachers took the role of transmitting knowledge to learners who had a limited role in this process of knowledge construction on HIV and AIDS. Such an approach negates some of the basic social constructivist origins of curriculum integration, which has a learner-centred approach to learning at its core. This view understands learning and teaching to go beyond providing learners with content to enabling learners to construct knowledge for further, life-long learning. This integrated learning deals with real life problems and in so doing bridges the gap between school and home knowledge (Franzer, 1999; Lake, 2000). This was not the case in my study since learners were not actively involved or allowed to construct independent knowledge on HIV and AIDS. 'Facts' about HIV and AIDS were aired but learner experiences and knowledge of the pandemic were hardly brought into play. Similarly, Kelly (2003) confirms that although teachers are usually aware of the knowledge and information gap that exist between home and school,

they are often unable to make provision for it due to social and cultural perspectives and the sensitive nature of HIV and AIDS and related issues.

5.2.2 Forms of Integration

The analysis of the models of integration that follows refers only to the four teachers observed, given that results from the larger sample suggested that the majority report not to be integrating HIV information within their subject. Table 20 below presents an analysis of the forms of integration as observed. I present the analysis using the three clusters developed in Chapter 2. While the table highlights the forms of integration observed, I also briefly comment on the planning and pedagogical process involved, since these aspects are all interlinked.

Table 20: Study Results analysed using Fogarty's 10 Model of Integration

Cluster of Integration	Type	Name of Fogarty Model	Results from my Study
Within and across themes, topics and subjects	1	Immersed [Views learning through the perspective of one learning area. Learners are placed at the centre of integration]	Although teachers taught about HIV and AIDS within the area of geography or mathematics, learners were not placed at the centre of integration and they were not given a chance to decide on what type of information should be integrated.
	2	Networked [Experts drive the process and involve learners in the integration process through selection of tasks and resources]	The four teachers acted as experts. They selected what to integrate, how and when. Despite that, learners were not involved in the integration process. For instance, it was observed in Ruth's first lesson and Pauls' first and third lesson that the teachers facilitated the lessons and involved some questions on HIV and AIDS information in learners' practical activities.
Across the disciplines	3	Integrated Develop skills, concepts and attitudes across several disciplines]	This model was observed in Pauls' first lesson, where HIV and AIDS information was taught as part of the geography content.
	4	Shared [Bring two different disciplines together using overlapping concepts]	A minor feature of this model was observed in Ruth's first lesson where she taught about the number increase and decrease using examples that were related to HIV and AIDS information.
	5	Threaded [Meta-curricular approach that connect various types skills across various disciplines]	This model was hardly observed.
	6	Sequenced [Topics are taught independently, but they are arranged and sequenced to provide a broad framework of related concepts]	This model was hardly observed.
	7	Webbed [Thematic approach. Teachers connect content in their disciplines	This was observed in Paul's first lesson. The geography teachers in the large sample also reported that HIV and AIDS is integrated in

		to a preselected and agreed upon theme]	population geography.
Within a single model	8	Connected [Draw attention to common skills, concepts and attitudes between the two disciplines.]	This was observed in Paul's third lesson, where he instructed the learners to draw a line graph on HIV and AIDS prevalence, instead of drawing a line graph on weather.
	9	Fragmented [Different disciplines in the curriculum are treated separately and each area is restricted to its own course of study]	Some features of this model were observed in all four teachers. For instance, in all Mary's lessons, as well as in Ruth's second, and third lesson, and Paul's second lesson. HIV and AIDS information was treated and discussed separately from mathematic and geography content.
	10	Nested [Focus on natural or less contrived groupings of content and skills. The teacher takes advantage of opportunities available to integrate social, cognitive and content specific skills and concepts]	Some of the features of this model were observed in all four teachers' lessons. The teachers took advantage of the opportunity available to talk about HIV and AIDS separately from the Subject [geography and mathematics] content.

Planning

The lack of planning for integration resulted in teachers adopting an ad hoc or opportunistic approach to integrating HIV information. Although teachers taught about HIV and AIDS differently, the ad hoc approach to planning and engaging learners in class remained consistent across the various lessons and across all four teachers. This result is consistent with what teachers in the large cohort said about planning: namely, that they did not plan for integration. Winkler & Bodenstein (2005) expressed the importance of planning to integrate HIV and AIDS. They suggest that when planning an AIDS education lesson, it is important to be aware of and take into consideration the school context, cultures, and religion, so as to deal with HIV and AIDS issues in a way that does not conflict with the values of the learners. Given that in my study teachers did not plan for integration, the ad hoc manner of engaging learners as well as the outcome of their lessons might have resulted in discomfort for learners. Indeed, I witnessed insensitivity by the teacher and discomfort amongst learners in the classes I observed. Thus, while integration was an imperative from the Education Department, implementation remained a challenge.

Pedagogical Aspects and Forms of Integration

An important feature in the pedagogical approach of the teachers observed was the manner in which they separated HIV and AIDS information from the subject content. This pattern of complete separation of content was consistent in most of the lessons observed.

Teachers brought into play different components of Fogarty's models. It was observed that the teachers used more than one feature of the different models in a lesson. While Fogarty (1991) points out that teachers can use different models and approaches of curriculum integration and that flexibility in their approach is anticipated, this cohort of teachers seemed to have no plan to integrate material in the first place.

All four teachers talked about HIV and AIDS in the lessons observed, but the form and nature of their doing so left me with questions on the sustainability or consistency of their practices. Even though Fogarty's networked and fragmented models of integration were traceable in the lessons of the four teachers observed, that they had not explicitly planned for integration remained a concern for me and made me reflect on the extent to which teachers understand their role as mediators of HIV information.

For the most part, teachers drove the process of integration by selecting the content of HIV and AIDS information to be discussed, thus often adopting a networked model of integration. One teacher even selected the type of practical activities that learners discussed. Even though this was the most consistent model teachers adopted, learners' input, needs or expectations were not engaged in a manner consistent with Fogarty's networked model. Teachers positioned themselves as experts knowing what would be best for learners, who were regarded as mere recipients rather than also producers of knowledge. In fact, learners were not even perceived as 'knowledgeable others', despite teachers offering reasons (such as their knowledge that learners are sexually active, and levels of teenage pregnancy at school) why they needed to provide learners with HIV information.

Integrating within a single model seemed more manageable and possible for these teachers as was traceable in the lessons observed. Put differently, teachers were better able to manage (and/or integrate) the HIV information when they either separated it from their subject content or when it was treated opportunistically (e.g. in the case of population geography). The teachers showed little knowledge of how to relate HIV and AIDS information to the subject content during the actual lesson presentations. Teachers did not plan which elements of HIV-related information they would integrate. While teachers described the importance of exposing learners to HIV information, they did not consider this beyond recognising its importance.

All the four teachers used some components of the fragmented model, in which HIV and AIDS information and the subject content were treated separately. As Fogarty (1991) indicates, the disadvantages of this model are that connections are not made clear so that learners are able to relate the subject to the HIV and AIDS information. The results in the lessons illustrated this challenge in that learners did not seem to make the links between the HIV information and the subject content.

Winkler & Bodenstein (2005) indicate that there is no single model of AIDS education that is appropriate to every country because different situations call for different responses. This advocates that teachers can use different models depending on their cultural and social context, training, and available support materials for integrating HIV and AIDS information. In the same vein, (Klein, 2006: 6) argues, "[T]here are no hard and fast rules in terms of requirements for the integration of a discipline, nor is the notion of including one discipline such as HIV and AIDS education within another subject a novel concept." While this may be the case, it would seem that a more systematic approach that begins at the planning phase would be optimal. The data across the sample of four teachers suggests that overall, integration was opportunistic, unplanned, and haphazard. Teachers did not plan for the process or outcome of the integration process; neither did they have a goal in mind. They all proposed the purpose to be educating learners to remain safe from HIV infection, yet their approach to the content and the mediation process did not reflect the urgency with which they articulated their concerns during interviews.

5.3 Challenges to Integrating HIV and AIDS Education

The results highlighted a number of challenges that inhibited/constrained/precluded integration amongst mathematics and geography teachers in this study. These include: the teachers' level of training in integrating HIV and AIDS information; teachers' subject demands; teachers' issues around integrating a sensitive topic; and tensions between teachers' willingness to integrate an HIV and AIDS focus and the community's expectations and lack of support for integrating HIV and AIDS-related issues in classroom learning and teaching.

5.3.1 Teacher Training

Teachers in both the large and small samples reported that they could not integrate HIV and AIDS information successfully as they were not trained to do so. Although studies such as Winkler & Bodenstein (2005), Visser (2004), and Miedema (2007) all emphasise that teacher

training is fundamental to the successful delivery of AIDS education in schools, none of the four teachers were trained to integrate HIV and AIDS information. In the large sample, only thirteen teachers reported to be trained. The teachers' initial training, in-service training and subject workshops rarely give information on how teachers should integrate HIV and AIDS education. Consequently, teachers reported that they felt incompetent to integrate and lacked information and guidance on how to integrate HIV and AIDS effectively. Such findings are similar to the results of studies by Winkler & Bodenstein (2005), Campbell (2006), Khau & Pithouse (2008) which indicate that many teachers were not trained to integrate and efforts to train teachers were often inadequate, if in place at all.

It is interesting to note that, all teachers participating in this study had been trained to become mathematics and/or geography teachers, which they regarded as their primary responsibility, and had teaching experiences of five years and above, yet felt incompetent and not sufficiently knowledgeable to teach about HIV and AIDS since they had not been trained to integrate this topic. The studies of Miedema (2006) and Duflo (2006) similarly note that teachers were not adequately trained to teach about HIV and AIDS in that they lacked competency in the interactive pedagogical methods necessary for teaching about AIDS.

The majority of teachers further indicated that HIV and AIDS information was not already integrated within the subject content and competencies, thus even when teachers wanted to integrate HIV and AIDS within their subjects areas, they lacked knowledge and skills on how and what to integrate. Similarly Campbell (2006) found that teachers reported to have little information on how to integrate HIV and AIDS and expressed the need to be knowledgeable on how to do so. It would seem that teachers need particular skills and competencies if they are to adopt an integrated approach to the curriculum. Consequently, this shows that HIV and AIDS integration requires skilled teachers who are not only critical of how they approach their respective subjects and what they teach in that subject context, but can also extend this critical perspective to other aspects of the curriculum.

5.3.2 Teacher Expectations and Subject Specialization Demands

Although teachers were expected to integrate HIV and AIDS, they reported that an overcrowded curriculum and the burden of other administration work for their specific subjects constrained them.

Teachers reported that they were expected to cover the syllabus within a limited time, and had to ensure that learners achieved the required basic competencies and subject targets/expectations. Teachers committed to meeting the demands of their teaching subjects to avoid the blame for learners' poor performance from the parents, community and school management. Teachers reported to holding extra classes after school, during weekends and holidays to prepare learners for the final examination. Although enthusiasm for their subject importantly motivated teachers to meet subject expectations and prepare learners for future careers, these demands made integrating HIV issues in their lessons a difficult, burdensome distraction for them. Miedema (2007) made the point that, when the curriculum is overcrowded, teachers will also be less inclined or able to take the time to facilitate active learning activities on HIV and AIDS. The subject may be skipped altogether if there is no specific time allocation and if it is not made examinable.

With the high subject demands on teachers, some opt not to integrate HIV and AIDS information or to present it occasionally merely to raise awareness of how learners should protect themselves. They also reported that time constraints often led them to omit HIV and AIDS information in assessments since it was time consuming to integrate it.

Similarly, Miedema (2006) and Duflo et al. (2006) found that HIV and AIDS integration was added to an overcrowded curriculum with no stipulation on how it is to be managed, taught or assessed and with no specific time set aside on the timetable for HIV and AIDS education.

It should also be noted that teachers were not motivated to integrate HIV and AIDS, regardless of time constraints. Some teachers commented that no one would cast blame or even notice whether one integrated the material or not. Visser (2004) also found motivation to be a factor influencing teacher practices around HIV integration.

5.3.3 Integrating a Sensitive Topic

The teachers in this study reported that the sensitive nature of HIV and AIDS information constrained their teaching practices, often to the exclusion of HIV and AIDS information. They pointed out that HIV and AIDS information was sensitive. They preferred to discuss aspects related to transmission and prevention rather than aspects such as stigma and sexuality when they did address the topic at all.

Teachers in the small sample also reported to be fearful about sensitive, controversial or difficult topics relating to HIV and AIDS, because of community expectations and pressure. Findings by Griffiths (2005) attest to similar challenges faced by teachers. With a culture of silence surrounding the disease, a lack of enthusiasm to discuss sex and HIV and AIDS within school is prevalent. Teachers in the current study moreover said that HIV and AIDS information was regarded as a taboo topic in the community; a finding similar to Kelly (2003) who noted that one of the complicating factors in teaching learners about HIV and AIDS was the prevailing view in most societies that sex was a taboo topic not to be discussed in a public space such as the classroom.

Some teachers reported that they lacked the right terminology to communicate around HIV and AIDS and found it difficult to integrate the topic in their subject matter as some explicit terms/words were regarded as forbidden in the community. Studies by Miedema (2006); Visser (2004); and Campbell (2006) found similar results. Further, teachers expressed the view that discussing sexual matters was not their role. They indicated that they did not have clear examples to elaborate for learners, felt frustrated with repeating the same message, and thus opted to focus on their subject content only.

Some teachers used different words to avoid mentioning sensitive words such as sex. I observed this in John's third lesson where he substituted 'sex' with a local term '*finyafinya*', which means '*searching around*'. Some teachers in the small sample expressed their feeling that HIV and AIDS is a difficult topic that teachers sometimes feel embarrassed and uncomfortable to raise with learners. Baxen (2010) supports this notion by arguing that, as sexual beings themselves, teachers might have difficulty teaching sex education.

Teachers in the study were concerned that learners might not respect teachers as elders and role models were they to discuss sex in class. Consequently, learners might not take the HIV and AIDS message as intended by the teacher.

Teachers also raised concerns about male teacher behaviour in particular. This was similar to Campbell's (2006) study that some teachers felt that their colleagues' behaviours in relation to HIV and AIDS issues constrained them from talking more freely about HIV and AIDS. Teachers raised concerns about some of the male colleagues who were sexually involved

with girls at school, and other male colleagues who have many girlfriends/wives and children, as they are at high risk of being infected with HIV.

In addition, some teachers indicated that their religious and cultural beliefs constraint them from talking about sexuality and condom use openly, stating, too, that some of the topics are not acceptable for discussion with children, since they are regarded as 'elderly things'.

In my study, the four teachers in the observed sample were not comfortable talking about HIV and AIDS information and opted rather to advocate that learners abstain from sex until marriage. Visser's (2004) study confirms that teachers were unable to talk about HIV and AIDS openly and that those who did talked about it reluctantly, focusing mainly on modes of transmission and prevention.

Teachers made the point that they themselves were vulnerable to HIV and AIDS and also needed help and information on how to deal with HIV and AIDS issues personally. Some teachers indicated that they were also infected and that a complicating issue was learners' awareness of some teachers' HIV status.

In most of the lessons observed, the teachers kept 'othering', referring to learners themselves, or specific learners, instead of maintaining a general discussion. It was observed that in some cases the teachers (unintentionally) offered information that could scare learners or touch very sensitive areas. Clarke (2008) found similarly that in most subjects observed, teachers retained a substantial information bias in HIV and AIDS content and methods applied, and the logic of HIV prevention was lost. I observed that in some lessons, learners were uncomfortable and felt embarrassed. Thus, while these teachers were open to talking about information on HIV and AIDS, at some stage in the process they became unable to manage the material in ways that responded to its sensitive nature and thus mediate learner responses and experiences. On this issue of the sensitivity of the topic, Hopkins (2007) suggests that teachers should make thoughtful decisions about what to integrate at particular points, and in particular topics or lessons. We might call these pedagogical strategies that deal with the sensitivity of the topic.

5.3.4 Teacher Willingness and Community Expectations

The results illustrate that although some were willing to integrate HIV and AIDS education, community disapproval concerning public discussions with learners on sex, sexuality, condoms and relationships created barriers for teachers. The community apparently believed that in teaching such topics, teachers promoted immoral practices and encouraged early sexual debut. Visser (2004) found similar results where some parents and religious leaders laid the blame on teachers for scaring children, abusing their innocence and harming them with HIV and AIDS information.

The four teachers further indicated that there were misconceptions and misunderstandings about HIV and AIDS in the community due to cultural values and practices such as those embodied in the saying that 'a real man must have many wives and children', and which they claimed constrained teachers from giving correct information. Lichtenstein (2010) highlighted related challenges that parents, family, peers, school, religion and media pose by influencing messages about HIV and AIDS and sexuality so that these messages are often conflicting, incomplete, and inaccurate and at times might not resemble the information given at school. In the same vein, Breidlid (2002) argued that tension can exist where communities are still very traditional and youth, being influenced by both tradition and modernity, face the difficult challenge of navigating their way within changing and often contradictory social and cultural practices. The way teachers integrated HIV and AIDS was influenced and shaped by the community perceptions, values, and traditions, which at some points conflicted with knowledge and skills that were part of HIV and AIDS education.

5.3.5 Policies and Lack of Support

Despite the fact that some geography and mathematic teachers were willing to integrate HIV and AIDS, they reported that they experienced lack of support for this at different levels. There was lack of support and/or of additional guidelines in the relevant policies and the curriculum on how to integrate HIV and AIDS, as well as a lack of learning support materials and textbooks that integrate HIV and AIDS information, mostly in mathematics.

Although HIV and AIDS integration is a curriculum directive, there is as lack of HIV and AIDS content in policies and other educational materials such as the subject guides, syllabuses and textbooks. HIV and AIDS information could hardly be traced in any mathematics subject policies, teachers' year plans and learners' work. In geography, HIV and

AIDS information was integrated in population geography only, despite the fact that teachers were expected to integrate it in all themes.

Although teachers indicated that they made use of the available policies to integrate HIV and AIDS, not all teachers had available copies of the requisite policies. The type of information teachers offered and the way they integrated it raised concerns on teacher capability to integrate; as Hopkins (2007: 5) suggests, "[T]eachers cannot teach what they do not know. It is essential for teachers to have a sound understanding of the subject they teach, so that they present information that is current and accurate."

It would seem that decisions were left to the discretion of individual teachers to make decisions on how, where and what to integrate in geography and mathematics. Coombe (2002) reports similar findings that there was no evidence of workplace policies in schools on how HIV and AIDS should be implemented. She further reports a lack of clear guidelines in the curriculum and other policies on HIV and AIDS education. In line with such findings, some teachers reported to lacking understanding or awareness of the content of the HIV and AIDS education policy. The MoE (2010: 16) in Namibia acknowledges the gaps between the theoretical and policy aspects and the actual practices in schools, stating, "[A]lthough mainstreaming of HIV and AIDS is currently recognized as a goal, practical implementation at national and provincial levels has been very limited."

Apart from the gaps within the policies, teachers highlighted lack of support from the educational district. Teachers were not supported in the classroom by the subject advisory teachers or by school management.

5.5 Summary

The results reveal some patterns that emerge in earlier studies on curriculum integration. Curriculum integration is widely recognized to be challenging and problematic in general education, but this and other studies show that within the arena of HIV and AIDS education, additional factors come into play that further complicate the integration process because of the sensitivity of the topic. In addition, HIV and AIDS integration has been added to an already overcrowded curriculum and teachers have not been provided with either any or adequate training nor concrete examples that might facilitate integration of HIV and AIDS information into subjects like the ones under scrutiny in this study.

The picture that emerges in examining the evidence of HIV and AIDS integration against Fogarty's 10 models of curriculum integration is one where teaching practices are ad hoc, opportunistic and haphazard right across the sample. The choice of integration model for implementation of the HIV and AIDS into these subjects has been largely left to the opportunity, ability and personal inclinations of individual teachers. The results point to a range of responses, with many teachers not teaching HIV and AIDS at all or some hesitantly experimenting with different approaches to limited effect in realizing the intended national goals of this curriculum project.

The overall pattern also reveals a degree of frustration among the teachers in the sample, who acknowledged and were concerned with the enormity of the HIV and AIDS challenge facing the country. They recognised the motive behind the policy to have the education system play an important role in response to the HIV challenge, but felt frustrated with the difficult social, personal and practical realities of actually implementing the policy within the context of poor or no training, knowledge, and support.

CHAPTER 6 CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study aimed to investigate teachers' perspectives, levels of preparedness, and experiences in integrating HIV and AIDS across the curriculum, specifically in geography and mathematics at the junior secondary phase, in Oshana region, Namibia. A qualitative approach was used to gather in-depth and sufficient data through a questionnaire, classroom observations and interviews. A review of relevant literature, data analysis and interpretation further directed the findings on what are some geography and mathematics teachers' perspectives, levels of preparedness, and experiences in integrating HIV and AIDS information across the curriculum at the junior secondary phase.

The information gathered revealed that the geography and mathematics teachers at JSS had different experiences, levels of preparedness and perspectives towards the integration of HIV and AIDS information within their geography and mathematics curricula. A range of factors constrained, shaped and influenced the teachers' position and decision making on what, when, why and how to integrate HIV and AIDS education. These shaping factors included: a lack of appropriate training: religious beliefs: cultural values; the culture of silence around HIV and AIDS and sexuality; teachers' personal identities; and inadequate learning support materials for promoting HIV and AIDS integration.

It was discovered that although teachers talked about HIV and AIDS in their lessons, their practices in doing so were ad hoc and unsystematic. It seems that HIV and AIDS integration is regarded as the responsibility of teachers but there was lack of support and training to assist the teachers and strengthen the efficiency of HIV and AIDS integration. Notwithstanding the challenges, some teachers were enthusiastic and motivated to educate learners about the danger of the pandemic, how it spread and how learners should protect themselves against HIV and AIDS infection.

Results from this study may be used to create better support for teachers in integrating HIV and AIDS education across the curriculum at the JSP and by so doing, contribute to mitigating HIV infection rates that continue to escalate notwithstanding the education provided in and out of school.

Drawing from different studies in addition to my study, it seems clear that curriculum integration in general is seen as an imperative practice which can help to address the current educational issues despite the challenges it poses. Integration of HIV and AIDS education in particular is advocated by many countries, especially in sub-Saharan Africa, as one in a host of measures to deal with the HIV pandemic. Teachers are looked upon as central role players in implementing the directive from ministries of education to mitigate the effect of HIV and reach learners before they become sexually active.

Similarly to previous studies, my study found that although teachers highlighted the importance of integrating HIV and AIDS information within their subject areas, their practices hardly bore evidence of this. Regardless of the benefits of integrating HIV and AIDS education across the curriculum, there were gaps between the theoretical justifications and policy imperatives, and the teacher (and teaching) practices on the other.

6.2 Recommendations

This research will contribute to the critical analysis and exploration as well as the enhancement of classroom practices directed towards HIV and AIDS education, especially in Namibia were we have limited research on the issue.

Based on the findings from the study, I recommend the following aspects to be taken into account: Curriculum and policy review; teacher training and support on integration of HIV and AIDS education; and establishing community forums.

Curriculum and Policy Review

Teachers in both the questionnaire and the observed samples used in this study reported that the curriculum did not include sufficient information on why, when, what and how to integrate HIV and AIDS education. They further argued that there was a lack of policies and guidelines on integrating HIV and AIDS education, to the extent that some teachers were not aware of the imperative to integrate it. I suggest that the Namibian MoE conduct a comprehensive review of the curriculum and all other relevant policies/documents that direct integration of HIV and AIDS education across the curricula, in order to empower teachers and provide them with clear guidelines on how, why and when to integrate HIV and AIDS information and also what HIV and AIDS-related information should be addressed. The

Namibian National Institute for Education [NIED] should provide additional learning support materials that enable teachers to integrate HIV and AIDS education effectively.

If policy makers and NIED cannot include HIV and AIDS content within subjects because of overcrowded curricular; HIV and AIDS education should be introduced as a stand-alone subject to equip learners with the knowledge and skills that they require to make informed decisions and which might contribute to mitigating HIV infections.

Teacher Training and Support

The majority of the teachers participating in this study reported on lack of support and training in integrating HIV and AIDS education, with the result that they found it challenging, especially when dealing with sensitive information about the pandemic. Although teachers received training in the subjects [geography and mathematics], information about HIV and AIDS was rarely discussed during subject workshops, especially in mathematics. Consequently, I suggest that appropriate initial and in-service training in HIV and AIDS education in general, and in integrating HIV and AIDS education in particular, should be available to all teachers. Such training programmes should train teachers in the process, planning and pedagogical aspects of teaching and integrating HIV and AIDS education, as well as dealing with the types of information that teachers can and should integrate.

The advisory teachers and the school should be motivated to support, assist and motivate teachers to integrate HIV and AIDS education, despite the challenges. Schools should develop, implement, and monitor policies on HIV and AIDS. Team teaching should be encouraged so that teachers can share ideas and support one another. Subject workshops should include information on the pedagogical strategies that teachers can use to integrate HIV and AIDS.

Establishing Community Forums

The teachers who participated in this study further raised concerns that some parents did not approve of teachers teaching about HIV and AIDS since they are not health officers. Schools should therefore facilitate discussion processes amongst parents that create opportunities to discuss HIV and AIDS information in general and that advocate for HIV education to be integrated and taught across the school curriculum. Such discussion forums should also

emphasise the role of parents in mitigating the pandemic. Parents should also be encouraged to play an active role in such forums and in other activities related to HIV education; thus establishing partnerships between school and home.

Future Research

It would be important to carry out further research on teaching practices with a larger sample to gain deeper perspectives on the pervasiveness of the issue, and in so doing contribute to the enhancement of policy and curriculum imperatives in Namibia.

If some or all of the recommendations are accomplished, integration of HIV and AIDS might be a success and the government aspirations of eradicating or reducing the impact of HIV and AIDS might be realised. In the long run, this might contribute greatly to the government goals of vision 2030 and the dream of future HIV and AIDS-free generations and a better world.

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8. APPENDICES

8.1 Appendix A: Policy Analysis

The following documents were analysed to provide an additional framework for understanding the policy landscape in which teachers are encouraged to integrate HIV and AIDS education across the curriculum, with specific reference to mathematics and geography. I include generic and subject specific policy documents to highlight specific areas.

- The National Curriculum (2010)
- Mathematics and Geography Syllabi (2010)
- Geography and Mathematic subject policies (2009)
- ETSIP [Phase I 2006-2011]

Document	HIV and AIDS Imperatives
The National Curriculum [Policy Statement] (2010)	The curriculum indicates that HIV and AIDS is one of the main challenges and should be dealt with to empower learners for the development of Namibian's future as knowledge based society; it thus calls for dedication to educate the learners about the pandemic. It states that "*HIV and AIDS should be integrated in all subjects, mainly in main carrier subjects; Life Skills, Mathematics, Geography, Languages and Life Science" (MoE, 2010: 4)*. It further strengthens the integration of HIV and AIDS as follows: "*Apart from Life Skills which prepares learners to meet life challenges and career choice, HIV and AIDS should be integrated across the curriculum as a way to deal with challenges and risks caused by HIV and AIDS" (MoE, 2010: 6).* All teachers are expected to integrate HIV and AIDS information in their subject during lesson delivery, practical activities and in tests/examinations. Teachers are expected both to educate and empower learners to play a major role in the fight against HIV and AIDS, and to create awareness of the risks and challenges of HIV/AIDS and how they can be addressed on a personal, local, national and global level (MoE, 2010: 2). It highlights the need to train and prepare the teachers with all the necessary knowledge, skills and learning support materials to teach effectively (p3).

Geography Syllabus [2010]	Geography falls within the Social Science area of learning, and it has links to other subjects across the curriculum which includes HIV and AIDS-related issues. It states that "*Geography provides scientific knowledge about the physical, environmental and human processes which form the basis for cross curricular education that includes HIV and AIDS information*" (MoE, 2006:3). It further indicates, *"Cross curricular issue such as HIV and AIDS should be dealt within the syllabus and approached through the geographical perspectives" (MoE 2006: 4).* The syllabus includes four major themes; Regional geography, Geomorphology, Population Studies and Ecology. In these themes, HIV and AIDS forms part of population studies *[Strategies to reduce the impact of HIV and AIDS, p5*]. Like the curriculum, the syllabus recognizes that teachers should do proper planning of lessons and that they should be empowered through professional development training Teachers are further advised to be creative in adopting and adapting LSMs, and make use of the available materials as well as the local environment/people to enhance learning.
Mathematics syllabus [2010]	This syllabus stipulates that one of the main cross curricular issues that Mathematics deals with is the challenge and risks caused by HIV and AIDS. It further indicates that Mathematics has thematic links to other subjects across the curriculum that includes HIV/AIDS information. "*Mathematic helps learners to develop accuracy as well as logical and analytical thinking; apply these skills to other areas of learning and real life. Mathematics offers a basis and provides tools for investigations into issues across the curriculum such as HIV and AIDS. (MoE, 2007:1).* In the same vein, it further indicates that the assessments will include, whenever appropriate, personal, social, environmental, economic and technological applications of Mathematics. (MoE, 2007: 4). Learners will use the mathematical skills, knowledge, concepts and processes, in order to investigate and interpret numerical and spatial relationships and patterns that exist in the world; these can also be covered through integrating HIV and AIDS information, so that all learners will understand the challenges and risks of HIV and AIDS and how they will impact our society and the quality of life now and in the future, understand their role in dealing with HIV and AIDS and how these challenges can be addressed. Teachers need to plan carefully in order to make sure that aspects of topics from different subjects are coordinated in lesson plans and the same topics treated at the same time in different subjects, thus it needs cooperation between subject teachers. (MoE, 2007: 5). At the same time, teachers are encouraged to extend their learners' competencies beyond the syllabus requirements, where possible Text books can be used as examples only, thus teachers are encouraged to include local examples (contextualization) by developing appropriate worksheets and exercises. Like the general curriculum and the geography syllabus, the mathematics syllabus does not specify on how HIV and

	AIDS should be integrated in lesson; that is, the method, what to integrate and how HIV and AIDS should be integrated in assessment.
Subject policy [Social science and Mathematics] (2009)	The subject policy provides the foundation that guides teachers on how they should implement the curriculum and syllabus successfully. Equally, the geography and mathematics subject policies note that teachers should be qualified to teach their respective subjects, and should develop their scheme of work from the syllabus. The subject policies also outline that teachers should be empowered through in-service training and subjects workshops to deal with all aspects of the curriculum, including HIV and AIDS information. All teachers are expected to do lesson preparations on a daily or weekly basis, they are also are encouraged to be creative and innovative, to create/adapt/adopt LSM's and use learner-centered approaches to ensure that learners take an active role in their own learning. The subject policy further proposes that schools should develop their own internal subject policy based on the main policy, to suit their environmental needs and context. Although the policies provide the platform for schools to internalize and contextualize the subjects content which may include information on HIV and AIDS, information on HIV and AIDS integration is not specified neither are teachers encouraged to be integrate it during lessons.
ETSIP [Phase I 2006-2011]	This policy highlights that HIV and AIDS information should address the prevention and support issues that can mitigate the impact of the pandemic. Consequently, the MoE welcome assistance from development plans and Non-Governmental Organizations [NGOs] and cooperation with the Ministry of Health in developing effective implementation of HIV and AIDS information in schools. Different committees have been established, such as the HIV and AIDS Management Unit (HAMU) & Regional AIDS Committee for Educationo n (RACE), to support and oversee the implementation of HIV and AIDS information within the curriculum and in other programmes such as 'My future is my choice'. These bodies are also responsible for creating awareness and empowering schools to, mainstream HIV and AIDS information across the school curriculum, by ensuring that curricular and co-curricular HIV and AIDS programmes are in place in all schools. It further focuses on providing materials and training teachers in skills-based HIV and AIDS education. (M o E, 2004:43)
HIV and AIDS policy	The policy provides guidelines to ensure that all people in the education sector (including teachers and learners) are fully informed about the disease, the way it is transmitted, its consequences and how to live positively with it. It further calls on all stakeholders to join forces in order to implement the policy successfully. It also states that "*All the schools should encourage parents and caregivers to educate their children with sexual health education and guidance on sexuality, sexual abstinence until marriage and faithfulness to their partners*". (MoE, 2009:32) The

	policy further indicates that sexually active learners should be counseled at home and at school to practice safe sex and to use condoms. They should also be educated about their rights as individuals, and to protect themselves against rape, violence, risky sexual behaviour and contracting HIV and AIDS. (MoE, 2009:34). The policy is further aimed at educating teachers to provide education on HIV and AIDS in order to help prevent the spread of HIV and AIDS, to reduce fear, and to reduce stigma and discrimination associated with the pandemic. Teachers should be trained to deal with issues concerning HIV and AIDS.

8.2 Appendix B

Survey questionnaire

Fill in the space provided/ use a cross to answer the questionnaire

A. Demographic information

Age……

Subject taught: ……

Years of experience in teaching the subject……

Years of experience in teaching……

Religion…….....

Have you had training in HIV integration? ..... (If yes), when did you had the training? ..... How long the training took? .....Who held/facilitated the training (give the position only not the name) …….

B. Content focus: HIV/AIDS integration

1. HIV/AIDS and educational policies

Use a cross(X) or a tick to select the correct answer were optional answers are given

1. Do you think it is important to educate learners about HIV/AIDS through curriculum integration in your subject?

Yes ☐

No ☐

2. Do you have the following official documents? Cross YES or NO and give a comment if possible

Document	**YES**	**NO**	**Comment if any**
The Reformed Curriculum 2010			
The latest syllabus for your subject			
The latest teachers' guide for your subject			

The ETSIP policy document			
National policy on HIV/AIDS for the Education Sector			

3. Do you think the above documents have clearly stipulates how to integrate HIV/AIDS in you subject? Yes ☐ No ☐

4. Does your school have a school's strategic plan on HIV/AIDS?

Yes ☐ No ☐

5. Do you make use of the available policies that reinforce the integration of HIV/AIDS?

Yes ☐ No So☐hes ☐

6. How often do you include HIV/AIDS information in your lesson plan and in your lesson deliveries?

Always ☐ Sometimes ☐ at all ☐

Comment (if any).....

……

7. What type of HIV/AIDS information do you usually integrate? Use a cross to select the correct option

Type of information	**Yes**	**No**		**Types of information**	**Yes**	**No**
What is HIV/AIDS?				Learners role in the fight against the disease		
How it spread				Risks and challenges of the epidemic at all levels		
How many people are infected				The impact of HIV/AIDS and human rights		
How it affect people's well beings and the society				Sexuality and sexual health		
How people should protect themselves against HIV/AIDS				Stigma, discrimination and social injustices towards people infected and affected with HIV/AIDS		

8. Do you have the materials that you can use to support integrate HIV/AIDS in your subject?

YES ☐ NO ☐

9. Do you think that learning support materials can help learners to be actively involved in integrating HIV/AIDS during lessons and learn more?

Agree ☐ Strongly Agree ☐isagree ☐rongly disagree ☐

10. How do you make use of the learning support materials?

How do you get access to LSMs that can help in integrating HIV/AIDS?	**Yes**	**No**	**Comments (if possible)**
Buy them			
Use the local environment and people as LSMs			
Adopting LSMs			
Use LSMs from other subjects, such as Life Skills			

11. How often do you receive support from the following people/office in integrating HIV/AIDS? Use a cross/tick in the appropriate box.

People/Office	**Sometimes**	**Not at all**
Advisory Teacher for your subject		
Educational Officer for RACE		
The community members		
Subject Cluster groupings		
The principal		
Head of Department/ Subject Head		

12. How do you find integrating HIV/AIDS information in your subject?

Excellent ood ir enging dif

14. How often do the subject workshops and training include information on the followings integration principles? Cross/tick in the appropriate box.

content	**Regularly**	**Sometimes**	**Not at all**
When to integrate HIV/AIDS?			
What to integrate HIV/AIDS?			
Why to integrate HIV/AIDS?			
How to integrate HIV/AIDS?			
How to integrate HIV/AIDS in assessment?			

15. How often do you integrate HIV/AIDS information in your subject assessment?

Always ☐ sometimes ☐ not at all

16. How do you integrate HIV and AIDS during your lessons?

Forms of integration	yes	No	Comment (if any)
Place learners at the center of integration and let learners themselves to make efforts to integrate various components of knowledge			
You are the expert who involve learners in practical activities to develop new skills and insight			
You are a co-learner and use team teaching with other teachers to integrate HIV/AIDS			
Draws attention to common skills, concepts and attitudes between the subject content and HIV/AIDS			
You include practices such as inquiry and self inquiry (base on real life experience of learners.			

17. What are your suggestions on HIV/AIDS integration in your subject?

……
……
……
……
…….....

18. Would you like to take part in the main study?

Yes ☐ No ☐

THANK YOU.

8.3Appendix C

Interview schedule

1. Introduction

Thank you that you have accepted to participate in this study. As stated in the letter, I am Simsolia Shifotoka, a Master student at Rhodes University and I am completing my thesis, as you know that my topic is to investigate the teachers' perceptions and conceptions about HIV/AIDS integration across the curricular: In this case in Mathematics and Geography.

You are encouraged to be free and share you experiences and views. I would like to inform you that the interview will be tape-recorded so that I will listen to the tape again in compiling the data. Your confidentiality of information supplied as well as the anonymity of your respondents will be highly considered and respected, I will not use your real name or your school name in the study. In addition, I will transcribe the data and sent you a copy to verify the information given. Information on HIV/AIDS is sensitive, thus care will be taken to guarantee that data are stored safely and that they will be used for the intentions of this research only.

Thank you.

As we all know that the curriculum has been reformed since 2010, were HIV/AIDS has to be integrated across the curriculum and Geography and Mathematics are regarded as some of the main carrier subjects. I am interested in your views about this, and this interview is specifically aim at looking at your experiences and perceptions as Mathematics and Geography teachers on integrating HIV/AIDS in your subject.

1. Can you tell me about yourself as a teacher/ about the career in teaching?

2. What made you become a Mathematics/Geography teacher?

3. What is your view on integrating HIV/AIDS in your subject?

4. What are your experiences regarding integration of HIV/AIDS in your subject?

5. What are the strategy do you use to integrate HIV/AIDS in your subject?

6. Do you have LSMS? If yes, tell me about it, if no what type of materials would be useful to you to integrate HIV/AIDS?

6. What support do you get in school to help you integrate HIV/AIDS information?

7. What has made it easy to integrate HIV/AIDS in your subject?

8. What have been the challenges to you as a teacher towards integrating HIV/AIDS in your subject?

9. What would make it easier to integrate HIV/AIDS information in your subject?

Interviews

Mary [Geography teacher]

Can you tell about yourself as a teacher/ your career in teaching?	Thank you. I am a 40 years old. I am a social science teacher. I have not been teaching Geography for so long, but I have been a teacher for more than 10 years now. I have been teaching Social Studies in grade six and seven for about 15 years, before I started teaching Geography, and I am still teaching social studies. Social Science includes Geography and History, so I am qualified to teach geography. I enjoy teaching geography, it is one of the best subjects at school and social science is the mother of all subjects. I am happy to be a geography teacher. I am a Christian and a mother to a teenage girl.
What do you think about HIV and AIDS integration in geography?	HIV and AIDS integration is not an easy thing at all but we are trying were we can. In geography it is a bit different because there is population geography which talks about AIDS, how it affects population growth and developments; talking about labour forces, birth and death rate and so on. The text book is having all the information on AIDS in that topic.
What type of information do you usually integrate during the lesson?	I give information such as the statistics; how many people are having HIV and AIDS to help learners to behave themselves so that they cannot fall under these population that are infected by HIV and AIDS. I realized that most of the learners they need to be aware so that they cannot have boyfriends and girlfriends and not to get this HIV and AIDS.
Why do you think it is important to educate learners about HIV and AIDS?	I am a parent and a Christian, thus I am campaigning for them to abstain. I wanted them to proceed with their education and be responsible with their future. Some learners might not change their behaviors, but some will take care of themselves and avoid to be infected. I want to rescuer my learners, I will feel guilty if I see some of them infected and I did not give them information.
Do you think that integrating HIV and AIDS can change learners' behaviors/ beliefs about the pandemic?	Of course …..Yes! It is true we are all infected and affected. It is important to integrate HIV and AIDS in geography, we don't want just to give information speaking….speaking and no changes, and we want AIDS to decrease. To have an integration on HIV is good because most of the topics are related to HIV/AIDS, we have a topic [population geography] that talk about HIV and AIDS. I know that some learners might not change their behavior or abstain because they are not Christians or because of they are influenced by their peers. In our tradition, people believe that a men should have many children, in that way some boys might also try to have many girl friends and they might end up being infected.
What type of LSM's do you use to integrate HIV and AIDS in geography?	There are very few LSM's that one can use to integrate HIV and AIDS, but sometimes I can use the text book to teach population geography. Sometimes I find articles or pictures in magazines or newspapers and I also instruct learners to bring in any materials about HIV/AIDS.
How often do you integrate HIV and AIDS?	Sometimes, not always. It is not easy to integrate it most of the time, and we have the syllabi to cover. The time is limited.
How do you integrate it?	I integrate at introduction, asking general questions and sometimes at conclusion. And it is easy to integrate when HIV and AIDS information is part of the content…..when I am teaching about the population.
Can you tell me more about the support that you get from the school, community	There is lack of support at all levels, especially the community and the regional, even the national level. They set the policy for us to implement but they do not make any follow up to see what is happening here……I only get support from my colleagues sometimes that is all, and I feel good about what I am doing, otherwise I will also not

or the region to integrate HIV and AIDS easily?	do it.
How about the subject workshops?	The subject workshops train us on the subject content not on HIV and AIDS integration. I did not receive any formal training on how to integrate. I integrate because I know it is a directive and it is important to protect learners from being infected.
Can you highlight on the challenges or problems that you experienced towards HIV and AIDS integration?	It is difficult and challenging because we are not trained to do it but we live with it, it's in our classrooms and it needs more emphasis from the teacher, we are only trained to teach our subjects not AIDS. It is a killer disease that even we are all scared of and to make the matter worse it is positioned at a wrong place…..we can't mention those words just like that…..its few people who get infected by accidents…many people got it when people get together…you know…..in population geography it is fine but other topics…..it's just too challenging and in some topics like geomorphology there is no connection with AIDS at all. Now we are not just teachers but we have to counsel learners also, because you cannot teach well if one learner not feeling well, may be a parent died of AIDS, how can I talk about AIDS and death? It has been difficult for me to talk about death of AIDS, I mostly tell them to take care of themselves and to abstain as per Biblical teaching.
Do you include HIV and AIDS information on assessment?	Sometimes, HIV assessment is included in population geography. There is always some questions on HIV/AIDS.
What do you think about todays' lesson? [lesson 1] Can you tell me about the way you planned your lesson?	Today It was not easy to integrate HIV/AIDS information. I decided just to ask few questions about AIDS at the beginning of the lesson, because time could not allow us to discuss further. I wanted to know what learners knew about the disease and to educate them on the danger of AIDS. Yah…..I created my own lesson plan format. I planned for the entire lesson but not on HIV and AIDS. Planning is not really important, what is important is the actual teaching and learning. It is not easy to plan about HIV components to be included in the lesson.
What do you think about todays' lesson? [lesson 2]	Today I have prepared a newspaper article about the valentine's day. I wanted my learners to talk about issues regarding the danger of having boyfriends and girlfriends at school. I am a mother to a teenage girl and I would not like her to have a boyfriend at that age…..same to my learners, they must learn to abstain, and those that cannot abstain can then use condoms since that is the only way to protect themselves.
What do you think about todays' lesson? [lesson 3]	Today, I brought a topic that I heard on radio, about the increasing number of HIV/AIDS. Again all I want is to save my learners. I also realized that many parents do not talk to their children about AIDS and issues about sexuality. Although I am a Christian and would like my learners just to abstain, I have to give them the necessary information about HIV and AIDS. Many learners were not free to talk about HIV/AIDS, they were shy.

Paul [geography teacher]

Can you tell me about yourself as a teacher/ your career in teaching?	Thank you very much, I am a 37 Years old. I am a geography and history teacher. I have been a teacher for 14 years. I began my teaching career as a history teacher. Eleven years ago, I was given the responsibility to teach both history and geography to the Grade 9's and 10s. I specialized in Social Sciences at the college where I obtained the Basic Teaching Diploma (BETD). I furthered my education at the University of Namibia on a part time basis, where I obtained a degree in geography. I like geography and I enjoy teaching it.
What do you think about HIV and AIDS integration in geography?	I think integration, yah the concept is there of integrating HIV and AIDS in Geography, and I know Geography is the subject dealing with demographics issues, populations and everything. But the problem that we have now is integrating HIV and AIDS in all the parts of the syllabus and the scheme of work. Only in certain sections that's were we can

	integrate, and there have been no workshops so far that have been conducted on how teachers should integrate this HIV and AIDS into certain topics in Geography. So we really need workshops so that we can be able to do that more practically. Because to have only one chapter were you integrate it is not good. So at least we must cover all the different chapters in which we can integrate. Of course we are trying to do it. Integrating HIV and AIDS is challenging. Because in one workshop we attended, we were told to integrate in almost every topic, but now it becomes a problem. How do we integrate? Because some of the topics teachers have difficulties in integrating HIV and AIDS
What type of information do you usually integrate during the lesson?	We have some parts of HIV/AIDS in Geography, especially in population. Population is integrated in mostly in grade 9 and 10.So there is a part were we talk about population factors that affects both birth and death rates. That's were now HIV/AIDS is integrated in our subject. We have that part and it is also a topic on its own in population Geography, especially in grade 9 and 10. So it has everything; the statistics, the preventions, medications, effects, the measures about HIV and AIDS is there. So of course we do have. Topics like map work, this is where now me as a teacher have to integrate on your own.
Why do you think it is important to educate learners about HIV and AIDS?	Teachers should integrate all information basically talking about HIV and AIDS. So I think all that information in case of brochures, textbooks when they are printing and all these things, they must have that information to make it easier for us to integrate it. Prevention is important and it is not a matter of knowing only but you have to follow the instruction
Do you think that integrating HIV and AIDS can change learners' behaviors/ beliefs about the pandemic?	Prevention is having a positive impact. Because some of our learners are still at the young age, they do understand, especially on this prevention. There are many learners who are preventing themselves now. We integrate and talk to learners about AIDS than their parents do. We tell them the truth; we are very open to them not like the parents. Sometimes they don't want to talk to their kids about HIV/AIDS, they think it is a taboo and some parents talk about the religious teaching that no sex before marriage so we don't need to talk about condoms but the reality is that our learners are having sex, they are getting pregnant and some are infected, So I believe that teachers should continue to talk about it to save the learners. We just need support, training and everything. - HIV/AIDS can change learners behaviours…..it is just like someone who did Bible study…He will always have it and knows well what he have been taught and apply it
What type of LSM's do you use to integrate HIV and AIDS in geography?	I use available materials such as text books, brochures about HIV and AIDS and local newspapers when possible.
How often do you integrate HIV and AIDS?	It is not every day. Only sometimes, it depends also on the topic that you are giving that time. But its' not always, you know there are basic competencies that we must meet, but we try very much that even two to five minutes you can ask a question based on HIV and AIDS.
How do you integrate it?	I integrate according to the textbook and syllabus sequenced [In population geography] For example I am teaching about statistics, I will make sure that before I conclude my lesson, I will try to ask the question based on HIV and AIDS. Based on that statistics, maybe drawing bar graphs, line graphs, pie diagrams and so forth. So I will try to come up with something on HIV/AIDS. I can ask some few oral questions and the written questions too.
Can you tell me more about the support that you get from the school, community or the region to integrate	There is nothing. Except the support that we get from our syllabus and Life skills teachers -Window of Hope and My Future is my choice programmes support us with materials about HIV/AIDS. We integrate because we know that it is a policy in our syllabus that we have to integrate Policies are not clear at all on what and how to integrate HIV/AIDS in geography

HIV and AIDS easily?	
How about the training and subject workshops?	I attended one workshop that talked about HIV/AIDS integration, whereby teachers expressed their difficulties in integrating HIV/AIDS in Geography except in population geography were its integrated already in the syllabus and textbook.There have been no workshops so far that have been conducted on how teachers should integrate this HIV and AIDS into certain topics in Geography.
Can you highlight on the challenges or problems that you experienced towards HIV and AIDS integration?	I am real African man. I like my culture, and I value my cultural and societal believes and customs that shaped and continue to shape my behavior and beliefs as a man. We ca not run away from our cultural heritage, I am a man…which means I am expected to have many women and children to help me when I get older and to help at the farm. I am aware that this practice may contribute to the rise of HIV infection, but we must also keep our culture. When it comes to integration, sometimes you cannot give all the information because you are like exposing yourself…sometimes I give information that I am comfortable with, I do not want the learners to ask me personal questions that I might not be comfortable to answer to such as having multiple sexual partners. The only challenge I experience is that we cannot run away from our cultures and beliefs, and that show who we really are, I grow up in a society were men should have many children from different women and now boys still believe that they should have many girlfriends. Now how do I teach about that is challenging, I cannot go in much details because they might ask me questions that I will not be able to answer. Learners might question me ….my personal life, you know" and I will not be comfortable to do that.
Do you include HIV and AIDS information on assessment?	Sometimes. I know that in grade 9 and 10 every year, when we assess learners, especially during the first and second term it is a must that we have to include issues of HIV and AIDS, especially in population. Only in population. We also set examination questions from that part. I do not integrate HIV/AIDS more often in practical exercise and homework, but I do rarely where I give homework to complete graphs, and others.
What do you think about todays' lesson? [lesson 1]	The lesson was great. We talked about issues on HIV and AIDS as part of the lesson content since we are talking of population geography. The question paper has already integrated information about AIDS. I just expanded the question to ask further so that learners can have an in-depth understanding on how AIDS spread, and how they should protect themselves, why in some places, HIV prevalence increase or decrease and so on. I was very open to talk to the learners on issues about HIV, and I was happy with my learners' responses, although some learners were not free. Some learners are infected and affected, thus they might not be free to engage freely in the discussion about HIV.
What do you think about todays' lesson? [lesson 2]	Today, I did not talked about HIV/AIDS. I just found it challenging, but I could have talked about it in bearings but it was not planned that way. You know that it is not every day that I should integrate HIV and AIDS. But the lesson was really good.
What do you think about todays' lesson? [lesson 3]	HIV and AIDS information was planned as part of the content because here…learners have to draw a bar graph on HIV/AIDS prevalence rate in different years. The main challenge was time; we could not discuss or ask any question on why in some year we have an increase or a decrease.
Any suggestion on HIV/AIDS integration?	We want it to be fully included in the curriculum and syllabus in various topics of various subjects to enable teachers to integrate and interact with the learners well. Teachers should be trained and provided with all the materials. I just think that you know that HIV and AIDS have affected a lot of us, so why can't they just make it a subject on its own?

John [Mathematic teacher]

Can you tell about yourself as a teacher/ your career in teaching?	I am ……..,a mathematics teacher at this school. I am 33 years now. I have been teaching now for seven years, Just teaching Mathematics not integrated with other subjects. I like it and I enjoy it as well, because it is something that is easy to work with. You don't need to give many explanations, there its' only methods and numbers. I liked mathematics

	since secondary school, and that motivated me to further my tertiary education in mathematics at the College were I completed my BETD. I furthered my studies at the University of North West, and I successfully completed my Advance Certificate in Mathematics. I only teach mathematics.
What do you think about HIV and AIDS integration in mathematics?	I think in statistics is the only topic that can entertain that HIV integration I also talk about HIV/AIDS in general as part of awareness because obviously it needs to be spoken about. AIDS is exist and kills people. In Life Science and also in My Future is my choice. They also discuss about AIDS in class.
What type of information do you usually integrate during the lesson?	I integrate any information that you can get out there about HIV/AIDS can be integrated in mathematics. Learners need to be warned at least, they are affected and infected too as adults. Or just to be given a notice…this is what you should do because AIDS is here living with us. Learners they just need to know that it does exist and we must just try our best as teachers to help them…there must not be discrimination, we must let them aware that we must not discriminate among others, whether this one is infected or not infected, they must be treated the same information on how to protect themselves
Why do you think it is important to educate learners about HIV and AIDS?	I think it's very important that they brought up the integration, just to bring about awareness among the learners as such dealing with numbers you even learners they need to know the figures itself of how many percentages of people who are infected I mean ranging from the part of the country or even comparing different countries
Do you think that integrating HIV and AIDS can change learners' behaviors/ beliefs about the pandemic?	Yes, if learners are aware of the danger of AIDS, they might change their behaviors, if let say they are taught how to use condoms, they will be able to protect themselves.
What type of LSM's do you use to integrate HIV and AIDS in geography?	We are always to use those authentic things. If you come across those figures maybe you come across a newspaper somewhere, which has spoken about HIV; these percentages, about people who are infected, about countries' percentages, you always try to keep that one then you use it in the classes. You just duplicate and give the copies. Learners also bring in materials about HIV/AIDS. There are times when you sent them, like before you introduce a topic (maybe two days in advance, then they can bring in and then you check which one will be relevant to what you are teaching.
How often do you integrate HIV and AIDS?	Sometimes.
How do you integrate it?	Integration is only possible when it comes to certain topics which are connected to the subject itself. But now if you look at certain topics, the way they are formulated they are very much parallel to HIV and AIDS. You can integrate HIV information during introduction, for few minutes, but the challenge is that the in most cases introduction of the lesson basically maybe you want to see how far the learners understand the content that you are going to present and if you bring in issues on HIV/AIDS it might not match and it might just confuse the learners. If you have some minutes left for you, at the end there when you are concluding then you can come up with something just to refresh their minds. Sometimes the time is not with you there, so now you planned; what you planned is just enough for the time that you have available. I usually choose one day, mostly Friday in a month and just teach about HIV and AIDS.
Can you tell me more about the support that you get from the school, community or the region to integrate	There is no support so far, and I think with the help of the Life Skills teachers when they are available perhaps they can also give a helping hand. There are no policies at school on how to integrate and there is nothing there in the teacher's guide about integration as far as I am concerned, I never seen that, even any piece of writing were I can read about HIV and AIDS.

HIV and AIDS easily?	
How about the subject workshops?	Our workshops focus on mathematics not on HIV integration. We are mathematician.
Can you highlight on the challenges or problems that you experienced towards HIV and AIDS integration?	In most of the topic if you happen to includes some of the things for HIV it will confuse the learners. I think it will bring total confusion. Not all the teachers and learners are open to talk about HIV and AIDS as such a difficult topic on its own, its not like one plus one is two!! Here you are talking of unusual things that you as a teachers sometimes you feel kind of embarrassed to mention to learners, things about sexuality, we are not just teachers we are also parents That's why even you are in class, you come up with a topic, you can hardly been answered accordingly. Some of them are just shy to say out things that are related to HIV/AIDS. Teaching a subject is stressful on its own, and you are expected to produce good results at the end of the year, there are times that I don't integrate at all for some months but if something happen, let say a learner got pregnant or learners gossiping or bulling others who are infected it touch you badly, I really feel bad and sometime I wish I was not a teacher.
Do you include HIV and AIDS information on assessment?	You can assess in all the information that you are going to give, more especially the figures of the people who are infected; let say we take our own country or even parts of the region were we are staying, -The percentages of people who are infected, if it'sjust on the increase for example, then that will give a message to them that we really need to change in our mentality especially about the AIDS itself
What do you think about todays' lesson? [lesson 1]	Today I had a lot to cover and I did not taught anything about HIV and AIDS. Perhaps, I could have asked about the HIV/AIDS on the percentages increase and decrease.
What do you think about todays' lesson? [lesson 2] Did you planned to integrate HIV/AIDS in today's lesson?	It was good; we managed to discuss all the question asked in the test on time. Learners participated well when we gave the memo of the test, but when it comes to HIV they were shy. These are some of the problems we have, like stigma and discrimination; we have to create awareness on equal treatment. No…..I just thought of any possible questions about HIV and AIDS that I can ask my learners. In this case I saw an opportunity to talk about discrimination and stigmatization on HIV/AIDS. I made decision on when to integrate, what and how.
What do you think about today's lesson [lesson 3] Was this a life skills lesson?	It was mathematics, and it was a very enjoyable lesson. I don't teach Life skills. Every subject teacher should integrate HIV, anyhow it is not easy, we are experiencing so many difficulties, and it is not an easy thing to integrate. In most cases you don't know how to integrate and which information to integrate and sometimes you have fear that you might offend some learners who might be sick or infected because you don't know their status, and some parents think that we are teaching their children to be involved in sexual relationships since we are telling them to use condoms or be faithful. I decided to do it this way because I find it difficult to integrate it in the lesson content and I usually do this like once in a month, I take one Friday to teach about AIDS. I want to educate learners to take good care, to protect them and be safe. I also want them to know that all people either infected or not, are having the same human rights. I want learners to be able to make wise decisions because I care about them
Any suggestion?	Perhaps some training on how we should integrate, like for example in topics that we are saying is hard to integrate, I think we need to be trained as well on integration and how to go about that. I will suggest is if only teachers could go under some training and then I think that would make it easier and provide a qualified counselor at schools to help both teachers and learners with their emotional problems, a lot needs to be done if integration is to be realized here.

Ruth [Mathematic teacher]

Can you tell me about yourself as a teacher/ your career in teaching?	I am a mathematics teacher. I am 34 years old. I have six years of teaching experience in general and in mathematics. I became a mathematics teacher because I like mathematics since secondary school. I was always one of the best learners in mathematics. I enjoy teaching it…it is fun and interesting. I studied at Ongwediva College of Education, major in mathematics. I further my studies in mathematics with an Advance Certificate in mathematics, and I would like to further for a post graduate in mathematics to be more knowledgeable "I am a mathematician"
What do you think about HIV and AIDS integration in mathematics?	I fully support HIV/AIDS integration and I like it because it is worthwhile and can change learners' behaviors. I think learners are interested to learn about AIDS. HIV/AIDs information is a bit clear to most of the teachers. They know how it spread, they know the methods of preventing it and so on, but the issue is on how to integrate it or give it to the learners. I think teachers should focus more on prevention measures To integrate HIV/AIDS information is not easy because some learners feel that it is a taboo to talk about AIDS especially with teachers. I think if every teacher is talking about HIV/AIDS, they will get used to it and talking about AIDS is just like talking about any other subject, so that will help them also to feel free to say whatever they want to say. It is not only to talk about how to prevention, but also about how to take care of people living with HIV/AIDS, because some learners are living with parents who are sick and these things are also affecting them. And also among them at the school or in the class, there are also others who are infected and affected. We also have to educate them on how to live with others and accept them.
What type of information do you usually integrate during the lesson?	I mostly integrate information on how the disease spread, its effects on people, discrimination and stigmatizations and prevention measures.
Why do you think it is important to educate learners/integrate about HIV and AIDS?	It is very much needed because we teachers use to be with the learners most of the time. In some cases even more than the parents themselves. So are the closest people to the learners and we need to educate them about HIV/AIDS. If we are not doing it, who will? In our culture elders do not talk to their children or young ones about such things. We are adults but we are teachers, we are here to educate them. Some learners they also have some myths, which is not true about the sickness, so when you talk about it they will know the truth and make right decisions. Some learners believe that if you withdraw you will not be infected with HIV/AIDS. Some boys in my class believe that if you have many girlfriends then you are a real man. So those are the things that we need to root out when we are integrating HIV and AIDS among our learners.
Do you think that integrating HIV and AIDS can change learners' behaviors/ beliefs about the pandemic?	Having a nation at heart really to teach a learner, I want to include all the learners I am teaching; teaching them about HIV/AIDS that they will be comfortable in the class. I have noticed that not all learners are shy to talk about AIDS. Some learners are more interested when you are talking about it and that encourage me to integrate were possible. I try my level best to integrate the issues around this pandemic for our children's sake. If learners are provided with accurate information, it will guide them when making decisions about sexual relationships, or they will be able to help others/family members who are infected with AIDS.
What type of LSM's do you use to integrate HIV and AIDS in geography?	We do not have materials to integrate HIV/AIDS into mathematics. Sometimes we make use of life skills materials to integrate HIV/AIDS. Sometimes, I came up with my own from elsewhere, such as searching in other books, connecting from there and there, asking learners to find out about a certain information…looking in other books such as life science and so on.
How often do you integrate HIV and AIDS?	I talk more about HIV/AIDS In class so that learners will be much freer to talk and share ideas and experiences on HIV/AIDS
How do you integrate it?	I used scenario, sometimes I change mathematical/textbook scenario into people with HIV/AIDS in a certain town/country, let learners to calculate statistics on people infected/affected, orphans and so on. Instruct learners to do researches on HIV/AIDS

	issues related to mathematics such as statistics using different sources such as school library, different books and ask to do calculations such as percentages.
Can you tell me more about the support that you get from the school, community or the region to integrate HIV and AIDS easily?	We get support from colleagues and life skills teacher. The school is planning, in the future to form up a support group with our Life skills teacher so that it can also help us in that regard, to assist each other at school on how to support the learners with regard to HIV and AIDS, how to treat them at school and when teaching them. We can work hand in hand with the Life skills teacher and learn how to treat these learners in our classes and also give them necessary information about AIDS. There is a policy (Curriculum) that tells us that every teacher no matter what subject you are teaching; you must integrate HIV and AIDS. I do not integrate because the policy sais so, but I think there is a need to integrate HIV/AIDS, unless that question is integrated in Mathematics, otherwise I cannot assess on HIV/AIDS
How about the training to integrate and subject workshops?	I am not trained to integrate HIV/AIDS. I support that every teacher should integrate HIV/AIDS in their subject because HIV/AIDS is a crucial issue we need to attend to as a team, not as individual. I think also if we could be trained we could do it better. I could do it better than that.
Can you highlight on the challenges or problems that you experienced towards HIV and AIDS integration?	The problem we are focusing now in the subject is the materials that we are using. They are not integrating HIV and AIDS at all. Those are the books, teacher guides, and our syllabus. Even though there is a circular (Curriculum) that says that we should integrate HIV and AIDS in our subject, the materials themselves that we are using are not allowing us to do so. Most of the learners, they are living with this stigma and really teaching a learner with stigma is somehow difficult. Some teachers behave in ways that learners will not respect them anymore, for example how can a male teacher talk about abstaining if he is the one sleeping with some girls? And we had a case of a teacher who shouted at a learner because of her HIV status that she likes to sleep around. There are many learners whose parents have informed the school that they are on ARV's medication, and they need our support, but sometimes we do not know how to support them. These things makes me realized that what we integrate in our lesson is not really equipping learners to face many challenges only to protect from AIDS and now I am trying to accommodate these things were I can. As teachers we also need help and support because we are also infected and affected.
Do you include HIV and AIDS information on assessment?	Not that much. When I am assessing I mostly focus on mathematics which prepares learners for the final examination. I have to make sure that I do not only concentrate on HIV, because if my learners fail, the school management and parents will blame me. I do include few questions on HIV/AIDS during homework or class activities.
What do you think about todays' lesson? [lesson 1]	The lesson was fine. I planned to integrate information on HIV and AIDS using the percentage increase and decrease, and teenage pregnancies. I believe that my learners can make connections between the numbers and the message about HIV and AIDS. Some learners participated well but some did not.
What do you think about todays' lesson? [lesson 2]	Today's topic was challenging and I could not include information about HIV/AIDS in numbers. I left five minutes of the teaching time to ask learners to give me suggestions on how I can advise a friend who is HIV positive and do not want to go to hospital. Many learners participated well and they all wanted to give me advice. The main point was that, learners can use the same advice to help their relatives or friends.

8.4 Appendix D: Letters

05 January 2012

To: The Director of Education

Oshana Education Region

Dear Sir/Madam

Master of Education: HIV/AIDS integration in Mathematics and Geography Survey as well as data gathering at grade 10 in Oshana Region

I, Shifotoka Simsolia, a Master student at Rhodes University, would like to inform your office that my study will require me to carry out a survey that will be given to all grades 10 Geography and Mathematics teachers in Oshana region on integrating HIV and AIDS across the curriculum. The main study will only cover two schools in the region whereby I will use observation and interviewees at the two schools with the two Geography and two Mathematics teachers at each school. During classroom observation, I will use a video, to record all the activities during HIV and AIDS integration and to be able to transcribe the data.

The purpose of the study is to investigate teachers' perspectives and experiences in integrating HIV and AIDS across the curriculum. The aim is to gain insight into how teachers understand their role as mediators of HIV and AIDS knowledge, as well as factors that shape HIV and AIDS integration in schools. Results from this research will be used to create better support for teachers on how to integrate HIV and AIDS across the curriculum at JSP and by so doing, contribute to mitigating HIV infection rates that continues to escalate notwithstanding the education provided in and out of school.

Thus, I would like your office to grant me the permission to gather the information in schools. Confidentiality of information supplied by participants as well as anonymity of respondents will be maintained and respected. Information will be used for the purpose of this research only.

Thank you for your usual support

Yours Faithfully

Simsolia Shifotoka

Rhodes Student

10 January 2012

To:

School Principals (JSP)

Mathematics and Geography teachers at JSP in Oshana Region

Dear Sir/Madam

Master of Education: HIV/AIDS integration in Mathematics and Geography Survey at all JSP in Oshana Region

I, Shifotoka Simsolia, a Master student at Rhodes University, would like to request your support to take part voluntarily in the research survey for all JSP in Oshana Region on integrating HIV and AIDS across the curriculum.

The purpose of the study is to investigate teachers' perspectives and experiences in integrating HIV and AIDS across the curriculum. The aim is to gain insight into how teachers understand their role as mediators of HIV and AIDS knowledge, as well as factors that shape HIV and AIDS integration in schools. Results from this research will be used to create better support for teachers on how to integrate HIV and AIDS across the curriculum at JSP and by so doing, contribute to mitigating HIV infection rates that continues to escalate notwithstanding the education provided in and out of school.

Confidentiality of information supplied by participants as well as anonymity of respondents will be maintained and respected. Information will be used for the purpose of this research only.

Thank you for your usual support

Yours Faithfully

Simsolia Shifotoka

Rhodes Student

10 February 2012

To:

School Principals (JSP)

Mathematics and Geography teachers at the selected two schools in Oshana Region

Dear Sir/Madam

Master of Education: Data collection on HIV/AIDS integration in Mathematics and Geography at your school

I, Shifotoka Simsolia, a Master student at Rhodes University, would like to thank you for your positive response to take part voluntarily in the collection of data on integrating HIV and AIDS across the curriculum, and specifically in geography and mathematics.

The purpose of the study is to investigate teachers' perspectives and experiences in integrating HIV and AIDS across the curriculum. The aim is to gain insight into how teachers understand their role as mediators of HIV and AIDS knowledge, as well as factors that shape HIV and AIDS integration in schools. Results from this research will be used to create better support for teachers on how to integrate HIV and AIDS across the curriculum at JSP and by so doing, contribute to mitigating HIV infection rates that continues to escalate notwithstanding the education provided in and out of school.

I would like to inform you that during the collection of data, I would like to carry out a classroom observation of three lessons on each teacher. I also would like to use the video during the observation, to be able to transcribe and collect in-depth data, thus I would like you to give me the permission to use the video if it is possible. After the class room observation, I would like to have an interview with the teacher after lessons or when the teacher is free to be able to gain more insight on HIV and AIDS integration.

Confidentiality of information supplied by participants as well as anonymity of respondents will be maintained and respected. Information will be used for the purpose of this research only. After transcribing the observation and interview data, I will forward you a copy, in which you can confirm on the information presented, remove or add information. I will make follow up calls on the letter, so that we can make further arrangements.

Thank you for your usual support

Yours Faithfully

Simsolia Shifotoka

Rhodes Student