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Botsalano Mosimakoko

AUTEUR DE LA THÈSE / AUTHOR OF THESIS

Ph.D. (Education)

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FACULTÉ, ÉCOLE, DÉPARTEMENT / FACULTY, SCHOOL, DEPARTMENT

**A Discourse of Participation: A Poststructural Study of Teachers' Involvement in the Implementation
of an Educational Reform Initiative**

TITRE DE LA THÈSE / TITLE OF THESIS

Richard Barwell

DIRECTEUR (DIRECTRICE) DE LA THÈSE / THESIS SUPERVISOR

CO-DIRECTEUR (CO-DIRECTRICE) DE LA THÈSE / THESIS CO-SUPERVISOR

Awad Ibrahim

Richard Maclure

Frank Peters
University of Alberta

Nicholas Ng-A-Fook

Gary W. Slater

Le Doyen de la Faculté des études supérieures et postdoctorales / Dean of the Faculty of Graduate and Postdoctoral Studies

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Implementation of an Educational Reform Initiative.**

Botsalano T. Mosimakoko

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DEDICATION

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ABSTRACT

Participation has been used as a catchword for decades in organizations and development agencies to legitimize programs and because it is seen as a vehicle to ‘partnership’ in and ‘ownership’ of programs. This study analyzed the discourse of participation in terms of power relations and how it impacts on teachers’ involvement in the implementation of educational reform in the area of science education. More specifically the study sought: (a) to explore how science educators and administrators experience and value the process of participation in the implementation of educational reform and (b) to explore how participation impacts educational reform.

A descriptive study was used to explore the topic in depth and detail. Data was collected using policy document review and interviews. Interviews were conducted with science teacher educators from a college of education; science teachers in primary and secondary schools; administrators from the college of education and secondary school; and officials from the ministry of education. Foucault’s work on *discourse, power/knowledge, resistance, and governmentality* was used to analyse how and why teachers are invited or selected to participate in the implementation of educational reforms.

The study showed that there was no single, unified discourse of participation in the policy texts or amongst the teachers and administrators. Instead, there were multiple definitions and practices that operated under the use of the concept of participation and hence different understandings of the term by practitioners and policy makers. Overall, the study showed that

across all three schools, the first time that teachers experienced involvement in reform was when initiatives were *introduced*.

In order to make the analysis more functional, the policy texts could be improved with clear guidelines and identification of the significant roles of speakers, as well as the impact of individual and institutional forces outside the organization. Language plays a vital role in identifying discourse ideology, purpose, and function. Therefore, concept analysis, such as that of participation, requires more in-depth study of language function relevant to Foucault's perspective.

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LIST OF ACRONYMS

BOLESWA	Botswana Lesotho Swaziland
CCB	Curriculum Committee Board
DCDE	Department of Curriculum Development and Evaluation
EFA	Education for All
EFA-NAP	Education for All– National Action Plan
ER	Establishment Register
ERT	Examinations Research and Testing
FDA	Foucauldian Discourse Analysis
MoE	Ministry of Education
NGOs	Non-Governmental Organization
PDM	Participative Decision Making
REJCP	Report on the Evaluation of the Three Year Junior Certificate Programme
RNCE	Report of the National Commission on Education
RNPE	Revised National Policy on Education
RSU	Research & Statistics Unit
SDA	School Development Activity
SE	Science Education
ST&P	Science Technology Policy
TT&D	Teacher Training and Development
UB	University of Botswana
UBLS	University of Botswana Lesotho and Swaziland

UBS University of Botswana Swaziland
UC University of Cambridge
UNESCO United Nations Educational, Scientific & Cultural Organization

CHAPTER 1 INTRODUCTION

The word participation is used widely in educational reform. However, there seem to be significant differences in understanding between policy makers and those who are meant to participate. This study investigated these differences in understanding in the context of the implementation of educational reform in science education in Botswana.

The impetus for this study arises from my experience as a science educator in a college of education in Botswana. During that time, I attended meetings and other forums primarily set up to make it possible for science educators, science teachers and other stakeholders to participate in the implementation of educational reforms. I was also part of the science panel that developed modules or teaching and learning aids for in-service, pre-service and distance learning science teachers. In this phase of “inviting and engaging”, science teachers were invited to workshops and given a task to do, such as item writing. In my work I observed that science teachers displayed little interest in being part of the activities they were invited to take part in. It appeared to me that science teachers preferred listening and working on their own and did not appreciate sharing responsibilities and taking part in making decisions. The idea of participation, as promoted by the Ministry of Education (MoE)¹, seemed not to work as planned. I wondered what happens when science teachers do not show an interest in becoming “partners” and eventually “owners” of the program. The examples I noticed in my

¹ The ministry of education in Botswana directly administers the colleges of education.

experience suggest that the MoE and science teachers had differences in their understanding of participation.

Participation is a complex concept. As such, those who use it frequently like donors (e.g., World Bank) and policy makers have a different understanding of the concept than practitioners. What I mean is that there are differences in how participation as a technical word is understood at policy and at the level of practice. According to Fullan (1993), this ambiguity about participation is an impediment to the implementation of educational reforms. In this research, I problematize participation as a reform strategy and intend to use a perspective that views participation differently and will give us a better understanding of the practices of participation.

Participation in Education in Botswana

The notion of including teachers in Botswana in decisions about the improvement of existing educational programs has been an issue of constant debate for nearly three decades. Most recently, there has been a shift to including teachers in activities beyond the classroom, such as the development of examination tools. Currently, Botswana's school administrators and Ministry of Education have encouraged and recommended teachers to participate in activities or initiatives aimed at improving educational programs. Over the years, the idea of teacher involvement has become a strategic tool in policy environments.

Although discussions related to the participation of teachers have taken place over the years, they have tended to focus mainly on classroom level activities (Scribner, Sawyer, Watson, & Myers, 2007) and less on decision making at macro and micro

levels (Lavié, 2006). Even though participation of teachers is encouraged in Botswana's education system, its practices have varied significantly by classroom, subject, school, and district.

Given the policy orientation toward participation, most science teachers in Botswana have seen attempts to involve them in workshops on newly introduced initiatives such as *criterion reference test designs or test scoring*, or the practical design and development of school curriculum. The teachers have been selected into task forces, even though they may question the impact of their input. These teachers have brought differing levels of knowledge that has, at times, limited their participation. Undoubtedly, the success or failure of participation depends on teachers' commitment, the goals of the institution, and above all, the interest and achievement of the school students.

In the rest of this chapter, I will present the context of the problem of participation in educational reform in science education in Botswana. By contextualizing the problem, I will give an idea of the historical background of participation of science teachers in Botswana. This part will be followed by an overview of the study, including the research questions that guided the study and an introduction to Foucault, whose lens is used in the research.

Contextualizing the Problem: A Historical Synopsis

Educational reform in Botswana since the 1970s has seen two main phases marked by the review exercises of 1977 and 1994. These periods involved the

assessment of existing educational programs and the beginning of educational reforms aimed at improving the overall quality of education.

During the late 1970s, the government of Botswana began to recognize the negative impact of relying heavily on foreign teaching labor, and relying on teaching materials that were in a lot of cases imported into the country. After acknowledging the problem, the government of Botswana's goal was to become self-sustaining in teacher capacity and teaching/learning resources. The MoE wanted to allow teachers to be part of the reform process, i.e., to participate, in an effort to harness "partnership" and most importantly "ownership" of programs by teachers. The MoE increased efforts to involve teachers in the development of the curriculum and teaching materials which thereby contributed to the larger goal of developing sustainable capacity (see, RNPE, 1994). This point marked the beginning of reforms in science education.

From the early 1970s into the 1990s, science education in Botswana was a program designed and implemented through a shared approach in three countries in Southern Africa –Botswana, Lesotho and Swaziland. The education systems of the three countries used a "borrowed policy strategy" (Christie, 1996) to develop science education. Out of this teaming process, the curriculum blueprint, the syllabus teaching and learning aids and textbooks for junior secondary level were among tasks distributed among the three countries (e.g., there was one textbook designed for the three countries Botswana, Lesotho, and Swaziland entitled BOLESWA Integrated Science). However, it was still the foreign science teachers who developed the textbooks, an exercise that was not cost effective and also not helpful for skill development of the science teachers in the region.

During the period leading up to the second national education policy document in 1994, Botswana participated and became a signatory to the World Declaration on Education for All. This is a World Education Forum which is an arm of the United Nations Educational, Scientific and Cultural Organization (UNESCO), and was established in 2000 with the aim of achieving education for all by 2015. Through this collective commitment to action, participating governments have the obligation to ensure that goals are reached and sustained. In doing so, governments take the responsibility of ensuring the participation and engagement of stakeholders, teachers included, in the formulation, implementation and monitoring of strategies for educational development is reinforced.

The education policy document drawn after consultations (national, regional and international), known as the Report on National Commission on Education (1993), proposed major changes to the Science Education (SE). Key points include an emphasis on the consultation and participation of teachers. The aim was to move away from the non-contextualized manner in which science has been dispensed, to a contextualized approach designed to elicit teachers' interest. Also, the interaction of teachers with students makes it more comprehensible to justify their involvement in educational initiatives. Overall, teachers are better situated in activities that resonate with pedagogical practices.

The 1994 Report on National Policy on Education is a twenty-five year undertaking (1994 - 2019) that the Botswana government is currently responding to. Included in the policy recommendations are changes such as modification of the curriculum (including the science component), regrouping of science topics, and the

introduction of a modular curriculum for colleges. Other modifications cover new assessment arrangements (e.g., Criterion Referenced Testing for upper grades in primary school; standard 5-7) and the development of student profile records by teachers (especially at the primary and junior level) to reflect students' strengths and weaknesses. The records are to be used as a monitoring tool for students' progress. There is also the inception of *subject panels* consisting of science teachers from primary schools, secondary schools, colleges and university (detailed discussion of subject panels follows in the chapter on methodology). It is through subject panels that teacher participation is encouraged. Primarily, science panels are set up to sequence content, develop syllabus and ensure that examinations are prepared covering the proposed content knowledge of the subject in question.

The reform period that spans from the inception of RNCE 1977 into RNPE 1994 is marked by traces of participatory approaches, with arguments pulling in two directions: towards the distribution of authority where designed strategies are to be supervised by school leadership (RNPE, 1994); and towards the empowerment of teachers to ensure their future ability to sustain programs (Reed, 2000).

By establishing the SE, the government sought to improve science education by ensuring that science teachers are involved in the reform process. This was mainly intended to build capacity, self-sufficiency in teaching resources, and to ensure sustainability of reforms. But, the Report on National Commission on Education (1993) noted that participation of teachers has not been taking place. The report noted that the entire process of inviting and involving teachers "...lacks the kind of consultation that

is needed to get the cooperation of all key partners in the implementation of the [reform]” (p.107).

Engaging or Not Engaging Science Teachers

Engaging science teachers in educational reform in Botswana has not been a great success. Generally, barriers or problems to participation are evident. In part, there is no documented evidence of teacher participation in Botswana beyond classroom activities. Participation of Botswana science teachers is often focused on forming science competition groups and guiding students in extracurricular activities. School supervision encourages participation of science teachers on matters that result in high student performance. These steps toward the engagement of science teachers lead to diminished teacher interest in taking part in initiatives aimed at improving science education. Lack of a clear policy on teacher engagement and the phase at which teachers should engage has hindered effective participation.

The uncertainty of when to participate and about the influence a science teacher has on science education has made participation a challenging idea to implement. How much did teachers, then and now, know about the acknowledged challenges and developments? Why has participation been mentioned and less of it been actualized? To date, there has been limited empirical research which has investigated the issue of participation in education (see Chapter 2 on Literature Review). According to Lipman (1997), the importance of teacher participation is confined by the weaknesses of centrally mandated educational reforms which failed to develop both the capacity and the will to change at the classroom level. In the context of Botswana, no study has been conducted so far (a point illustrated in Chapter 2). Does lack of published research on

teacher participation in Botswana compromise effective participation in the proposed educational reforms in science education? The purpose of this research is to respond to this challenge by exploring participation as a problematic phenomenon. In order to address this lack of empirical knowledge, a qualitative study was undertaken. An overview of the study is provided, including the research questions and a brief summary of the methodology used.

Overview of the Study

This study explores the notion of participation and its practices, as experienced by science teachers and administrators. Some of the discrepancies between teachers' discourse and the way participation is practiced may be attributed to some of the following dynamics: (a) different meanings and practices of participation between policy makers and practitioners, (b) distribution of authority and its impact on experiences of participants regarding decision making during their participation in educational reforms such as item writing for science tests, and (c) knowledge of the organization's goals in reform and implementation.

The study examines the discourse of participation by investigating the relationship between teachers' understanding and experiences of participation practices in initiatives meant to reform educational programs. The investigation is carried out within the historical and current context of policies that encourage teacher participation and is guided by the following research questions:

- How do the different meanings and practices of participation in science education reforms held by policy makers and practitioners influence their experiences of participation from 1994 to present in Botswana?
- How does the distribution of authority impact on experiences of participants regarding the decision making during their participation in a reform initiative?
- How does participants' knowledge of the organization's goals for reform encourage or discourage their commitment to participate in the reform initiative?

To investigate these research questions, a qualitative study that used a Foucauldian perspective was conducted. Three schools were selected: one primary, one secondary, and one college of education, all of which provide science education and are administered by Botswana's Ministry of Education. Data was collected through the use of interviews and review of published policy documents. The interviews were conducted with science teachers in all the three school levels and administrators from the college of education, secondary school and the Department of Curriculum Development and Evaluation - Science Unit. The reviewed documents consisted of the two commission reports on education policy referred to above – the Report of the National Commission on Education 1977 (RNCE, 1977) and the Report on National Policy on Education 1994 (RNPE, 1994). Data were analyze for discourse and power relations through a Foucauldian lens. The analyzing of the policy documents and the teacher and administrator interviews identified different discourses of participation. This dissertation describes similarities and differences in how participation is explained and experienced by science teachers and administrators. From policy documents, strategies that aimed at communicating policies of participation were analyze. A

summary of the findings was prepared for each data set. The results are presented in Chapter 7 in this dissertation.

Foucauldian Epistemology - Unearthing Normative Discourse in Education

The work of Michel Foucault continues to have a significant impact on educational thought and writing. Foucault's latest work, which saw his interest and thinking into the analysis of power has drawn attention of many educational scholars over decades (see, Anderson & Grinberg, 1998; Corson, 1995; Olssen, 2003a, 2003b; Tikly, 2003). If achieving successful implementation of educational reform initiatives through effective participation of teachers is the ultimate goal that the education policies should aim at, it is important to recognise what underpins and constitutes the discourse of participation by considering its reproduction and non-reflective policies and practice. The use of a Foucauldian methodology affords me an opportunity to gain a better understanding of participation as it is practiced discursively. Foucauldian methodology provides ways of looking at participation from a critical perspective, through a historical perspective and within the context of its practices.

Throughout Foucault's studies of social institutions, he rejects transcending ideas, utopias, generalized statements or principles (Foucault, 1975/1976). Instead, he promotes the practical approach, which aims to "...enable us to think and act differently by means of critical histories that exhibit the singularity, contingency, and arbitrary constraint of our forms of subjectivities" (Ashenden & Owen, 1999, p. 107). In this way, a Foucauldian perspective allows me to explore the responses of science teachers and administrators critically by analyzing the discourses that underpin their responses. According to Foucault's approach, Western philosophies have altered one's way of

looking at things. Therefore he contends that the “object” is to learn that one’s thought can be freed by one’s history (Ashenden & Owen, 1999). In the case of this study, the experiences of science teachers and administrators give a window into their thoughts about participation and its practices. Their reflections on how they experienced participation allowed the underlying power nodes to be identified. In turn, a Foucauldian perspective provides a way to respond to the research question on the distribution of authority and how it impacts on an individual’s experience of participation. Again, Foucault’s assertion that discourses are written over and over to produce/shape practice, and also that practice shapes discourse are concepts that allow me to explore policy texts (political statements written over and over). The analysis of policy text gives me the opportunity to illuminate strategies that communicate policy and further influence the participants’ experiences of participation. Applying Foucault’s notion of discourse analysis in this regard enabled me to respond to the research question on participants’ knowledge of the organization’s goals for reform.

Foucault’s ideas can be unsettling for education reformers, policy makers and teachers as implementers whose ideals and practices aim at enacting preplanned policies and achievement of such. The unsettling aspect of Foucauldian perspective provides an opportunity to reconfigure the power axis and create a web of relations of power. A Foucauldian approach assists in exploring rules and procedures in participation that are regulatory and disciplinary, as well as being discursively practiced. According to Hook (2001), rules and procedures reflect the order of discourse. Foucault’s thinking on discourse and power will shed light on the proposed problem of study. However, it is important to note that it is a perspective that has

attracted critical scrutiny by modernist philosophers and theorists. Equally importantly, the “tap-root” of humanism cannot go unnoticed, confirming the deeply rooted beliefs and practices in education. Foucault is aware of the humanist traits in education and reminds us that “...we must not conclude that everything that has ever linked with humanism is to be rejected...” (Foucault, as cited by St. Pierre, 2000, p. 478).

Significance of the Study

The study contributes to the literature concerning different ways of understanding the use of the concept of participation in relation to institutional discursive practices in Botswana. The study examines the notion that if participation in the implementation of educational initiative programs is appropriately addressed, it has the potential to build a solid foundation for democratic reform and facilitate comprehensive debates. It is through these comprehensive debates that social, economic and political demands can be planned for, with a view to positively contribute to the knowledge base and literature on organizational studies.

Like many countries, developed and developing, Botswana’s policies are informed by research findings. Applications of the findings of the study are intended to inform the educational reform process in regional Southern Africa. Research has established that although countries in Southern Africa have diverse economic and political landscapes, they share common and historical factors (e.g. colonization), and educational values (e.g. quest for quality education). These commonalities make it possible for some of the countries in the region to engage in a “policy borrowing”

framework, which will expand the relevance of this study (Bush & Heystek, 2003; Christie, 1996; Weeks, 1995).

In addition, the Foucauldian perspective opens up different forms of thinking that allow researchers and practitioners to think differently and to question "...why certain practices become intelligible, valorized, or deemed as tradition, while other practices become discounted, impossible, or unimaginable" (Britzman, 2000, p.30).

Organization of the Dissertation

There are eight chapters in this dissertation. The first chapter has given an introduction to the focus of the research. It also highlights the context for the study, outlined research questions that guided the study, and gives a synopsis of efforts to engage science teachers in educational reform initiatives in Botswana. Chapter 2 is divided into two sections. The first section reviews the related literature on participation and educational reform. The literature review provides a foundation for the study, by examining the scholarly literature on participation, decision making, decentralization, educational reform and other aspects that influence participatory practices. The overlapping points of these bodies of literature are identified. The second section gives a detailed description of the Foucauldian perspective used to frame the concepts that build the study. This is the section where Foucault's notions of discourse and power are detailed.

Chapter 3 outlines the research design and describes Foucauldian Discourse Analysis (FDA). This chapter also outlines the research methods employed in this study. The chapter includes a description of the method and the forms of data analysis used. Chapter 4, 5, and 6 presents the results. First, in Chapter 4, the policy discourse

that emerged from the reviewed policy documents (RNCE 1977 & RNPE 1994) is presented. Chapter 5 presents results of the analysis of teachers' interviews, categorized into secondary school and college science teachers. Chapter 6 presents the results of the analysis of interviews with key informants, categorized into college key informants and ministry key informants. Chapter 7 discusses the findings in light of the research questions and returning to Foucault's ideas about governmentality. Finally, Chapter 8 concludes the dissertation by presenting the contributions of the study to the research literature. Implications of the study are discussed for policy and practice and future directions of research are suggested.

CHAPTER 2
PARTICIPATION AND EDUCATIONAL REFORM:
A REVIEW OF RELATED LITERATURE

In this chapter, the literature review is presented in two parts. The first part deals with scholarly literature that supports two main domains of the study - *participation* and *educational reform*. I review research on participation of teachers in educational reforms with reference to international, African and regional research. The second part discusses Foucault's theories of discourse, power, resistance and governmentality. These ideas bring to light the complexities of understanding participation and how it is practiced.

Participation

This section of the literature review first examines the general concept of participation, including variation in its meanings. Studies regarding two major aspects of participation – *decision making* and *teacher commitment* – will then be presented. These two aspects are presented because they are the key ideas that have informed participatory practice, policy and research over the last three decades. Finally, the literature review identifies current trends in understanding of a phenomenon that is crucial to the successful implementation of programs, yet challenging to practice. These aspects of the literature are presented to justify the need for this study and to show how it relates to other studies on participation. This information will also be important for

understanding the implications of the findings in terms of participation, policy and practice, as presented in Chapter 8.

The General Concept of Participation

Within the general organizational studies literature, *participation* refers to the involvement or sharing of ideas of stakeholders in the implementation of a program. Other related terms include consultation, involvement and engagement. All these different words are used with the aim of achieving partnership or ownership of programs.

Many theorists and scholars within the field of educational reform have begun to speak of participation as an inclusive, engaging, and collective measure, moving away from the traditional use of the concept, where it was commonly used to legitimize new programs (Nelson & Wright, 1995). For over two decades, literature on the general promotion of participation in education has been growing (Bauer & Bogotch, 2006; Masschelein, & Quaghebeur, 2005). According to Masschelein and Quaghebeur (2005), participation has been promoted to reach all targeted participants and to empower individuals. Participation has been used for different purposes in *developed* and *developing* countries (Nelson & Wright, 1995; Suzuki, 2002). For example, according to Nelson and Wright, in developed countries, specifically Britain in the 1960s, participation was used as a way of bringing associations or pressure groups "...into contact with those making decisions about them..." (p. 2). Meanwhile for developing countries, participation was used to transform traditionally isolated people into being part of a modern economy.

However, varied meanings and conceptions continue to permeate the literature on participation. For example, researchers such as Appelstrand (2002) describe participation as a model used to involve those concerned and as a pro-active approach that enhances understanding of the intentions of a program. Other scholars define participation as an exercise in which stakeholders influence and share control over decisions and the development of reforms (Reitbergen-McCracken & Narayan, 1998). For the World Bank (1994), participation is viewed as a process through which stakeholders influence and share control over decisions, resources, and development initiatives that affect their lives.

These different viewpoints indicate that participation is not a yes-or-no concept (Nelson & Wright, 1995) but varies along a continuum from “extensive” to “limited” (Hoy & Tartar, 2004). Overall, the meaning of participation is related to the purpose of the program or reform and the intentions of the stakeholder. For example, Keith (1996) explains that;

The difference [in meaning] is partly a matter of focus (i.e., participation in decisions is about end versus means, or strategic versus technical matters) and partly one of goals and standpoint (i.e., location in the social and educational system, political orientation...). For example those who feel excluded...may see participation as a way of gaining some control over a host of decisions affecting their lives or indeed they may refuse participation if they do not believe there are prospects in such gains: obversely, those in position of power may view participation as a tool to secure subordinates' compliance with administrative decisions...or simply to improve productivity (p. 49).

These varied conceptions and meanings have led to a contested view of participation, as argued by Lavié (2006) in his article on teacher collaboration. Lavié portrays participation as a notion that “...has crystallized into multiple prisms, each of which contributes to a cliché ... present in any discourse about educational change,

school improvement, school restructuring, and teacher professionalization” (Lavié, 2006, p. 774). These prisms are most likely viewed differently by policy makers, donors, and practitioners. One of the aims of this study is to understand differences in the meaning of participation among different stakeholders in the reform of science education in Botswana.

In education, most research has focused more on school effectiveness and school improvement. The issue of teacher participation is tightly linked to teacher development or professional development (Desimone, Smith & Ueno 2006; Jones & Thomas, 2005; Lavié, 2006; Woolhouse & Cochrane, 2009), primarily because studies show that teachers participate more fully in programs that benefit their intellectual growth (Lavié, 2006). For example, Garet, Porter, Desimone, Birman, and Yoon (2001) examined how reform was achieved through participation of mathematics and science teachers in classroom activities. Their results suggested that participatory practices were unsuccessful in benefiting participants mainly because teacher participation was framed without teacher input around certain identifiable needs. Hence, the organization will instead align participation of mathematics and science teachers to the benefits of undertaking professional development training. The authors concluded that teacher participation is influenced by the content-knowledge of the teacher. As already indicated, a significant body of evidence already exists which documents inconsistencies and contradictions between the participation of teachers and the achievement of intended outcomes, such as the implementation of planned initiatives or policy.

Researching Participation in Education

Several different approaches have been used to research participation in education. Some theoretical studies of education policy (Gillies, 2008; Rose & Miller, 1992) have attempted to clarify the relationship between government and education policy. Some researchers have taken an empirical approach based on the collection and analysis of data collected from actors within organizations (Masschelein & Quaghebeur, 2005; Carr, 2007; Hodge, 2005; Hui & Stickley, 2007; Lavié, 2006). Some studies have explored the role of discourse in participation (e.g., Anderson & Grinberg, 1998; Masschelein & Quaghebeur, 2005; Newton, 1998; Popkewitz & Brennan, 1997; Reed, 2000). Finally, some researchers have carried out meta-analyses of existing studies (Carr, 2007).

Although much of the earlier literature employed descriptive approaches, there are some scholars (Anderson & Grinberg, 1998; Keith, 1996; Reed, 2000) who have explored the notion of *discourse* within the administration of organizations. I will explain this notion further later in the study. For example, Keith (1996) identified two discourses that formed the discussion of teacher participation in school administration in the United States – administrative and participatory discourse. He found that administrative discourse was dominant. In turn, Keith sheds light on the obscured hierarchies and power differentials that exist in school administration. Keith suggested that participatory discourse must be expanded and deepen the concept of democratic participation. According to Anderson and Grinberg (1998), “discourses shape administrative practices, and administrative practices produce discourses” (p. 329).

Most recently, some authors have viewed participation differently from the model driven perspectives of the 1990's. For example, Masschelein and Quaghebeur (2005) argue that participation is practiced in certain ways of speaking and writing – i.e. as discourse. They argue that participation in education appears to be a problem, viewed as a “strategic notion in a particular problematization of education...installed in certain ways of speaking and writing (discourse)” (p. 51). Masschelein and Quaghebeur put forward the idea that the way participation is practiced varies through the use of certain procedures, instruments, and techniques that are proposed and produced in different places and spaces. They explore the concept of *governmentality* which they argue offers a new space to understand power and analyze the discourse and technology of participation. Although the notion of teacher participation has been part of the education lexicon, recent researchers are still citing participation as a problematic concept. Recent studies are now providing a shift in the debates that further understanding of the concept of participation and its practice. The debates are not only centred on participation in education spheres but cover other disciplines, e.g. social services that include health (e.g., Hui & Stickley, 2007).

Decision Making

Decision making is a reasoning process that leads to a selection of actions from a range of options. Lipham as cited in Rice and Schneider (1994) defined decision making as a process in which “awareness of a problematic state of a system, influenced by information and values, is reduced to competing alternatives among which a choice is made, based on perceived outcomes” (p. 274). Participative decision making (PDM) is widely understood as a process that allows shared information (e.g., Simons, 2007;

Wahlstrom & Louis, 2008) and collective response among stakeholders (e.g., Leithwood & Mascal, 2008). Within the general organizational studies literature, PDM has been acclaimed as the best approach to successful reform implementation in a result oriented organizational management. Education scholars (Somech, 2002, 2005; Somech & Bogler, 2002; Somech & Wenderow, 2006) have identified two main domains of decision making in schools – the technical domain, which deals with students and pedagogy, and the managerial domain, which deals with school operations and administration.

Some quantitative studies have reported a positive relationship between PDM and factors such as interest and knowledge (Rice & Schneider, 1994). Such findings were arrived at through the use of tests based on the conceptualized domains of decision making. In particular, the tests were designed to measure Bernard's theory of *zone of indifference*. Bernard's zone of indifference suggests that subordinates accept purely administrative decisions. According to Rice and Schneider (1994), administrators should not involve teachers in every decision, but rather should establish teachers' zone of indifference by applying a "test of relevance" (interest) and a "test of expertise" (knowledge). The purpose of these models was to test decision making at institutional level, where the process of making decisions is led and controlled by the head of the institution. The overall findings suggest that once teachers are involved in decision making located in their zone of indifference, their participation will be less effective. And as the principal involves teachers outside their zone of indifference, their participation will be more effective.

Recent studies continue to support earlier proponents of participative decision making by underlining the value aspect of participation in decision making (Somech, 2010). Researchers established the value nature of participation in decision making on three counts. First, participative decision making leads to better management outcomes (Taylor & Bogotch, 1994), such as increases in the quality of decisions, improved quality of teachers' work life, and strengthening of teacher commitment (Lavié, 2006; Somech, 2002; Somech & Bogler, 2002). Second, the involvement of participants in decision making is mostly regarded as empowering (Heck, Brandon, & Wang, 2001; Rice & Schneider, 1994), because teachers participate in making decisions about issues that affect their activities or job assignments (Law, 2002; Marks & Louis, 1999; Rinehart, Short, Short, & Eckley, 1998; Short, 1994; Somech, 2002), more especially when perceived as collegial, and providing adequate opportunities for participation (Mulford, Kendall, & Kendall, 2004). Third, participating in decision making is valuable because it relies on human interactions through discussions, arguments, and negotiations, to construct a personal and common plan of action that represents the views and expertise of each member of a group. Therefore, participation in decision making is socially embedded and contextual (Rowe & Frewer, 2004; Somech, 2010). Overall, teachers continue to desire more participation than they are afforded.

As the debates on participation of teachers in decision making have increased there have been calls for active involvement of targeted groups, specifically at the level of implementation (Bogler & Somech, 2004; Smylie, Lazarus, & Brownlee-Conyers, 1996; Somech, 2010). Models have been proposed to measure different contributing factors for participation, and it has become apparent that the level of participation

differs across the phases of a process. These studies suggest that the effect of participation in decision making is multilevel – different effects arise at the level of the individual teacher, in principal-teacher relations, at the level of school administration, and so on. Quantitative empirical studies conducted in the field of organizational studies have identified decision making as an essential process in enhancing teacher participation in reform implementation (e.g., Bauer & Bogotch, 2006). For example, Bauer and Bogotch's (2006) study focused on empirical measures of variables relating to better mechanisms of involving teachers in decision making. The researchers used path models to test the relationships between factors relating to the support received by teachers in the school to participate in decision making. The results revealed a number of factors involved in giving support to teams that were involved in decision making. They therefore concluded that these factors, such as devolution of decision making power to members of the team, enhance stakeholder influence. However, they noted that questions of whether stakeholder involvement influences better decisions or improvement in teaching and learning depend on the leadership framework used for decision making practices. In addition, other studies (Somech, 2005, 2006) have suggested that the effects of PDM are criterion dependent. For example, Somech (2006) established that PDM has a positive effect on innovations but no significant effect on performance.

The literature on participative decision making remains inconclusive (Parnell, 2001). Recent studies (e.g. Latham & Pinder, 2005; Somech, 2005, 2006, 2010) have advanced different explanations for the inconsistent and contradictory results. Some researchers have advanced theories that are criterion based, i.e., the effectiveness of

participative decision making depends on selected outcomes (such as teacher satisfaction, job strain, school outcome of productivity, teacher characteristics, quality of interactive relations between teacher-colleagues-administrators-organic nature of the school). Nonetheless, participation of teachers in decision making has no simple or direct answer; its impact varies across context and time. Indeed, Heck and Brandon (1995) found that the involvement of teachers in the process of *setting up* decision making affects teachers' agreement with the resulting decisions. Teachers' expertise and leadership opportunities affected their participation.

Teacher Commitment and Participation

Commitment is widely explained in terms of the relationship of an individual with an "object". In the case of teachers, commitment is linked to their work performance and professional growth (Toole & Louis, 2002): effective teachers are seen as more committed. Toole and Louis contend that teachers show their commitment through participation and that in turn their commitment contributes significantly to professional growth. As a result, teachers become committed to building their professions. In other words, what seems relevant to classroom practice elicits interest and encourages teacher participation. According to Mithassel (2004) commitment produces a stronger effect on teacher involvement and as Lavié (2006) has indicated, teacher commitment to work facilitates the implementation of effective change. These studies show a clear link between teacher commitment and participation in educational reform.

In the organizational studies literature, commitment has been conceptualized in terms of affect (Jones, Fox, Taylor, Fabrigar, 2010; Swailes, 2004), motivation (van

Vuuren, Menno, & Seydel, 2007), values and attitudes (Carmeli & Gefen, 2005). However it is conceptualized, commitment is indicated by an individual attachment to the goals of the organization.

There are documented principles of commitment that reflect the nature of involvement in an educational setting. Empirical and theoretical interpretations have been used extensively to explain the role of a particular professional setting or context in shaping the interrelations of individual commitment and organizational demands. Researchers have categorized commitment into *organizational* and *professional* (Somech, 2005; Somech & Bogler, 2002; Somech & Ron, 2007). Organizational commitment (OC) is described as the dedication of teachers to the achievement of the organizations' goals. Professional commitment (PC) is described as the involvement of teachers in a program which is reliant on the relevance of the activity to teachers' own classroom practices. van Vuuren, Menno, and Seydel (2008) analyzed the relationship between the organizational values, individual values, affect, and normative commitment using a survey. They found that organizational values are related to commitment.

Other recent organizational studies have explored the relationship between teachers' organizational commitment and their participation in reform activities that are classroom based. Somech and Ron (2007) found that participation in activities beyond the classroom is only marginally related to commitment, mainly because commitment is negotiated, contested, and sustained across and within multiple situations and contexts.

There is a large body of knowledge that investigates teachers' commitment to schools' goals and values (Somech & Bogler, 2002). Somech and Bogler found a relation between participation in decision making and teacher commitment. Somech

and Bogler hypothesized that participation in decisions would be positively related to professional commitment. After reviewing the educational literature, Somech and Taylor (2002) suggest that commitment varies according to the individual and the object - the object includes school, students, and the subject matter. They noted that the individual relates to the object in two distinct ways: *an exchange* approach and a *psychological* approach.

An exchange approach views commitment as an “outcome of an inducement-contributions transaction between the individual and the object” (p.556). A psychological approach views commitment as an identification of the individual with an object (i.e., depending on how relevant, important, and meaningful the object is to an individual). The two approaches explaining commitment can result in a pattern of behaviour that varies extensively depending on which commitment is emphasized (Cohen, 1999). Participation could create commitment by way of giving teachers a sense of ownership through the initiation of ideas, as opposed to responding to proposals of others (Wagner III, Leana, Locke, & Schweiger, 1997).

For example, according to a study conducted by Midthassel (2004), teacher participation becomes meaningful when principals involve teachers in setting priorities for educational initiatives, specifically relating to pedagogical practices. The study is based on a survey of 1,435 Norwegian teachers, and examines the relationship between teacher involvement and teacher attitudes towards school development activity (SDA). The study examines a list of variables used to explore teacher involvement in SDA and influence their commitment. Such variables include ways in which participation relates to the perceived relevance of SDA, the subjective norm of the innovation culture (i.e.,

the perceived social pressure to perform or not to perform the behaviour), and the principal's role as a facilitator among teachers. From these variables, teachers' views on activities that were meant to develop the school accounted mostly for their participation in SDA. The results of the study ruled out that teachers who are highly committed to their profession will tend to invest extra effort in acquiring expertise in new subjects that contribute to teaching and will enhance their ability to deal with students.

What seems to be agreed among researchers is that commitment is personal and organizational - it depends on the characteristics of the teacher and the administrative nature of the organization. The emphasis of research has mostly been on the psychological aspects of commitment.

Educational Reform

This section of the literature review presents some factors that constrain participation of teachers in the implementation of an educational reform. Key to educational reform is the distribution of authority to lessen the concentration of power in the centre. The discussion highlights the relevance of teacher participation to effective educational reforms.

Overview of Educational Reform

Educational reform depicts any approach that appears to change, modify, or improve existing programs or the introduction of the new ones. However, educational reform is a field marked with "failure" (Boyd, 2000; Garderton, 1996) with little or no improvement of programs (Astuto, Clark, Read, McGee, & Fernandez, 1994; Khaniya & Williams, 2004). These findings are not unique to any education system but are

found across many education jurisdictions (Fullan, 2001). These assertions come as a result of educational reforms situated within a raft of social, economic and political changes experienced by countries all over the world (Carnoy & Rhoten, 2002; Boyd, 2000; Cave, 2001).

Although these assertions of failure as a predominant feature of educational reform might be true for some educational systems, changes are still experienced in education systems and are justified in many ways. Several justifications are used to legitimize reform initiatives. Such justifications include the pressures of colonialism and its legacy (Ansell, 2000; Kamat, 2004). For example, in India, Kamat (2004) claims that educational reforms are a result of a radical discontinuity of ideas from the postcolonial era. In the case of Guinea in Africa, Anderson-Levitt and Alimasi (2001) argue that reforms come as a result of importation of Western ideas. Additionally, some education systems, such as that of South Africa, justify their position in instituting reforms as a way of advancing groups that were disadvantaged by discrimination characterized by a lack of teacher participation (Angula & Lewis, 1997; Bush & Heystek, 2003; Christie, 1996; Gilmour, 2001). These deeply politicized views raise issues about a lack of attention to power in educational reform by those who spearhead the initiatives.

Educational reform is one of the main concepts in this study. According to Riddell (1999), educational reform has been viewed through three different lenses; the educational, economic, and the political. These entire lenses have agendas and, as a result, educational reform is an agenda-driven concept with the disciplinary boundaries of each lens impacting on the understanding of the educational reform experience.

As a process, a number of aspects must be considered in order for reform initiatives to succeed. These include *decision making* and *feedback*. In contrast, a number of forces have been blamed for exerting pressure on reforms and leading to a lack of positive results. These include centralization, demographic and economic trends and socio-political forces (Garderton, 1996; Law, 2004; Samoff, 1999; Shimizu, 2001). Scholars such as Law (2004) point out that these forces provide both the impetus for educational reform and challenges for the new millennium. Boyd (2000) argues that some societal forces are powered by growing public dissatisfaction with the formulation and administration of educational reforms.

Initiatives are conceived from policies formulated within structured organizations in different discourse contexts. Educational reform hinges on institutional norms and practices, embedded within the salient features of the past and present administration. These norms and practices include associations between teachers and administrators as well as their working environments and the discursal contexts continue to draw some contesting views (Lavié, 2006, Midthassel, 2004, Midthassel & Bru, 2001) and their influence can become a barrier to reform. When reforms, such as changes within the science curriculum or textbook design and development are established, they are marked with procedures shaped by the organization's goals. These are internal processes (Day, 1999) used to enhance teachers' practice, student learning and teacher reflection. The relevance of the organization's goals cannot be underestimated because different aspects, such as decision making or the evaluation of progress, guide the change process and are bound together by an ultimate goal for the organization.

Practicing teachers develop their beliefs and knowledge of the organization from many years spent in the classroom as both students and teachers (Pajares, 1992). Teachers' beliefs and knowledge are interrelated, yet they have distinct philosophical cognitive constructs. Teachers' beliefs have the potential to influence their attitude to taking on an initiative and can also inform what they know. Teachers' knowledge of the content of the initiative can influence their participation. This knowledge has little impact on the implementation of pre-planned reforms if teachers have not been involved in the planning process. Consequently, it is not surprising that the beliefs of teachers are not consistent with curricular reform efforts (Lumpe, Haney, & Czerniak, 2000).

Teachers are under tremendous pressure during educational reform periods to implement new instructional practices. Some scholars have argued that teacher participation in reform processes is mainly for professional development. In many organizations, seminars or one-day workshops are organized for teachers to participate in, yet they do little to enact new learning that is required for teachers to implement science education reforms (Crawford, 2007; Johnson, 2006; Klentschy, 2005).

Teacher development may be regarded as a crucial leverage point to affect change in the classroom. The findings from this study align with the claim that participation of groups of teachers from the same school, subject, or grade helps to establish both coherence and active learning opportunities, which in turn are related to improvements in teacher knowledge and skills, along with classroom practice (Garet, et. al. 2001).

One factor that has been highlighted in scholarly conversations on educational reform is the availability and distribution of resources - both human and financial resources (Ansell, 2002; Chan & Mok, 2001; Marginson, 1999; Rogan & Grayson, 2003). A number of forces, among them economic and political forces, have been singled out for their negative impact on resources, causing the implementation of well planned educational reforms to stall. In another example from Africa, Heyneman (2003) conducted a study in Tanzania on the participation of stakeholders in primary education. The author postulates that inadequate resources, due to the economic capacity of a country, present local education systems with “external” reliance on supporting agencies, making issues of control very challenging. For instance, one conclusion is that teachers find themselves in difficult situations when resources are limited; they find it difficult to engage in making plans and timetables for delivery (Therkildsen, 2000).

Distribution of Authority

The distribution of authority refers to the allocation of power within an organization. Decentralisation is a process that allows participants to negotiate their space and have a sense of control in education matters (Lauglo, 1995) and that enhances effectiveness in decision making (Fullan, 1993). Its essence, as indicated in the report on “Barriers in decentralization: examples from West Africa”, is to get more actors to work together toward the development of the program (UNESCO, 2004). Although it is viewed as a positive means to achieving successful educational reform (Chapman, Barcikowski, Sowah, Gyamera & Woode, 2002), it is also regarded as a confusing notion especially when it involves national education systems (Aztiz, Wiseman &

Baker, 2002; Lauglo, 1995). According to Lauglo, the confusion is a result of some groups having "...more power than others to achieve authority shifts in their favour to prevent shifts in their disfavour" (p.7).

Gvirtz's (2002) study of educational reform in Argentina's education system noted the dominance of some groups (donors) in educational reforms and less involvement of stakeholders. Similarly, Ansell's (2002) findings in a regional study on educational reforms in Lesotho's and Zimbabwe's secondary education systems showed the design of curriculum reforms being determined in Cambridge, England, rather than in Maseru and Harare (the capital cities of the two countries, respectively). The reform exercise described in the studies was less participatory on the part of teachers, but more for donors and technical assistance agencies, such as churches. These studies showed less distribution of authority from the central to the local government, exemplified by domination or the unbalanced exercise of power. Thus, the authority over reforms in the above education systems was centralized. In Ansell's view, rural young girls in Lesotho find themselves in schools where teaching is unpopular and facilities are inferior (as shown by Gay et al, 1991 in Ansell, 2002), making implementation far from possible. Similar conditions in the Zimbabwe rural schools were noted. The Lesotho/Zimbabwe study highlights external influence and control over reforms, with less evidence of local involvement and control. Ansell further laments that the World Bank, which is a major donor agency in these countries, prescribes structural adjustment policies which tend to shift resources away from educational reforms.

However, many researchers contend that decentralization cannot work completely on its own. Its primary purpose of ensuring that *power* is shared is defeated

or compromised because it (power) is later “recentralized”, bringing back power to central administration (Hawkins, 2000). For example, Hawkins (2000) noted that while there appears to be *commitment to* and *support for* decentralization in China, educational leaders remain uncertain, putting more emphasis on the argument that participation is a collective, power sharing and socially embedded concept.

Researchers, scholars, and theorists note that there are no clear examples of completely decentralized educational systems in the literature on decentralization and educational reform (Chapman, et.al, 2002; Hanson, 1998). Fullan (1993) suggested that what is required is a “blend” of “centralization and decentralization”, combining both pressures and support.

Discussion

Within the literature on participation, decision making, and educational reform, there are points of intersection and critical issues that have emerged. The current body of empirical literature on participation and its aspects is sparse. It is largely theoretical and where empirical studies were conducted, they were largely descriptive and mainly focused on American institutions. However, there have been recent studies on commitment and participation from Israeli institutions (see e.g. Somech & Bogler, 2002; Somech, 2005, 2006, 2010). Most research has focused on models and survey data from large organizations. The scope has been broad, covering factors and variables that contribute to full participation, yet limited in depth. By using large-scale survey methodology, these studies have not unraveled the taken for granted participatory practices that exist in organizations.

Although research from the 1990s is predominantly quantitative, some recent studies propose the use of qualitative approaches (e.g., Hodge, 2005; Hui & Stickley, 2007; Masschelein & Quaghebeur, 2005). These researchers are turning their attention to the use of discourse as a primary source of data (Hodge, 2005). These researchers argue that the use of discourse affords opportunities for power dynamics to be explored. Even though there is a shift in methodological approach, the use of discourse analysis in a few recent studies has not adequately addressed the contextual factors surrounding participation.

There is a large body of literature on commitment linked to professional and organizational identity, yet evidence is difficult to interpret due to lack of clear links between commitment and participation. Most probably, there are underlying factors that create a conflict between professional and organizational commitment (Somech & Ron, 2007), making further exploration of the relationship between participation and commitment essential.

The literature on educational reform has some intersecting points. Educational reform has a positive link with the participation of teachers and administrators because the availability of resources and the distribution of authority are factors in increasing the commitment of teachers to participate. The widespread promotion of participation is often used to downplay the inequalities of power relations among participants as well as to mask the inequalities in access to resources (Caddell, 2005; Mohan & Strokke, 2000).

A compelling conceptual paper by Masschelein and Quaghebeur (2005) provides further insight into participation. The title of their article poses a question -

Participation for better or for worse? They acknowledge the acclaimed position of participation –a symbolic and strategic notion and empowering tool for individuals. They propose a Foucauldian approach to analyzing the discourse and technology of participation in a different way. In their analysis, participation will not only be seen as an increase in empowerment, “...but as an element in a particular mode of government or power” (Masschelein & Quaghebeur, 2005, p. 51).

Collectively, the reviewed research echoes claims that participation enhances educational reforms. Research also implies that lack of or less participation limits the *democratic* process in the development of education. In summary, there is a wave of power relations throughout participation and educational reform. Some points that indicate the role of power include:

- participation being used to overshadow power relations
- the question of ‘who’ gets to decide in reform making
- the dominance of one group (e.g. donors) in setting reform agendas
- inequalities in the allocation of resources and distribution of authority.

The power laden nature of participation, with varied conceptions, and participatory practices externally influenced, makes it relevant to explore the discourse of participation and the impact of the involvement of teachers in educational reform initiatives from a Foucauldian perspective.

Theoretical Framework: Foucault

The second section of this chapter discusses Foucault’s theories of discourse, power, resistance and governmentality in relation to the concept of participation. Drawing on Foucault’s concepts will afford me opportunities to examine the way

practitioners and policy makers think and practice participation. Foucault saw social institutions as guided and controlled by rules and procedures through administrative strategies. This perspective will allow me to understand how particular statements are underpinned by discourses that shape participatory practices. Foucault's ideas allow for a deeper understanding of the mechanisms of power "without rejecting the traditional models of power" (Dreyfus & Rabinow, 1983; Sawicki, 1991). Foucault's interest was to demonstrate why those models have been inadequate in explaining societal changes. They further enable analysis of how practitioners' and administrators' statements relate, shape, or are even shaped by institutional practices of participation.

Foucault was interested in the workings of power in certain cultural practices that combine knowledge and power such as in specific disciplines, and also argued that power is based in everyday events and actions in relationship to each other (Foucault, 1988). The framework for this study is informed directly and indirectly by a Foucauldian perspective and research tools from the fields of organizational studies, discourse studies, education policy, and educational reform. To frame the main concepts of the study, I would like to borrow Foucault's words in his earlier writings where he states:

I would like my books to be a kind of tool-box which others can rummage through to find a tool which they can use however they wish in their own area...I would like the little volume that I want to write on disciplinary systems to be useful to an educator, a warden, a magistrate, a conscientious objector. I don't write for audience, I write for users, not readers (Foucault, 1977, p. 205).

The purpose of this study is to critically examine teachers' and administrators' experiences and understanding of participation, as well as policy strategies outlined in the policy documents used to inform Botswana's science education reforms. At the

heart of a Foucauldian perspective is a focus on the relationship between discourse, power, in terms of participation.

Foucault's Discourse

In general, the concept of discourse has been characterized as: 1) a communicative tool utilizing a set of statements (Fairclough, 2003), 2) a typical way of talking or explaining a phenomenon at a particular historical context (Hall, 2001), 3) both structure and event, 4) both knowledge and action, 5) both system and process, 6) both potential and actual (de Beaugrande 1994, p. 207). Torfing (1999) emphasized that discourse is everywhere and cannot be reduced to either its semantic or pragmatic aspects. He argues that “all actions have meaning, and to produce and disseminate meaning is to act” (Torfing, 1999, p. 94).

Foucault's notion of discourse is in terms of: “a group of statements in so far as they belong to the same discursive formation; it does not form a rhetorical or formal unity...it is made up of a limited number of statements” (Foucault, 1977, p.117). He also states that “... discourse is not the majestically unfolding manifestation of a thinking, knowing, speaking subject, but, on the contrary, a totality, in which the dispersion of the subject, and his discontinuity with himself may be determined...” (Foucault, 1976, p. 55). Going against the humanist view of the individual, Foucault's main interest is to illustrate that meaning is in the following statement:

But things were said in a different way; it was different people who said them, from different points of view, and in order to obtain different results...there isn't one but many silences, and they are integral part of strategies that underlie and permeate discourses (Foucault, 1976, p. 27).

The revolutionary treatment of discourse by Foucault (1976) emerged within the context of on-going scholarship related to discourse, policy, and educational ideologies. It attracted interest and provided opportunity for many scholars to take up discourse as an analytical tool. His view of discourse rejected predetermined descriptive categories or fixed systems of analysis, making possible new analyses of policy, strategies, and reform initiatives.

In Foucault's view, discourses are found to be "regulated practices that account for a number of statements" (Foucault, 1976, p. 49). These are "the unwritten rules and structures that enable particular statements and utterances to be made" (Mills, 2003, p. 53). To give an example, there are no written rules of how teachers should behave towards a newly introduced or piloted reform; however most teachers speak within a particular and fairly controlled framework. This framework constitutes discourse. In Foucault's view, it is interesting to explore the rules and structures because they allow for the production of certain discursive formations.

The Power Domain

According to Foucault (1976), "power must be understood in the first instance as the multiplicity of force relations..." (p. 92). Its actions exist between and among individuals and are modified or even constrained by institutional practices. In some of his work, Foucault (1977, 1979, 1980, 1981) continues to describe power as exercised, moving through the discourse and activities that shape our daily lives. For example, in an educational organization, power dynamics operate at all levels of operation (e.g. school level, ministry level) and reflect those in the wider education system. In relation

to power, Foucault discusses two concepts; the location of *power* and the *exercise of power*.

The Location of Power

First, Foucault theorized that the location of his notion of power has not been adequately identified, and, second, its characteristics have been poorly understood. He also demonstrated in his work that power does not stand alone but is intertwined with *truth* and *knowledge*. At the same time, as he continued studying the political struggles of the modern society, coming to the conclusion that power is everywhere, he deliberately acknowledges the widely used notion of Hegel's [P]ower, denoted with capital 'P', which according to Foucault (1983) is the possessive power that leads to the idea that power flows from a centralized location (top-bottom). Here, Foucault confirms that such power exists, and suggests that by paying attention to the existence of that power, the entire multidirectional network on which power operates is compromised. According to Foucault, power operates in relationships between individuals, through a constant play of forces at the micro-level of society. This is so because power relations are rooted in the web of social interaction. Foucauldian analysis has the potential to raise awareness of the uses of power in the participation of science teachers in implementation of educational reforms.

On this notion of multiplicity of power relations, Foucault's view is that they are "superimposed, they cross, impose their own limits, sometimes cancel one another out, sometimes reinforce one another" (Foucault, 1983, p. 224). In essence, his view, as expressed by some scholars, is that power does not belong to those at the top of the hierarchy; rather, everyone possesses power even if we are unconscious of it (Nealon,

2008). Interestingly, the prime focus of this study, the concept of participation, has not had its formation adequately explained, even though it is used to mask power differentials that exist within institutions as highlighted in the literature review. Yet power is also perceived not to be restricted to institutions. Where the disciplinary technologies of power are localized within institutions, the shaping of individuals through power occurs more quickly.

Foucault warns that to a certain extent, power migrates from one location to another within hierarchies. The hierarchies of power are controlled by the organization of ideas and control of knowledge. Foucault does not want us to conclude that “power is the best distributed thing, the most widely distributed thing” (Bertani & Fontana, 1997, p. 30). Instead, he declares that unevenly distributed power creates *domination*. To clarify this idea, Foucault says:

Overall domination is not something that is pluralized and then has repercussions down below. I think we have to analyze the way in which the phenomena, techniques and procedures of power come into play at the lowest levels...show, obviously, how these procedures are displayed, extended, modified and, above all how they are invested or annexed by global phenomena, and how more general powers or economic benefits can slip into the play of these technologies of power...(Bertani & Fontana, 1997, p. 30-31).

Foucault emphasises the lower level of the hierarchy and the significance of the lower level in the power play. Foucault’s views about hierarchical power embedded levels are significant to this study because the empirical evidence was mainly collected from teachers who occupy the lower levels of the education system.

Exercise of Power

Foucault's contention that power is relational has been supported by arguments that every individual possesses power, but to make it functional, it is exercised rather than possessed, productive rather than repressive (Dreyfus & Rabinow, 1983; Ricken, 2006). In addition, Foucault asserts that power is exercised from infinite directions and that the relations of power are also not superimposed. The point he is making is that, effectively, power is *exercised*. Foucault tells us that the production and reproduction of changes in society is a result of the way power is exercised. In their discussion of how insufficiently power is understood through our current modes of thinking, Bertani and Fontana (1997) explains that power is not something that is given, exchanged, or taken back, instead it is exercised in an action oriented context.

By analyzing power and establishing different ways of how it is exercised, Foucault's interest was not in developing the theory of power, that is, a concept of power that is ahistorical and value-and-context free. Rather, Foucault described a power that is based in everyday events and actions in relationship to each other. His interest in everyday events and power relations assisted me in analyzing the data to try and bring out elements of domination of one group while the other becomes disempowered. It is also through power analysis that the study established how power is being exercised at various points, such as through language, action and/or repetition of practices.

Foucault and Disciplinary Power

“Discipline” is a word frequently associated with punishment. The use of discipline by Foucault has other meanings. In Foucault's worldview, discipline is a form of power which he refers to as “disciplinary power”. According to Rabinow

(1984), Foucault's disciplinary power is exercised from its invisibility. At the same time it imposes on those whom it subjects a principle of compulsory visibility. In other words, it is the individual who has to be seen. Prado (2000) postulates that disciplinary power is a managerial technique, initiated and developed to control individuals.

The techniques identified by Foucault, (e.g., managerial or administrative), work not only on the organization as a whole but upon individuals to produce "individuality...a subtle coercion...holds upon [the individual] at the level of mechanism – such as movements, gestures, attitudes...power over the active body" (Foucault, 1975/1977, p. 137). In a system, such as that of education, where this study is situated, "the nonconformist, even the temporary one, became the object of disciplinary attention" (Dreyfus & Rabinow, 1983, p. 158). What is interesting here is that it is normalization that provides the power to produce individuality. In a normalizing institution, it is difference, not conformity, which is highlighted, sought out, and noticed. Therefore, disciplinary power is exercised on the noticed individuals.

Resistance as a Resultant Force

Resistance comes as a result of the impact of both internal and external change forces (Giles, 2006). According to Giles, resistance can make "good sense" because in the context of education, teachers can resist the influence of externally motivated or mandated reforms (Sarason, 1990). Although it is perceived as "good sense", its fundamental character is routinely interpreted as one of refusal, rejection or withdrawal (Sutton, 1996). In Foucault's analysis of power, resistance is a resultant force from the multiplicity of forces that constitute power. In other words, power and resistance are both found together in all points of the web of power relations (Powers, 2001).

According to Foucault, "...where there is power there is resistance" (Foucault, Kritzman, & Sheridan, 1990, p.95). In his view, relations of power co-exist with resistance where the latter is more real and pronounced because "resistance is formed right at the point where power relations are formed" (Foucault, 1982, p. 142).

According to Giles (2006), resistance is used as a desire or intention to maintain existing practices in the face of changes or reforms that stakeholders perceive as unwanted or threatening. For some researchers, resistance springs from personal fear and the loss of what is comfortable and familiar, devaluing of one's past and present practices, protection of status and self-interest against changes that are threatening (Fullan & Hargreaves, 1996), or the ability of teachers to see through the superficiality of external reform agendas (Giltin & Margonis, 1995). At the other end of the spectrum, some scholars claim that a "non-consulted" group of participants is often angry and resistant to change (Rowe and Frewer, 2004). This last idea shifts attention from the individual's intention to resist as a result of a multiplicity of forces, to an organization's failure to consult prior to the imposition of rules and procedures.

On Governmentality

Foucault traced the origins of government to the 17th century premise that states control with the use of sovereign power is problematic. Governmentality is Foucault's concept that has recently gained potency (Foucault, 1991). This is so because according to Gillies (2008), it combines the concept of government with that of rationality. For Masschelein and Quaghebeur (2005), government refers not so much to political or state interventions but to an exercise of power. In Foucault's words, governmentality is "the government of the self by oneself in its articulation with relations with others (such

as one finds in pedagogy...)" (Foucault, 1997a, p. 88). Elsewhere, he states, "This encounter between the technologies of domination and those of the self I call "governmentality" (Foucault, 1997b, p. 225). In some of his work, he used the term "governmentality" to mean the "art of government", the "art" referring to the attentive, meticulous management of what is deemed important to the political sphere, and the forms of intervention (Lemke, 2001 as cited in Gillies, 2008). Foucault has described governmentality in many ways. In one instance, for example, Foucault refers to government as "techniques and procedures for directing human behaviour" (Foucault, Faubion, Gordon, Rabinow, 2000, p. 81). In yet another place, he refers to government as the "conduct of conduct" (Dreyfus & Rabinow, 1982, p. 221), which is a play of English and French verbs – *conduct* and *conduire* meaning to behave or conduct oneself. The idea is that to govern is to "structure the possible field of actions of others" (Foucault, 2002, p. 341). On the other hand, Foucault's definition of government as the "conduct of conduct" is an indication that "participation governs...through the self-government of the individual, through the governed self-interest of the individual to govern [his/her] own behaviour in favor of self-actualization" (Masschelein & Quaghebeur, 2005, p. 62).

One of the main purposes of education in 20th century democracies has been to promote self-discipline according to social norms. The key point here is the relationship between the reflecting self and the existing expectations of normal self-discipline and self-governance. In these circumstances, it is difficult to sort out exactly what is the subject doing reflection and what is the object being reflected upon. Masschelein and Quaghebeur (2005) treat the concept of participation as having an element of "force" or

“interpellation”, a term they use to denote forceful invitation of every single individual to actively participate. In the context of education, “participation creates a manageable totality of participating individuals” (p. 62). What this means is that subjects act on their own interest, yet through the notion of participation it is possible for the “governing body” to govern or conduct the individual or subject and all other individuals who govern (conduct) themselves through selected strategies and technologies. Through the lens of governmentality, participation of teachers in science education reform can be seen as a strategy of governance. Science teachers are enticed through “invitations” “nominations” and “training” and rewarded with professional development for willingly engaging in the implementation of educational initiatives.

Having said this, I situate teacher participation in the implementation of educational initiatives as a Foucauldian form of discipline that is marked by an increased reliance on the motivation of workers towards self-management, self-monitoring, and self-correction. Governmentality, therefore, creates spaces where forms of discipline and participation can converge under the umbrella of the current political ideologies with the anticipated result of producing a self-governing active participant. The use of governmentality allows administrative discourse to dominate teacher discourse and find teachers conducting themselves in ways they are expected of. According to Masschelein and Quaghebeur (2005), participation is increasingly seen as “a mode of government or power” (p. 51). Hence the promotion of participation in education invites individuals to change, i.e., to “behave as active, competent, independent, self-determined human beings” (p. 61).

Although governmentality may involve overt domination and disciplinary techniques, it is most dependent on the emergence of a self-governing ethic whereby individuals learn to govern themselves appropriately. I argue that the discourse of participation needs to be seen in the light of Foucault's concept of governmentality. Again, Masschelein and Quaghebeur (2005) meticulously draw points that connected Foucault's work to participation. In this case, they claim that participation can be seen as part of what Foucault calls a "history of different modes of [objectification]...[where] human beings are made subjects or 'are individualised' " (Foucault, 1982, pp. 208; 212 as cited by Masschelein & Quaghebeur, 2005, p. 62). This brings me to a consideration of Foucault's epistemological lens in education.

On Genealogy

As an alternative to historical and universal truth, Foucault proposes a genealogical approach that "deals with events in terms of their most unique characteristics, their most acute manifestations" (Foucault, 1998, p. 381). Therefore genealogy attempts to chart the "play of dominations" (Foucault, 1998, p. 376). In instances where there is domination of one group over the other, there is a differentiation of values, and values become embedded in fixed structures and systems of rules and procedures. He writes:

Rules are empty in themselves, violent and unfinalized; they are meant to serve this or that, and can be bent to any purpose. The successes of history belong to those who are capable of seizing these rules, to replace those who had used them, to disguise themselves so as to pervert them, invert their meaning, and redirect them against those who had initially imposed them: introducing themselves into this complex mechanism, they will make it function in such a way that the dominators find themselves dominated by their own rules (Foucault, 1998, p. 378).

Foucault sees genealogy as tracing mechanisms behind power imbalances and the interpretations of rules as they change, are disguised, or even reversed. Shapiro (1992) explains that Foucault's use of genealogy is to interpret how "a given historical period has forces at work producing interpretations and overcoming rival ones" (p. 271). A genealogical interpretation allows policy discourses to be examined in terms of the mostly political forces behind policy making. This approach allows the comparison over time of values, institutional rules and procedures, and the common change mechanisms behind power fluctuations. Additionally, the genealogical interpretation does not attempt to explain why things happen as they did, but attempts to establish minute deviations indicated by discontinuous and disassociated details in the data.

Foucauldian Perspective in relation to Participation

This section explains Foucault's ideas in relation to participation. In particular, it explains how boundaries of participation are set by administrative discourse and examines how the concept of power connects all aspects of participation.

Boundaries of Participation

The concept of participation is situated within institutional norms and practices - ways of doing things such as complying with directives, convening of meetings or "compulsory" attendance. These practices are normative in an organization's operations. According to Scott (2003), a *normative practice* "occurs when an organization adopts procedures or forms of practices because they are purported superior" (p. 215). Normative practices are an invisible *coercive* means of ensuring that procedures are legitimized. Scott has also examined the coercive nature of normative

practices and claims that they result from when an organization adopts structures or procedures because it is compelled to do so. For some researchers, there is often an explicit effort to ensure that the reform agenda reflects participants' interests less coercively (Hodge, 2005). However, as discussed in the first part of this chapter, practices like participation in terms of educational institutions are used more for the advancement and legitimization of programs. In such instances, the basic principles of participation, such as idea sharing and the inclusion of participants in every phase of reform making, are ignored and with regrettable implications for the implementation of reform (Carr, 2007). Indeed, Hodge (2005) goes further, arguing that the principles of participation are not simply ignored. Rather it is the prominence of boundaries of competing discourses that "restrict" the discussion of inclusive approaches to implementation of educational reform initiatives.

These competing discourses include administrative, cultural, restructuring, and teacher discourses (Anderson & Grinberg, 2003). Competing discourses influence how participation is experienced and understood. These discourses vary according to the discursive contexts and different discursive formations. For Foucault, there are no unities in discourses but rather "dispersions" (Foucault, 1977, p. 38). Foucault describes a discursive formation as "a space of multiple dissensions; a set of different oppositions whose levels and roles must be described" (Foucault, 1977, p. 155). In order to avoid dealing with dispersions, administrative discourses tend to define a regularity, such as an order, correlation, positions, etc. Discourse variation is also formed from different discursive contexts. Therefore, through the discursive formations and contexts,

participation is bounded by rules and procedures in order to become part of the normative practices of the organization.

A range of contextual factors, such as hierarchical communication structures, status, and the ability or inability of governments to financially support reform, are all tangled together in shaping the boundaries of participation. These factors are already permeated with the effects of power (Carr, 2007; Hodge, 2005). Where traditional power relations are not observed, Carr argues that “the traditional working relations of [junior-senior] power relations are being unsettled, and professionals are being challenged” (p. 268). Carr also emphasizes that the challenging or unsettling of mainstream power relations arises particularly from the devolution of power (Carr, 2007).

The involvement of participants has become part of government agendas, even though it has been met with contestation (Hodge, 2005). According to Forbes and Sashidharan (1997), there has been opposition to “participative practices” since the political agendas of governments put participation in the forefront of debates only as mechanism to legitimize the “exclusionary decision making” process.

The Interlocking Nature of Participation

Several studies have identified power as a concept that is entwined with participation (Brookfield, 2001; Carr, 2007; Hodge, 2005; Keith, 1996; Marks & Louis, 1999; Zembylas, 2005). Participation is embedded within a power-laden context. Power is structured within organizations underpinned by economic, political and social factors, which are responsible for reinventing and redefining participatory practices. Participation is used as a symbolic tool to secure compliance on the part of participants

and to mask power differences (Carr, 2007; Hodge, 2005). The contrast between those who are chosen to deliver and “guide” the direction of the decisions (e.g. the administrative personnel in the ministry of education), and those who are invited and “guided” into the planned reform initiatives (e.g. science teachers) show some of the inconsistency of participation.

According to Coburn (2006) participation is an ethical practice, emphasizing the power to work collectively and interdependently, even though participants such as teachers tend to understand new ideas through the lens of their pre-existing knowledge and practice. Their pre-existing knowledge is formed through experiences, which according to Foucault, offer an understanding of the constitution of the *self*, and how ideas intersect with experience, resulting in participants becoming objects and subjects of experience (Weedon, 1997; Zembylas, 2005). Power relations, according to Foucault, make the connection between the visible and the sayable.

In some organizations, including schools, power is exercised in ways that ensure particular discourses remain within established normative boundaries and ultimately reinforce existing institutionally defined power relations (Hodge, 2005). For Keith (1996), however, participation can be used to diffuse power differentials and reconstruct the school into a just and democratic institution. It is the purpose of this study to explore the discourses that guide the participation of teachers and their normative boundaries (e.g., rules and procedures).

Summary

It is important to note that the main focus of this study is the discourse of participation, with reference to science teachers' participation. A Foucauldian perspective on discourse shares the same conceptions of discourse as other proponents of discourse, i.e., the focus is on practices. However, the Foucauldian perspective also allows the exploration of the notion of "power", which controls, limits, and defines discourse (O'Farrell, 2005), and also of the practices that are created and maintained in subtle and diffuse ways (Foucault, 1977). The different ideas discussed here provide a deeper understanding of how discourse, power, resistance of individuals, and government techniques of control are all connected to participation. The concepts are drawn from Foucault's interest in the study of social institutions. The idea of governmentality is useful in understanding science teachers' experiences of participation. The Foucauldian lens will therefore be used in the analysis of data on participation of science teachers in the implementation of educational reforms.

Research Questions

Based on the concepts identified in the literature view in the first part of this chapter, science teachers' participation will be investigated through the following research questions:

- How do the different meanings and practices of participation in science education reforms held by policy makers and practitioners, influence their experiences of participation from 1994 to present in Botswana?

- How does the distribution of authority impact on experiences of participants regarding the decision making during their participation in a reform initiative?
- How does participants' knowledge of the organization's goals to reform encourage or discourage their commitment to participate in the reform initiative?

The idea of participation used in these questions is framed by the Foucauldian perspective as discussed in the second part of this chapter.

CHAPTER 3
SCIENCE EDUCATION IN BOTSWANA:
DEVELOPMENTS AND EFFORTS AT REFORM

The purpose of this chapter is to provide the context in which science education was and is being reformed, in Botswana. The overall aim of the Botswana education system is to prepare Botswana for the transition from a traditional agro-based economy to an industrial economy.

The study was undertaken in Botswana at a time of reforms in science education. Science has been one of the subjects in which Botswana schools have, from the earliest period of educational transformation, recorded low performances. After the inception of *Revised National Policy on Education* (RNPE) in 1994, performance in science from the primary school level to higher education has caught the attention of policy makers. This is exemplified by one of the recommendations on science and technology in the RNPE which states that “intensified measures to popularize science among students and to develop an interest and positive attitudes towards science...” (RNPE, 1994, p. 25) should be undertaken by the MoE. The argument is that the country should have its own scientific human resource in order to reduce reliance on foreign capacity. To place this study in context, key issues in reform in education in general and in science education in particular are discussed below.

The School System

Botswana's school system comprises seven years of primary school education, three years of junior secondary school education, and two years of senior secondary school education. The Ministry of Education has authority over all of Botswana's educational structure except for the University of Botswana. The structure mirrors that of the United Kingdom: there is universal access to primary and junior secondary school, but a process of academic selectivity reduces entrance to the senior secondary schools and university.

Primary education is the most important stage in the education system and the government strives to make it accessible to everyone. Science is done at all school levels. At primary school, a "general approach" to teaching and learning science is used. What I mean by general approach is that there is no specificity to any distinct component of science. The standard 1 -7 curriculum covers basic scientific concepts mostly in Biology and Environmental science. At junior secondary level, the program offers Integrated Science. Senior secondary science is studied in components - Biology, Chemistry and Physics as single/pure science or double/combined science. Categorization of science into pure and combined is to allow high performers in science to continue with single science divisions, while other students are able to combine different science components – e.g. a combination of chemistry and physics. The main purpose for science education within the Botswana education system is the development in all children of "an understanding of scientific concepts and interest in the natural world" (RNPE, 1994, p. 21). Achieving such an aim will eventually allow

the Botswana government to meet one of its major goals - an economy that relies on science and technological advancement.

To ensure that these noble ideas are realised, the Botswana government developed strategies to increase access to education by ensuring that there is a steady increase in enrolment in primary education. The focus on primary education ensured that every learner would have access to scientific knowledge. The government of Botswana has continued to review the entire education system with the aim of improving the quality and relevance of education. Such reform efforts include the revision of the curriculum and the involvement of teachers in curriculum development, materials development and examination/tests development and scoring.

Education Development

Over the past four decades several reports have been commissioned by the government of Botswana, to look at developments and challenges faced by the Botswana education system. After the inception of RNPE 1994, there were a number of substantive documents that were used by the government to guide the improvements in science education. The general purpose of the development of policy and of several strategic documents and evaluation reports was to:

- 1) examine the government of Botswana's investment in increased access to education,
- 2) improve the quality of education,
- 3) increase the number of scientific skilled professionals,

- 4) move away from the reliance on foreign teaching labour in subjects such as science.

Some of the documents that gave an overall picture of development in education are listed below, followed by a brief overview of the documents that explains their purpose and relevance to science education, as well as teacher participation.

- Report of the National Commission on Education 1977 (RNCE)
- Report of the National Commission on Education 1993 (RNCE)
- Revised National Policy on Education 1994 (RNPE)
- Botswana Science and Technology Policy of 1998 (S&TP)
- Report on the Evaluation of the Three Year Junior Certificate Programme 2004 (REJCP)
- Education for All Declaration – National Action Plan of 2002 (EFA-NAP).

Overall, the above documents do not include many statements that make reference directly or indirectly, to reforms in science education or to teacher participation. The content of the documents is multi-sectoral and direct reference to science education is sparse. This point is supported by the acknowledgement made in Science and Technology Policy (1998) that Science and Technology activities in Botswana are “fragmented and scattered over several sector ministries” (p. 4).

The National Commission on Education of 1977 was the first national commission, set up in 1975 and reported in 1977. It was noted in the foreword section of this document that Botswana’s education had dramatically grown in terms of quantity and scale. The purpose of the review was to identify the major problems affecting education in Botswana as well as to review the current education system and propose programs

for its development. There were specific areas to be developed which included among others quantitative expansion of the education system at all levels and reform in content to produce more appropriate and relevant education at both primary and secondary levels. There was also need to qualitatively strengthen the education system by offering pre-service and in-service training of teachers. In order to collect information for the commission, consultative meetings were held with ministers, politicians and government officials at all levels in numerous sectors.

The second national commission on education was also appointed by the state president in April of 1992. It reported its findings in 1993. The purpose of this review exercise was to provide a comprehensive evaluative report of the education system, fifteen years after the first report of the national commission on education. The commission was tasked with identifying problems and strategies for further educational developments in the context of Botswana changing economy. The report noted that “the current demands of the economy and plans for its future development are important determinants of the strategy for education and training” (RNCE, 1993, p.vi). The proposed educational developments were intended to produce more relevant, responsive education system capable of meeting national economic demands.

The Revised National Policy on Education is the government’s paper number two of 1994. The RNPE was based on the 1993 commission’s report. The purpose of the government paper is to outline government’s reactions to the recommendations of the RNCE 1993. It also outlines policy guidelines and strategy for future educational development. The government identified recommendations that are accepted, accepted

with amendments, or deferred. In this document, a philosophy and aims of education policy were laid down.

The 1998 Science and Technology Policy document was developed following recommendations of the 1994 RNPE. According to the foreword by the Minister for Communications, Science, and Technology, one of the major goals of developing Science and Technology Policy for Botswana 1998 was:

to build a strong national Science and Technology capability as well as to achieve sustainable social and economic development...to meet the present and future needs of the nation, and to meet the challenges of the next millennium, through the co-ordinated and integrated application of science and technology... (pp.1-5).

In order to achieve the intended goals, the government developed national action plans and Ministry of Education Strategic Plans that assisted in ensuring that targets in developing science education are met.

In 2004, the MoE through the Department of Curriculum Development and Evaluation conducted an evaluation of the junior secondary program. Science is taught as one of the compulsory subjects at junior secondary level. The Report on the Evaluation of Junior Certificate Program assessed the efficiency of the three year junior secondary program (part of the secondary school program). It also aimed to highlight implementation successes and constraints in an effort to inform subsequent implementation of educational reform initiatives. The document summarised information on the teaching of science. Contributors to the evaluation process comprised of personnel based at different government departments. According to REJCP (2004), science teachers were involved in in-service workshops which, according to the report are “too sparse poorly organized and haphazard to be

substantive” (p. 57). The inclusion of science teachers is mainly through in-service programs and the use of clusters (grouping of teachers at school level or regional level) to improve their skills in teaching science.

The EFA-NAP – the Dakar Framework for Action was developed within the context of the existing RNPE 1994. It is guided by the Ministry of Education Strategic Plan (2001-2006) and the National Development Plan 8 (this document covered the period from 1997-2003). A working group comprising representatives from government and Non-Governmental Organizations (NGOs) developed the EFA-NAP document. The same working group was assigned the leadership of the implementation, co-ordination, monitoring, and evaluation of the EFA-NAP. The main purpose of this document was to highlight major developments across the formal education system, organized into four main levels: the pre-primary, primary education, secondary education and post secondary education. In the plan, teachers were mentioned as part of the target groups. As for the concept of participation, it was regarded as a performance indicator to show the development of the national economy. The stakeholders were mainly in the form of departments – Primary Education, Teacher Training and Development, Examinations Research and Testing (ERT), Curriculum Development and Evaluation. The Botswana National Commission for UNESCO, which is the coordinating office for the framework, collated information from the focal persons and organized meetings for the working groups. The relevance of the document to science education per se, was nonexistent. Teachers were mentioned only when they were supposedly given “proper orientation” to curriculum elements.

In all the listed documents, the approach to education reform is more generic than specific. There is limited reference to science education in particular. The generic nature of reform initiatives used in the school curriculum is testified by all subjects assigned to government departments (as indicated earlier). Nevertheless, the generic approach to education development did not overshadow the country's ambition to have its own scientific skilled professionals, as an output of an improved science education program.

Higher Education

The most significant developments and efforts in science education since the 1970s have been in higher education. The Faculty of Science was started as a local Unit of the School of Science in the then University of Botswana, Lesotho and Swaziland (UBLS) in 1971. The four departments, namely, Biology, Chemistry, Mathematics, and Physics, which constituted the Faculty of that time were involved in teaching part 1 of the Bachelor of Science (BSc) Degree program before qualifying students were sent outside Botswana for further studies. In 1975 the Lesotho campus disassociated from UBLS, resulting in the formation of the University of Botswana and Swaziland (UBS). The teaching of part II BSc was started that same year. More science components were added to the faculty before the University of Botswana came into existence in 1982. Departments of Environmental Science, Geology, and Computer Science were then added to the faculty.

At the University of Botswana and Swaziland, the department of Mathematics and Science Education (DMSE) was established in 1976. The department offered a

Bachelor in Science Education - BEd (Science) - and a Bachelor in Secondary Education - BEd (Secondary). The BEd (Science) is a pre-service program of four years duration, post-senior secondary school. The department also offers an in-service degree program designed to upgrade a Diploma in Secondary Education to BEd (Secondary).

The major goal of this development in science education was to contribute to national human resource development for quality science teachers, as well as to develop critical awareness in science teachers of the role of science in the development process. Also, the DMSE aims to develop teacher education programs in science that respond adequately to teaching and learning needs as new curricula evolve. Other developments which came about as a result of efforts to reform science education include a new ministry that has been established and dedicated to science, the Ministry of Communications, Science and Technology, and a new university with proposed first classes for January 2011, the Botswana International University of Science and Technology.

Implementing Science Education in Botswana: What Works and What Hinders?

Botswana has made commendable effort to provide resources for its school system since the evolution of science education in the 1970s. These resources have been aimed at reforming science education in Botswana. But, there have been some enabling and constraining factors that featured across Botswana education system. For example, in the formal school sector, all junior schools, senior schools, and colleges of education have equipped science laboratories. While libraries exist in most schools, they do not have current science collections and do not yet function as vibrant centres of learning. Some of these enabling and constraining features are summarised in table 3.1.

Table 3.1: Factors Influencing Science Education Development

Factors	Enabling Features	Constraining Features
Policy framework and implementation	Botswana's general policy commits government to the introduction of science as a subject, and the use of science as an economic growth determinant for the country. It has a national science and technology policy with clear targets to be reached by 2010. Commits Botswana to developing science capability through increased spending in scientific research.	Scarce human capacity, e.g. Lack of experienced scientists, inadequate scientific infrastructure and largely uncoordinated research and development activities.
Advocacy Leadership	Within Ministry of Education there have been personnel based at different departments to address issues relating to science education in schools.	Coordination among personnel, Not all personnel had a good understanding of scientific concepts and knowledge.
Infrastructure and access	There is well developed science laboratories, well equipped faculties in the University of Botswana.	The problem of fully equipped school science laboratories has been a continuing challenge. Proximity to resources restrict access.
Collaborating Mechanisms	The National Policy on Education, Science and Technology Policy are documents coordinated by established committee from government representatives across different ministries and external consultants. To date, less reliance on external committees has increased capacity.	Centralized capacity with less teacher knowledge of strategies and guidelines to effect policy implementation compromises the collaboration and participation of teachers.
Fiscal Resources	The Ministry of Education has dedicated financial resources to - <ul style="list-style-type: none"> schools to secure science equipments and teaching and learning materials The building of functional faculties of science, engineering and technology at the University of Botswana, medical school, aiming at locally producing doctors and health science professionals 	Reliance on the government as the main source of financial resources is likely to slow future developments in science education.
Learning Content	The national policy shows commitment to the development of local contextually relevant text to assist students in easy understanding of scientific concepts.	While there is commitment to develop local examples, not much content is available to set examples aligned specifically to Botswana's national curriculum.

As can be seen in the above table, educational reform is centralized. The Botswana government oversees all factors that influence reform in science education. Interestingly, the government notices the relevance of science advancement and creates enabling factors such as development of science and technology policies, mission and vision statements that allows higher education to be more direct in the development of science education.

Summary

This chapter has outlined the development process undertaken by the Botswana government to improve science education since the early 1970s. The government's approach to education development is generic, yet emphases were placed on science as a field that is key to the economic development of the country. It is clear that more focus and major developments in science education take place at higher education level. Throughout the development process, teachers were indirectly included as stakeholders. The minimal inclusion of teachers, in particular science teachers, means that the concept of participation and its understanding by practitioners and policy makers, is a relevant area to investigate. Having seen how developments and efforts to improve science education were carried out - from centralized government departments to University - the purpose of this study is to examine the discourse of participation by addressing research questions that 1) examine what it means to participate to practitioners and policy makers, 2) aim to examine the role of authority and its influence in understanding participation and its practices, as well as 3) to examine

teachers' knowledge of the organization's goals or lack of it in influencing teacher commitment to participate in the implementation of reform initiatives.

CHAPTER 4

METHODOLOGY

Foucauldian discourse analysis is foundational to the design of this study. Interviews and policy document review formed the basis for the collection of empirical evidence. The interviews draw from teachers' and administrators' experiences. Their experiences of participation are contextualized using existing policy documents. This chapter describes the theoretical, methodological and ethical considerations that guided the research study. To accomplish this, the chapter:

- gives a detailed account of Foucault on methodology,
- explains the research design and methods of data collection and analysis,
- explains the ethical considerations of dealing with data.

Foucault on Methodology

A Foucauldian position on research methods breaks away from the historical research patterns of modernism, where the researcher searches for “Truth” (O’Connor & Payne, 2006). Foucauldian research questions what is taken or known as “truth” and why some ideas are considered rational and others not (Ball, 1990). The way Foucault considers discourse helps to examine how concepts are practiced and explores the “history of the present” (Rabinow & Rose, 2003, p. xxiv).

Foucault explains that his own practice of discourse analysis included three parts: first, a history of the discourse as a “monument”, rather than as a means of explaining it; then, a description of the conditions under which the discourse has been created; and lastly an attempt to relate the discourse back to “the practice field in which it is deployed” rather than to the individual or individuals that produced it (Foucault, 1996, p. 40). The inclusion of a historical perspective helps to identify any shifts which have taken place over time.

Foucault speaks in general terms of the “Field of Discourse” as occurring with contradictory competing social and political forces. Thus, Foucault’s method for analyzing discourse includes the conditions which allow a wide variety of interpretations and meanings to exist, as well as the practices and policies governing the discourse. According to Foucault, these forces often delimit or restrict the discursive activity of change agents in a discourse. In his deliberations, he recognizes that authorities are usually hierarchical in influence and represent levels of relative power. Foucault does not suggest specific guidelines to define these levels; he suggests clarifying the field of discourse and disentangling sources of political influence. Although Foucault’s intention is to deconstruct or traverse the discourse influences represented by these hierarchical positions of authority, statements within a distinct discourse usually are impacted by multiple levels of authority within an organization.

The Discursive Statement

Foucault’s methodological focus is the discursive statement. The discursive statement depends more on an understanding of the function of the discourse than on the meaning behind a logical structure of signs and/or symbols. Foucault’s analysis

does not emphasise the analysis of “words”, instead he attempts to explain experiences in terms of language and experience: he refers to discourse components as “the living plenitude of experience, the rules of discourse” (Foucault, 1972, p. 106). In describing the appearance of the discursive statement, Foucault (1972) suggests that:

One should not be surprised, then, if one failed to find structural criteria of unity for the statement; this is because it is not in itself a unit, but a function that cuts across a domain of structures and possible unities, and which reveals them, with concrete contents, in time and space (p. 87).

“Discourse,” for Foucault, refers “more generally to reiterated key words and statements that recur in local texts of all kinds. Such statements appear within “text and comprise familiar patterns of disciplinary and paradigmatic knowledge and practice” (Luke, 1999, p. 16). In other words, as the researcher identifies the components of the discursive statement, fragments of various language systems may be encountered, that is, incomplete sequences or partial units of meanings. This stresses the “value” versus the “truth” of the discursive statement.

Foucauldian Discourse Analysis

A Foucauldian discourse analysis (FDA) is one perspective among many poststructural approaches that focuses on discourse and ways of constituting knowledge and its social practices, forms of subjectivity and power relations (Ball, 1990; Gatenby & Hume, 2004; Lennie, Hatcher, & Morgan, 2003; Phillips & Hardy, 2002; Weedon, 1997). Discourse is one of the most frequently used ideas from Foucault’s work and his definition differs from that of many linguists in that it is much wider in scope. To explain the breadth of meaning of discourse, a variety of reflections have been made on “Foucauldian discourse”. The reflection made by some theorists on Foucauldian

discourse is that “a discourse” is not a communicative exchange, but a complex entity that extends into the realms of ideology, strategy, language, and practice, and that is shaped by relations between power and knowledge (Ball, 1990). According to Jennings and Graham (1996), Foucault viewed discourses as sets of statements and practices, embedded in larger frameworks of social relationship, institutions, and power relations which together constitute “subjectivity”. In Foucault’s view, the constitution of subjectivity through discourse is the modern form of power. Foucault’s (1972) analysis of discourse through the examples he wrote about – e.g. medicine, psychiatry – showed discourses constructing and maintaining the social norm, in turn, shaping individual identities by delimiting and conditioning thoughts and actions. Additionally, discourse is not limited to language and words. It is internalized and communicated through gestures.

Foucault’s idea of discourse is explored extensively in his work *The Archaeology of Knowledge*, in which he clarifies his notion(s) of discourse subsequent to his use of analysis of discourse in other publications, and in his essay entitled *The Order of Discourse*. By examining the different components of discourse, according to Foucault, we see the complexities of this concept and the ways in which analyzing discourse can lead to a new understanding of social concepts, attitudes and beliefs.

There is no single technique to analyze discourse from a Foucauldian perspective, nor is there a prescribed procedure available to guide the detailed process that discourse analysis requires (Potter & Wetherell, 1994, p. 59). For this reason, some researchers have called a Foucauldian approach “dangerous” (O’Farrell, 2005), because researchers using Foucault’s approach are challenged by his resistance to prescription

or the use of transcending knowledges that claim intelligibility. On the one hand, the researcher has to satisfy the rigorous scientific research approach, where theories are used to set foundations for research studies. Foucault (1977) suggests that discourses are not “mere words” but are structures of knowledge, claims and practices through which we understand, explain and decide things and exercise control. In constituting human agency, discourses define obligations and determine the distribution of responsibilities and authorities for different categories of persons such as teachers and administrators. In other words, discourses are considered hierarchical as they determine ‘who’ says ‘what’ and to ‘whom’, by way of ensuring that at every level of discourse there is policing of statements, a defined control of circumstances.

The purpose of employing Foucauldian discourse analysis is mainly to better understand participation as a process of discursive interactions and to generate information that helps practitioners assess the power operating in the education system. It will assist in exploring the rules, and procedures of participation, which according to Hook (2001), reflect the order of discourse.

Foucauldian discourse analysis allows analysts to explain conditions under which, participation, as is the case for this study, exists. Such conditions include practices, policies, and other related discourses, as well as structures that maintain and even strengthen the meaning of discourse. In other words, the use of FDA allows the researcher to show how the discourse frames the statements that have been made in order for those statements to be maintained. The great advantage of framing discourses is that it allows a focus on the practices associated with possible understandings of the concept of participation by practitioners and policy makers. Foucault (1994)

specifically argues that the power of discourse is not its meaning; discourse is always already within power relations.

Foucauldian Discourse Analysis (FDA) focuses on the ways that power manifests itself through language, and thus on identifying and demystifying the reciprocal power/knowledge relations that are inscribed within the discursive practices of participation. FDA can potentially give important insights into the unclear, opaque ways that unequal power relations lead to unequal participation of teachers or exclusion of teachers when they are “expected” to participate. The dominance of the discourse of “normalization” and the construction of “hierarchies” (Foucault, 1977, p. 183) leads to discursive practices of participation that compromise active participation of teachers in the educational reform process. The gaze of authority, discipline and power marks out teachers as objects of the government apparatus, required to respond once selected to participate. As Luke (1999, p. 7) writes, the hidden forces and the “epistemological and political possibilities and alternatives” must be identified. All these have the potential to change the situation for the future, with the intention of achieving a participatory discourse through conceptual reinstatement of participation. Education policymaking which impacts educational reform is fraught with struggles. These struggles constitute the various discourses as they are represented by powerful social actors. As Foucault indicates, the “discursive agonism” is intense in the policymaking process and the impact it might have on social processes – educational reform included.

Research Design

In this study, I explored the discourse of participation of teachers in the implementation of educational reform initiatives, particularly that of science education reform. I also wanted to understand the power relations to explain the experience of participation from the participants' perspective. A qualitative approach was therefore an appropriate research approach because it allows for in-depth, contextual and detailed description of the problem to be studied.

Site Selection

In this study, the sites included three government schools offering education at three different levels (primary, secondary, and college). They also included ministry departments responsible for the teaching and learning of science. The selection of the schools and ministry department was purposeful. The selection of the sites is critical to the purpose of the study. It allows different teachers and administrators to be interviewed and share their views of participation by drawing from their experiences. According to Stake (2006), the sites should be selected based on their relevance to the concept being examined and to the research questions, as well as providing diversity across contexts. For this study, the criteria for the included schools were: 1) teaching science to all the enrolled students; 2) teachers being part of the implementation of educational reform initiatives; 3) implementation of science initiatives guided by the Revised National Policy on Education of 1994, and 4) School program administered by Botswana Ministry of Education. However, since science in primary and secondary schools is taught by teachers who graduated from colleges of education, it became imperative that colleges of education be included. The ministry departments were

selected based on their involvement with the schools in monitoring and evaluating the implementation of reform initiatives. In order to minimize the scope of the implementation process, schools or institutions offering science at higher education level were excluded (such institutions – the university, institutes of health sciences, polytechnic) were excluded due to the difference in their science programs and their semi-autonomous administrations.

Using these criteria, three schools were selected, 1 primary, 1 secondary, 1 college of education and they were visited for pre-research meetings in 2007. Two ministry departments were selected – Department of Curriculum Development and Evaluation, and Teacher Training and Development. These schools and ministry departments were later contacted through a letter in October, 2008. The purpose of the letters was to invite the heads of the stated institutions to participate in the study. The letters were detailed, explaining the purpose and the level of involvement, and seeking the consent of the head or director (refer to Appendix B, C, & D for copies of the letters).

Procedures to Access Sites and Participants

To gain access to the sites, I communicated with administrators responsible for programming and running of colleges of education – this included the director of the department of Teacher Training and Development (TT&D), which is a supervisory division to colleges of education. The principal of the college of education, head of science unit in the department of curriculum development and evaluation (DCDE), and other administrators were invited through a letter prior to the beginning of the study.

This process was followed by the selection of sites where interviews were to be conducted. I followed a detailed procedure for conducting research as indicated by Ministry of Education, Botswana - Research & Statistics Unit (RSU). I drew a list of institutions (schools and college of education in the central education region located in the capital city), with the subjects taught and time allocated to each subject, with more attention given to science as it is a subject central to this study. In this dissertation, there are three institutions and they are identified through the use of acronyms (Primary – P1, Secondary –S1, College – C1). To begin field work, I made an application to RSU to obtain permission to carry out research in Botswana educational institutions. The application consists of a cover letter attached to the study proposal and the sample of the interview schedule. I completed the form that provided personal information as well as the information on the institution of affiliation (see Appendix G). I also provided the director of the unit with a summarized description of the study and its purpose.

To ensure that the research application form was received, I dropped it off to the relevant office. The length of time for the research application process was estimated as two weeks. During this time, I was aware that my plans for interview visits might be altered because of participants' schedules. In order to minimize the interruptions, I made prior visits to negotiate my planned schedule. The planned fieldwork came at a time when the schools were engaged in their yearly scheduled examinations. However, I went ahead and made phone calls to school heads to schedule appointments for research briefing. Some of the phone calls were a follow up to visits I made prior to fieldwork. I ensured that the initial appointments were scheduled after the expected time of response from the ministry of education; i.e., two weeks after submission of

research application. Three institutions, primary, secondary, and college of education responded positively to the request, and a time was set for research briefing. Recruiting of participants began at the time of research briefing.

The information gathered from these contact meetings with heads of institutions and ministry department assisted me in setting schedules for interviews. The length of time for data collection was two months and two weeks. This duration gave me time to conduct interviews, as well as to make trips to different schools for a second round of interviews and library visits to search and collect any relevant documents.

Now that I had made contacts to access sites, the next process was to access participants. I started first by preparing a list with the number of teachers in science departments across all the schools used in the study. I got the number of science teachers in the entire science department from an establishment register. Each visited school had an establishment register – a document compiled by the central ministry on the number of staff required by each institution given the students' population in science department. This means that the establishment register differed from school to school. For example, some schools have a large number of science teachers because they are in the centre of the city and their catchment area was large. In this study, I had a total of 17 participants which included three heads of departments, six senior science teachers (three from secondary and the other three from college of education) two primary school teachers, four secondary school science teachers, and two officials from the MoE.

As for the college(s) of education, the required number of science teachers per science department was less compared to secondary school. For example, the

Establishment Register (ER) proposed six science teachers as opposed to the five that the college of education in the study had. It is worth noting that the stipulated number of teaching staff in the ER is not always met by staffing and procurement division. Although this issue seems to be outside the scope of the study, it is relevant because of some of the reasons encouraging participation of teachers in *education* outlined by the Ministry of Education under the developments and efforts on reform in science education (see, Chapter 3). I took note of the issue as it is well documented that availability of resources – both human and financial – can have an impact on teacher capacity (e.g. Marope, 1996).

The rationale for teacher allocation is determined by the anticipated number of prospective students or the enrollment bar per institution. As indicated earlier, the administration of schools and colleges of education is centrally controlled. Therefore, it was the prerogative of the central administration to set the enrollment bar. However, one of the limitations in this study (an area to be addressed in the final chapter), is that some of these challenging factors were not thoroughly explored due to time and the scope of the study, although their relevance cannot be underestimated.

Purposeful Selection of Participants

I selected a small number of participants because there is a general shortage of science teachers across the school levels. I interviewed seventeen participants (the number includes other stakeholders other than teachers). The participants comprised of science teachers in secondary schools, science lecturers in college of education, science coordinators in primary schools, and administrators in various positions of responsibility – these are past and present science teachers (the number of participants

is already indicated). These groups of science teachers and administrators form part of sources of data because of their involvement in recruiting or selecting science teachers to take part in the implementation of science education reform initiatives. All three types of schools are located in the central education region of Botswana, which has a close proximity to the central administration. All recruited teachers teach science, though at different levels.

The selection of participants started on October, 15, 2008 prior to the interview that took place on October, 14, 2008 until December, 3, 2008. According to Botswana's school calendar, October and November is the end of year examination period for the students. I was informed by the school heads in all the selected schools that some of the science teachers were invigilating in other schools. This was mostly the case in secondary school. As a result, the total number of teachers to select from in secondary school was affected. Although this was the case, I still had a reasonable pool of teachers to select from because Botswana secondary schools have a large number of science teachers compared to other school levels: all enrolled secondary schools students take at least one science subject.

I purposely interviewed science teachers known to be outspoken and critical in order to get a far-reaching perspective on their involvement in implementation of educational initiative, as well as science teachers known to comply with the rules and practices of the institution that govern the participation process. I identified interviewees by first asking the head of the institution to give me the number of teachers in the science department. I approached all science teachers who were present at the schools. I asked them what they thought about themselves when they contributed

to any form of debate in departmental, school, and college meetings. I made it clear to the science teachers that the nature of the interview is to get a cross section of responses, therefore teachers who are open to reforms as well as those who sometimes question the reform process are invited to take part in the interview. I discussed their openness to ideas from the administration. I selected participants for the interview based on the views I collected from individual science teachers.

By interviewing different science teachers, I was hoping to get teachers who will provide contrasting perspectives. I anticipated that the contrasting views will assist in mapping out connections, shifts, contradictions and puzzles, a format commensurable with Foucauldian perspective. I also aimed to select some of the teachers and administrators whose job experience covered the period between 1993 to present. This was done with the hope of getting a historical view of the reforms in science education.

In order to later draw some links in the hierarchical participation of science teachers in science reform initiatives, it is relevant to show differences in the level of science teaching. In primary school, all teachers teach science as “general” science, with a few appointed as *science coordinators*. The introduction of “science coordinators” is a newly introduced reform initiative. According to the terms of the newly introduced initiative, all teachers are supposed to refer any science related question(s) to science coordinators (Ministry of Education Blueprint, 1995). The difference between science coordinators and “other” teachers in primary schools comes as a result of their training. Science coordinators tend to have a concentration in “Integrated science” during their college training, while “other” teachers did science as a foundation course i.e., at year one of their college program. In secondary schools,

science teachers majored in one of the science components and are therefore able to teach different science components (e.g. biology, chemistry, and physics).

The College of Education science department consists of teachers with a university second degree, with some recruited from secondary schools. Science teachers in a college of education have extensive years of teaching experience either at primary or secondary schools. This background helped them in sharing their views on participation – some had experiences to compare, *then* and *now*. In cases where there was a possibility of no involvement of the recruited teacher(s), it was still essential to the study.

Recruitment

I visited all the three schools and the ministry departments that I selected for the study. Each school has a different set of initiatives even though the schools are under the same administration. I presented myself and the purpose of my study to the teachers and heads or administrators of the schools. I read the letters explaining the purpose of the study to all teachers in the science departments and gave detailed explanation of the intention of the study. I invited any questions pertaining to the study. The teachers asked questions in case they were not comfortable with any of the questions during interview. I indicated that they have a choice to respond to interview questions, and where and when they felt uncomfortable, they can opt out of the interview process or decide not to be recorded.

After responding to their questions, interview schedules convenient for each recruited science teacher were set. Many of the teachers who gave their consent had varied schedules and classroom duties, making it difficult to meet them during normal

working hours. Primary school teachers that agreed to take part in the study were flexible with time because they had finished their end of year examinations. The only challenge they made me aware of was a number of scheduled and unscheduled meetings that might interfere with interviews. The secondary school science teachers requested me to conduct the interviews after their half morning break because of their role in the ongoing examination process, including invigilation and preparation of scoring sheets. Other secondary school teachers asked me to schedule interviews in the afternoons. This kind of proposal came from a group that was engaged with local examinations. They regarded their afternoon time as flexible because they could find time to set aside for the interviews. At the college of education, the recruited teachers wanted me to come in the morning during the first two periods because they had to visit some schools to assess student teachers/teacher trainees later in the day. Accessing participants was a challenging process, involving a lot of travelling between institutions to cater for different time slots. Through my cooperation with recruited teachers some modifications to time schedules for the interviews were made.

Teachers' years of experience were noted at a time when they completed the consent form. Their years of experience covered a wide range, e.g. 1 year to 32 years (see the table below). These varied years' of experience became relevant as teachers drew on them to share their experiences of participation in initiatives aimed at improving science education and in the observations they made on their colleagues as they interact during workshops.

Key informants were recruited from the Department of Curriculum Development and Evaluation (DCDE), Teacher Training and Development, as well as

heads of departments from secondary school and college of education. I got a positive response from DCDE. Within DCDE, there is one science unit responsible for the design and development of science curriculum in primary and secondary schools. I visited the department to make an appointment for interviews with the director of science unit. First, I presented myself and the purpose of the study. I made them aware that I have already contacted the MoE in conjunction with the research study I was conducting. I presented the information letter (see Appendix D) to the coordinator of the science unit. I explained the reasons for recruiting administrators and sought permission to approach any of the administrative staff in the department. The information given to me by the coordinator of the department was that the responsible staff members were away on a field trip. I was given a week to come back and check who would be available at the time of the interviews. I came back after one week and made contacts with two administrators who are involved with the development of science curriculum in primary and secondary schools. A total of five key informants (three from schools and two from DCDE) were recruited. The participants were recruited based on the following criteria: (a) availability; (b) willingness to describe the experience of participation; and (c) involvement in any of the reform initiatives.

Teachers' and key informants' names have not been mentioned, instead acronyms were used to identify the participants. As for key informants, the same approach of using acronyms was used. Below is a table with information on teachers and their experience.

Table 4.1 Recruited/Interviewed Teachers & Administrators Years of Experience

School Level/Institution	Science Teacher	Administrator	Years of Experience
Primary	Lisa		1
	Kate		9
Secondary	Nat		6
	Pam		5
	Tap		9
	Lula		4
	Tom		8
	Cameron		9
	Vicky		11
		Stacy	7
College of Education	Macy		22
	Ben		18
	Rodney		21
		Betsy	28
		Ken	32
Ministry of Education		Bob	16
		Lucas	12

Each institution gave me a room for recruitment meetings with teachers. All potential science teachers were individually given an information letter about the study. If a participant preferred, I read the consent letter aloud and explained any words or concepts as requested, such as clarification and/or emphasis on key sections such as recording of the interviews, matters of confidentiality and issues of anonymity (refer to

Appendix E). All participants across the schools that participated in the study mentioned that the letter was very clear and that they understood what the study was about and what I would be discussing.

Individual School Profiles

(a) Primary School. Primary school 1 is a medium sized school because of its student enrollment. The school has a student population of approximately 650, compared to larger schools of approximately 1000 students (Education Statistics, 2003). It is located in the new residential area of the city. It offers science as a compulsory subject – that is a subject taken by all the student population. All teachers in primary school 1 teach science as “general” science, and they are allowed to seek advice from the science coordinator when they experience any challenges during their science teaching. The primary school teachers are expected to have taken foundational courses in science during their teacher training course.

Primary education is divided into two levels – lower and upper primary level. Lower primary is from standard 1 to 4 (an equivalent of grade 1 to grade 4), while upper primary is ranges from standard 5 to 7 (equivalent of grade 5 to grade 7). There is an examination at the end of standard seven which covers all the subjects taught at primary including science. The primary school general program is administered by the primary department under the ministry of education. This particular school had one science coordinator because of its enrollment size.

(b) Secondary School. The secondary school was located in a populated residential area. The school has a large catchment area and attracts more than 1000 students for enrollment. After students’ enrollment into senior secondary level, they are

selected into two streams of science levels/awards – “single” and “double award”. The determining factor for student enrollment is mainly their “high” achievement in science at junior secondary examinations. For example, students with the highest scores in junior secondary science are selected for “single award” science category. The selection is done by a group of administrators consisting of senior teachers in science, science heads of departments, and school management. According to the ministry’s establishment register, secondary schools have the largest science teaching staff. The school that took part in the study had 18 science teachers, out of which 4 are senior teachers and 3 are heads of departments.

(c) College of Education. The college of education is located in the outskirts of the capital city Gaborone. It is within reasonable proximity to the central administration and falls within the central region education office. The college of education is a tertiary institution offering a 2-3 year diploma program for primary school teachers. Its enrolment of teacher trainees is approximately 300. The college has few science teachers – five in total (this includes a senior teacher and a head of department).

Students’ enrolment in the college science stream is based on their performance in science at the end of their senior secondary examinations. Students with better performance in science are selected for concentration in science – in other words, they take different components of science courses throughout their training program. As for students with low achievement in science, they tend to take science as a foundational course in their first year of training program.

Data Collection

Data were collected using two instruments: document review and interviews.

Document Review

Document review as a data collection technique was used to reveal the historical development of the discourse of participation. The document review process provides foundation knowledge upon which the information on the involvement of science teachers in reform initiatives can be built. The review focused on participation being central in the implementation of initiatives aimed at improving science education.

The point of reviewing policy documents was to collect data that provides the context for the interviewees' statements and to allow me to review recommendations and policies that emphasize *participation* and how it is going to be ensured. The information gleaned from the documents widens the scope of understanding how the discursive practices of the discourse of participation contribute to the development of power relations and resistance. The reviewed documents included government documents pertaining to science that were used during the period from the first commission on education 1977, and 1994 to present (see Chapter 3).

To select policy documents and other relevant material, I visited five libraries; they included, Ministry of Education library, University of Botswana library, Resource Centre - Department of Curriculum Development and Evaluation, Resource Centre Botswana Development Policy Agency, and Botswana Library Achieves. The purpose for the library visits was to peruse documents on Botswana education and to select documents with language that shapes the discourse of participation in teacher involvement in reform initiatives, specifically to science education. Throughout my

document search, I read the preamble and summaries of the contents covered in each policy document. I collected eight documents that were written on science achievement in Botswana. Out of the eight, two were reports by Botswana National Commission for UNESCO. The reports were aimed at giving a wider coverage of progress made in Botswana towards the achievement of six Dakar goals on Education For All (EFA), and the Southern African region. In my reading of the selected sections, I used the concept of participation, specifically that of teachers as criteria to select the document. That is, I wanted to establish if participation was used in the text and how it was used. Most of the collected documents briefly described the relevance of science to the development of Botswana. The other government documents described in Chapter 3 did not directly refer to teacher participation in educational reform. Instead, the approach was generic in nature, and the tasks were carried out by ministry departments. Lack of clear reference to teachers' involvement in the improvement of education led to six of the eight documents to be eliminated from the list. I remained with two outstanding documents which are extensively used as a source of guidelines to policies that reformed initiatives in science education program in Botswana. These are, Report on National Policy on Education 1977, and the Report on National Policy on Education, 1994 (see Chapter 3 for details on these documents).

These two documents were selected among government documents because they are the main policy documents that guide planning, design and production of educational reform initiatives. The preface of the two documents was reviewed to gain deeper insight into the education system context (key players, strategies, main targets,

decision making structures) and to get more information on how science education developed over the years since the first policy document.

Interviews

I conducted two forms of interviews (teacher and key informant interviews). The interviews were open-ended, with organized headings under which questions were formulated, and the probing techniques emphasized by Burgess (1989) were employed. The open-ended interviews allowed me to extend the discussion to include emerging issues. I piloted the interview process with one participant in order to establish areas of difficulty with the process or the way in which the interview questions were structured.

Pilot Interview

Any interview process involving adults with varying degrees of English proficiency needs to be considered in terms of its appropriateness as a data collection tool. Therefore, a pilot study involving one participant was undertaken to reveal any concerns with the consent form, interview approach, and interview guide,.

The participant was a male teacher named Ben (a pseudonym) with 18 years of teaching experience. Out of the 18 years of experience, 10 were spent teaching science in secondary school and the remaining eight were in a college of education. Ben was teaching Biology to diploma science student teachers. The participant was not part of school management.

The interview took place in a room separate from the science laboratory. I began the interview by reviewing the objectives of the study and methods. I asked Ben to read the consent form and to raise any questions that he wanted to be clarified. Ben read and signed the consent form without asking for any clarification of the words. The interview

guide was used to provide structure to explore the participants' experience and understanding of participation. The guide was also adapted to the individual being interviewed and to the environment at each interview site. The interview guide included 10 guiding questions, each with two sub-questions based on different aspects of participation. For example, the participant was asked questions such as, "Does participation in implementation of reform initiatives help the education system to advance its policy mandate?" and "What is your experience in being part of the decision making team in the last 15 years?"

The interview was audio taped and lasted approximately 40 minutes. I transcribed the interview and during the transcription, I noted that some questions with the sub-questions were too long, vague and confusing. The participant had asked me to clarify what I meant for some questions. Despite the clarifications made during the interview, the participant was able to provide detailed responses to all the questions with a few repetitions of some responses. As a result of this pilot interview, changes were made to the interview schedule. I realized that I needed to change some probing questions to allow an expansion into the individual science teachers' experiences of participation. For example, the interview pilot sub-question that contained the question on science teachers' experience in the last 15 years was removed. I rephrased the question and instead replaced it with an open number of years of experience (see Appendix H). Finally a field notes schedule form (Appendix J) was prepared to record the specifics of the interview, such as time and place. This was to provide consistency between the interviews.

Final Interview Process

Teachers and administrators interviews were audio taped. Detailed field notes were hand written during the interviews and kept in a lockable cabinet for the entire process of data collection. Interviews conducted with science teachers used the revised interview guide (see Appendix H). The average length of the interview was 45 to 60 minutes. Some interviews were as brief as 30 minutes especially those from primary school science coordinator, while some from the college of education were 90 minutes long. All interviews occurred at the school sites. In all the schools, private rooms were provided for the interview, with only me and the participant present. These interviews also served to start to build a relationship with the participants as well as to establish a base of trust from which personal and possibly sensitive topics could be further explored. No person was allowed in the room during the interview. According to Powers (2001), interviews are an essential tool emphasized for Foucauldian discourse analysts, primarily because they allow respondents to speak and express their views through written and spoken statements.

Data Analysis

The first stages of data analysis involved reading and re-reading the interview transcripts during which words, phrases, expressions, which appeared in the text were systematically itemized. The initial phase of analyzing discourse was done by first selecting and reading segments within one school before moving on to another school, i.e., I first read data from the primary school, followed by the secondary school, and lastly the college of education. I selected the first unit based on the first research

question that sought to establish the understanding of the concept of participation by practitioners and policy makers. Following this particular sequencing of the data set, I worked through a basic interpretation by simultaneously examining the context. Statements both reflect and construct context (Wood & Kroger, 2000). What this means is that when statements are made, they can reflect certain interpretations and be treated as context for others. My interest as I analyzed the interview data was on segments specific to individual interpretations of participation and its practices. This exercise was followed by a focus on identification of segments with content, structure, and function of participation. This resulted in more clustering of responses that identified with earlier discourses. Out of the clustered responses, words, phrases, statements that appeared and reappeared were identified as discourses and categories of discourses were formed.

Numerous interpretations of data were created and further analytical concepts were developed to help shape the interpretations. According to Wood & Kroger (2000), “analytical concepts can suggest what to look for and help us to interpret what we see” (p. 99). As a result, the analytical concepts resulted in an ensemble of ideas that emerged into discourses formed from interview statements and policy text. Some of the analytical concepts had a common thread with aspects identified in the literature on participation and the theoretical framework of the study.

From the document data set, there are broadly defined governmental institutions that exist at national level, as well as integrated agency and institutions to “discourse orders”, such as social, economic and political orders. The broadly defined institutions appear mostly in the foreword or background of the policy document. Reading and re-reading of policy text in order to identify dominant and non-dominant discourses was

done on the background information of the policy documents. The purpose of identifying discourse orders was to assist in interpreting the function and context of discourse in relation to effects of power. The review of documents used a limited number of statements – policy statements which referred to direct or implied participation of teachers.

Trustworthiness

Consistent with the Foucauldian way of performing discourse analysis, (i.e., using different qualitative techniques to gather empirical evidence, I used three sources of data which were teacher interviews, key informants interviews, and document review. I used the three different qualitative research tools to gain insight and understanding of participation and its practices. In Foucauldian approach, it is not the search for “Truth” that makes the study valid, but instead Foucault’s approach allows for rigor through the use of many tools to unravel discourse (Powers, 2001; Scheurich & McKenzie, 2005).). During the interviews probing questions were used repeatedly to enrich the data. Probing questions allow participants to qualify their statements, which can then be analyzed to look for similarities and contradictions.

Analysis was compiled and claims generated through these different techniques, written and supported with quoted data from the discourse of participation. At the same time, it is crucial that the research findings raise awareness that there can be different and even contradictory discourses within the same strategies as “...discourse analyses are written to become rewritten” (Powers, 2001, p. 65). The inclusion of ample extracts from the data establish the trustworthiness of the analysis, since the claims made can be examined in the light of the original data.

Researcher's Background and Assumptions

The researcher's presence in the study must be acknowledged. The researcher must be aware of herself as an 'instrument' where her presence can be interpreted as subjective. It is common that qualitative researchers identify their subjectivities and biases. The purpose of this section is to shed light into possibilities of being misread, the process called "bracketing" in educational research. Bracketing of assumptions allows the researcher to be aware of his/her beliefs and try to understand their influence on the research process. According to van Manen (1997), "bracketing allows the researcher to bring into focus the uniqueness of a particular phenomenon" (p. 350). The researcher must come to realize his/her understanding or conceptualization of the phenomenon before beginning an inquiry. The researcher must recognize and reflect upon her position with respect to the participants, her potential effect on them as an interviewer, her background and presuppositions that she brings to the research (Denzin & Lincoln, 2008; Merriam, 2002). When undertaking an interpretive inquiry, a researcher needs to develop a tolerance for ambiguity and be an 'adept' but fumbling detective. Rather than ignoring pre-understandings, they should be identified because they can shape and influence the investigation and its findings. Data may look different depending on where you are sitting, how things look to you (Bogdan & Biklin, 1992). Similarly, Foucault's notion of the "practices of the self" is consistent with the current practices within educational research of bracketing or identifying one's biases.

Foucault, in many of his lectures, explained his choice of topic and justified his engagement with concepts and ideas. Therefore, as a novice researcher using a

Foucauldian lens, I should make clear why I have chosen the topic of participation, a concept that has been widely used in education and development. The assumption that I brought to this research were rooted in my experience as a physical science teacher, curriculum designer, a member of the science panel at college level, workshop coordinator and working with teams of science teachers in workshops that were organized by local institution or ministry of education. At the same time, I had an opportunity during my 12 years experience to be involved in the development of pedagogical learning material such as the syllabus, teachers' guides, testing and measurement tools for both primary and secondary science program. During my interaction with science teachers and administrators, I observed that their presence in workshops did not entirely mean participation. My experience with participatory practices that seem to be internalized by teachers prompted me to have the interest in participation as a concept. In short, this research topic is one that I consider to be of great importance, both from a theoretical and practical standpoint.

There are other undeniable reasons that are dominant in the selection of Botswana as a central site. These include socio-cultural background i.e., my strong access to the language and the culture of participants. This added advantage made it possible for me to conduct a research study in a setting with which I am familiar. Familiarity allows the study to be conducted in its actual setting or context, resulting in gaining a comprehensive understanding of the participation by Botswana science teachers and administrators and their reflections on educational reform initiatives.

Foucault himself emphasized the importance of self-awareness for the researcher, that is, awareness of one's identity as a researcher (Peters & Burbules,

2004). I need to be aware of the preconceptions and practice reflexivity throughout the research process. Schwandt (2001) defines this term reflexivity as the “process of critical self-reflection on ones” biases, theoretical predispositions, preferences “...it can point to the fact that the inquirer is part of the setting, context, and social phenomenon he or she seeks to understand...” (p. 224). For example, in conducting interviews with college lecturers, I need to think of how my presence in the interview might influence the response of the interviewees (and vice versa).

Although I have worked with teachers in different capacities, I made sure that I did not mention my name or talk about my experiences which can translate “as one of them”. As I proceeded through the analysis of the teacher data for the current study, I was cognizant of the previous experiences and how this might affect the way I saw the data. A qualitative researcher seeks to understand how people see, explain and describe the world they live in (Bogdan & Biklin, 1992). I should also be aware of the ‘nitpicking’ approach that qualitative researchers have used. They use this approach to avoid being locked in taken for granted worlds. According to Bogdan & Biklin (1992), the qualitative researcher must be aware of the qualitative demands that the world be approached with the assumption that nothing is trivial, that everything has potential of a clue that might unlock a more comprehensive understanding of what is being studied. For Foucault, this understanding takes the form of uncovering the existing discourses.

In the case of this Foucauldian research, data were treated as achieved data and interpreted in light of the historical context, existing policies and dialogues with the participants. The researcher must have the ability to determine whether the research is

complete and whether the question have been exhausted or answered adequately (Powers, 2001).

Ethical Considerations

Glesne and Peshkin (1992) argue that “ethical considerations are inseparable from your everyday interactions with your others and with your data” (p. 109). The authors go on to indicate that participants should feel that they can trust the researcher to inform them about the study and maintain confidentiality.

I provided informal feedback after the data collection was completed as a rewarding exercise to those who were interested in the study. Furthermore, it was made clear in writing and in face-to-face meetings that all participation in this study was voluntary and there would be no punitive measures for those who chose not to participate. It is important that participants feel confident that their choice to be involved in this study and the answers they provide to the various questions would not in any way jeopardize their working relations with their administration and evaluation of their performance.

Pertaining to confidentiality, pseudonyms were used in the data. All relevant information regarding this study was provided to the science teachers before choosing to participate in this study (See Appendix D).

Summary

This chapter has outlined the research approach used to investigate the discourse of participation of science teachers in educational reform initiatives. The research

design captured different school profiles which give a detailed description of variations within institutions administered by the same central administration. The individual analyses at three different school levels provided a base for a variety of description of discourses as perceived across the different schools. Three sources of data were used, including interviews, key informants, and document review. Data from both interviews and document policy text were analyzed through Foucauldian discourse analysis. Finally, this chapter discussed issues of research ethical consideration and the significance of the study.

CHAPTER 5

POLICY DISCOURSE

In this chapter, the findings from the analysis of two key Botswana education policy documents are presented. First, the 1977 *Report on National Commission on Education* (RNCE) document is presented, followed by the 1994 *Revised National Policy on Education* (RNPE). These two policy documents were chosen for discourse analysis on four counts: 1) they were powerful during the time of their release, 2) they emerged sequentially over the three decades, 3) they are used as reference documents and serve as powerful tools in the delivery of science education, and 4) they represent visible and powerful national engagement in education. In both documents traces of the participation of teachers, direct or indirect, is highlighted. Overviews of the two documents are followed by an analysis of the discursive elements that emerged in the analysis. The relationship between the discourse present in the policy text and that found within interview statements will be discussed in Chapter 7.

Policy Context

Policy discourse is political because it is the form of text that communicates the political intent of the government through strategies that are aimed at improving national aspirations. Policy discourse is relevant to this study because of its influence on decisions that guide educational reform initiatives. It is also important to note policy discourse because when I talk about participation of practitioners in the implementation

of reforms, I touch on two aspects of the policy process: design and implementation. These two aspects overlap in practice and so, when teachers participate in educational reform initiatives they are actually involved in policy implementation.

The promotion of teacher participation is now part of the mainstream agenda in the improvement of science education in Botswana schools, having broadened out from the established policy context of the early 1970s. The policy environment at that time sought to build and increase the capacity of experienced science teachers, as well as its sustainability. The support for these initiatives by both organizations and their managers (school heads and department administrators) minimally focused on teachers' concerns mainly because of conflicting discourses of timetables and outputs.

The impetus for the promotion of teacher participation emanates primarily from key strategies adapted in RNCE (1977) and emphasized in RNPE (1994). In the current science education context, where teachers and administrators seem to agree that participation is valuable, there seems to be no adequate information in the documents on specific reforms in science education. This generic approach to policy is complemented by dominant discourses of national development, curriculum development and teacher education and development.

Efforts to involve teachers are evident in the documents (and attested through interviews). One thing of interest for this study is the strategic use of participation as a mechanism that gives the central government's decision making process legitimacy. From the data, it is clear that teachers are keen to be part of activities meant to improve science education in their respective schools. It is also clear that the management (as

referred to in the study) had a common intention of involving science teachers in reform initiatives.

The educational context during the gestation period of the two policy documents is characterised by strategies aimed at strengthening government departments' ability to implement reform. It is also a context in which there appear to be power dynamics in the established or to be established departments, illustrated by inconsistencies in program or initiative coordination and surveillance through feedback from practitioners. The role and level of authority of departments differs. The ministry departments' role is to oversee the design and development of science programs and introduce them to schools, while the school based science departments to a lesser extent ensure that teachers are involved in reform initiatives at school level. The planning of activities lies in the hands of the few. It is mainly those who are part of the management who arrange meetings, plan the agenda, select and invite the attendees. Teachers' participation is therefore limited.

The Report on National Commission on Education 1977

The *Report on National Commission on Education (RNCE, 1977)* was commissioned by the Botswana government in 1977. It was used by all state funded schools from primary (Standard 1 to 7), secondary (Form 1-5) and tertiary institutions, colleges of education included. This policy document, although written in a report language, is the main document used to guide schools' activities across all subjects. The purpose of the document was fourfold:

1. to identify the major problems affecting education in Botswana and issues of principal concern to the Government of Botswana,
2. to identify the goals of education system as perceived by key parties within and outside government,
3. to review the current education system and proposed programs for its development,
4. to present recommendations regarding implementation of an effective programme to overcome problems and achieve goals (RNCE, 1977).

The document was the first national review of Botswana education system produced after independence. The focus of RNCE 1977 was on the formulation of education policy intended to guide future school reform, covering areas such as the curriculum, teachers, resources and the entire organizational structure that can support changes. This document tried to craft new ways to transform education from the previous colonially administered type of education to an education system administered by a sovereign state. The document was responding to the country's need for self-sustainability in terms of teacher capacity. At the time of the production of the document, Botswana was beginning to be recognized as a country experiencing gradual economic growth. Although it was still too early to see how the "new economy" would fare, Botswana's economic growth made a tremendous impact on the strategies used to improve educational programs. This impact resulted in the evolution of science education from what used to be referred to as "nature study". The report exemplifies the interweaving of global and local elements which characterize contemporary policies.

The Revised National Policy on Education 1994

The *Revised National Policy on Education* was a White Paper, a policy document that is also used to guide educational reforms. The reason for the development of this document was the socio-economic changes that Botswana experienced since the first education policy document, i.e., the RNCE, 1977. It was also argued that the country's education system had grown in size and complexity. For example, the document indicates that the "socio-economic context, within which the 1976 [education policy] review took place, has changed considerably and therefore there was need to review some of the policies and strategies for education development" (RNPE, 1994, p. 2). The main purpose of the 1994 policy document was to address issues arising from the implementation of RNCE 1977. The issues to be addressed were outlined in the terms of reference and were used to gather information for the proposed policy.

The text addresses social, political, and policy realities. It reinforces the need for a scientific skilled labour force that will contribute to economic development. The document recommends to the education community, teachers included, the qualities and skills it must develop to influence the decisions pertaining to the improvement of science education.

The RNPE (1994) includes a set of seven key aims:

- i) Access and equity;
- ii) Effective preparation of students for life, citizenship and world of work;
- iii) Development of training responsive and relevant to needs of economic development;

- iv) Improve and Maintenance of quality of the education system;
- v) Enhancement of the Performance and Status of the Teaching Profession;
- vi) Effective management of the Education System;
- vii) Cost- Effectiveness/Cost Sharing in the Financing of Education.

The text acknowledges the impact of general conditions in primary, secondary schools and colleges of education and the social and political context of schools. It identifies strategies to address diverse problems, including implementation of reform initiatives. Educational goals and policy outcomes are based on basic distinctions between two approaches:

- providing a continuous invitation to teachers to develop and enhance their personal knowledge and skills;
- ensuring that individual teachers feel valued and do not become passive participants.

In order to ensure that the two approaches were met, the text identified a variety of mechanisms that were to enhance “engagement” in order to solicit information from “all” players. Some of the mechanisms used included plenary meetings, national consultation tours, institutional visits, invitation of written submissions, contracted research and policy studies, external study tours, and specialized sectoral sub-committee meetings. What is common throughout these mechanisms is the anticipated interaction as individuals gather to make contributions.

Dominant Discourses in the Policy Texts

In this chapter, three main discourses arising in the policy documents are discussed: a discourse of national development, a discourse of curriculum development, and a discourse of teacher training and development. Each discourse is discussed in relation to teachers' participation in educational reform.

National Development

In the analysis of the two documents, the ministry of education's most common and dominant discourse was easily identifiable. The most predominant discourse was *national development*. The examples that follow are key exemplars of policy text that support or uphold this common discourse and associated discourses. The statements did not explicitly point to participation of teachers in educational reforms, but it is interesting to note that the responsibility of ensuring that education as a tool for national development falls upon the teachers themselves. Although this is the case, the government's idea of engaging *all* players and anticipating participation is present across text statements.

Out of the identified seven key issues in RNPE, I selected three issues which show slight shifts of responsibility from the central administration to the institution. These key issues address the research question that sought to establish how authority is distributed and its influence on teachers' participation and their experiences of it. Another factor that necessitated the selection of the three aims is the significance of student achievement and hence teacher participation.

Effective Preparation of Students for life, citizenship and the world of work

The Government is adopting a dynamic philosophy of education that promotes economic development, political stability, cultural advancement, national unity and the overall quality of life. In pursuit of these goals, education must offer individuals a life-long opportunity to develop themselves and to make their country competitive internationally. Ultimately, the aim of education must be to prepare individuals for life. Thus one of the central goals of the curriculum must be adequate preparation for the world of work. This is an issue that the present educational system is grappling with... (RNPE 1994, p. 3).

This statement clearly supports mechanisms that are strategically used by the government to anticipate participation of “all” actors to *work* towards economic development. The detailed statement shows education as *utilitarian*. Although the concept of utilitarianism might not be used in the text, the underlying intention of preparing students to “develop themselves” and also to “make their country competitive” is indicative of education as a useful tool. This comes out as a form of discursive statement informed by past discourses such as the discourse community that interpreted the policy text at the time of the first policy document. The text illustrates that education programs are framed as “education for work” and are primarily designed to develop individuals’ competencies and also the capacity of institutions to service the economy. In this way, the field of discourse widens and allows multiple discourses to exist and create the accumulation of varied understanding of participation. What remains puzzling is the omission of teacher participation when students are central to economic pursuit.

Another challenging view is the lack of identification of who the *individuals* are, but it is reasonable to imagine individuals being those “who prepare” and those “who are to be prepared”: teachers and students. Apparently, the individuals are most likely to

be confronted with situations where they are “expected” to participate in any reform initiative. The use of “their” is compelling: it ordains an individual with a sense of ownership, as well as a relationship with the country.

Enhancement of the Performance and Status of the Teaching Profession

The success of any education system depends largely on teachers. They are the catalyst of the learning process and on them mainly rest the whole system. They are therefore crucial in the strategy to achieve a more effective and responsive education system...The Commission has cited evidence received from teachers... confirming that the teaching profession is characterized by low morale and declining professional status (RNPE, 1994, p.4).

In this text, there is no direct mention of teachers as participants in ensuring that objectives are met. Yet the text acknowledges teachers as the cornerstone of students’ achievement. Simple acknowledgement of teachers compromises their value in students’ achievement and undermines their role in policy implementation. However, teachers are mentioned in the first line of the text, probably suggesting their crucial role in the whole system. This explains the discourse environment yet in practice, teachers’ role creates them as subjects whose power and knowledge is not at the level of specialists, and therefore their contributions to decisions on students’ learning may be regarded as “subjugated knowledge”. Overall, the text acknowledges the contribution of teachers to students’ learning (though subtle) and situates teachers’ role as a strategy in the development of education.

Further analysis shows the problematic of the structured and centralized nature of education management, which consequently impacts on teacher participation. Below is a text that points to the relevance of participation:

Effective Management of the Education System

The increase in the number and spread of educational institutions in the country, especially at primary and secondary levels, presently poses problems of effective administration in view of the centralized nature of the management

structure... However, in order to achieve efficiency in the running of the educational institutions the administrative structure of management need to be reviewed and improved. Secondly, the participation by the community in the development and management of education is important for the purposes of its democratization, quality assurance and relevance...Despite problems experienced in community participation, the Government concurs with the Commission's belief that such participation is not only important but also necessary as it has potential for generating substantial financial and management resources needed for effective educational development and administration (RNPE, 1994, p. 4).

Participation is used not as a concept but as a word. It is less defined and its application is not clear. It is not aimed at teachers in particular. Instead, it is the "community" that has to participate. The text does not indicate who constitutes the community. However, there is acknowledgement that problems were experienced with regard to community participation. Remarkably, the government still views participation as an important aspect of success in its endeavors. I should quickly point out that the kind of participation the authorities envisage does not directly include teachers, making it inconceivable to see teacher involvement only on issues of student achievement. In a way, the role of teachers in educational reform initiatives is compromised.

Curriculum Discourse

Below are brief extracts from the two key policy documents. The particular extracts which were selected for analysis are statements within each of the document. The analysis focused on the involvement of science teachers in matters pertaining to curriculum. According to the text, science, as "integrated science", is listed as one of the six curricular areas in secondary level:

All pupils should study at least one subject in science at senior secondary level, and this should be taken in the senior certificate examination...schools should have the flexibility to offer science courses suitable to the ability, needs and interest of the students. Also factors such as teacher availability, laboratory space should influence the choice of science subjects. (RNCE, 1977, p. 111).

Therefore it was recommended that;

At the junior level integrated science should be studied by all pupils. At the senior level all pupils should take a science subject, whose identity should depend on availability of resources and pupils ability and interest, and further subjects should be available for those who wish to specialise (RNCE, 1977, p. 114).

The policy texts did not precisely identify teachers as participants in the curriculum but the emphasis on science to be taught at junior and senior secondary level suggest an implied participation of teachers. Rather, what is clearly reflected through the policy text is lack of teacher capacity. Teachers are mentioned only in terms of availability, which impacts on the number of science subjects that can be offered. This might create a disparity in schools' potential to offer science. These challenges highlight the significance of teacher availability in the successful implementation of the science program.

Further, students' needs and interests dictate the curriculum and its content. Student achievement which is assessed through examinations is emphasised. The examinations discourse amplifies the relevance of teacher participation, suggesting that teacher involvement through teaching and engaging in training programs is inescapable.

The texts also emphasise the congested nature of the curriculum:

- (a) The present syllabus is too crowded and attempts to cover too much ground, both in terms of the number of units and of the composition. Recognizing that teachers vary so widely in ability and training, we would like to see a basic establishment which is within the capacity of all teachers. (RNCE, 1977, p. 73).
- (b) to help give structure to the present syllabus and to provide a basic framework and guide for new and inexperienced teachers, the unit framework should not be abandoned, but should be substantially modified. We propose a minimum basic core within each syllabus unit covered in a

very ample period which will be sufficient for the least inexperienced teacher. (RNCE, 1977, p. 73).

The acknowledgement of the crowdedness of the syllabus is significant and is indicative of the structural challenges that can be partly blamed on a single unit proposal. The suggestion of keeping the unit framework, coupling it with a minimum basic core is coming more from higher authority positions and less from teachers whose interaction with students might help to know their needs. Possibly, these proposals turn out to support the authorities' position because of the inability of teachers to teach science. The inexperienced state of teachers is advanced to justify the omission of teachers at the point of structuring of the curriculum. The text does not explore ways of involving teachers in initiatives that will enhance teachers' ability to teach the curriculum content. But the recognition of the inexperienced position of teachers gives many readings, such as the possible involvement of teachers in professional development, through in-service training.

Teacher Training and Development

The main focus of this discourse is on “training” teachers to implement educational initiatives, with implied or anticipated participation. The time frame for the mandate is clearly stated: twenty-five years from the release of RNPE 1994 policy document. Training is anchored on the premise that “the demands of the economy and the plans for the future development are important determinants of the strategy for education and training” (RNPE, p, vi). There seem to be support for teacher “involvement” in training programs that will equip teachers with professional skills.

Some statements in the documents suggest teacher involvement through strengthened in-service training:

Strengthening of the supervisory and in-service training services so as to hold much closer links between serving teachers and the administration and to bring more frequent help and professional stimulation to the teacher in the classroom (RNCE, 1977, p.134).

Although not clearly specified, in-service training can serve as an involving tool and at the same time it can be excluding, depending on who is invited or selected for training. Once the administration *brings* more help to teachers, it is anticipated by those who facilitate the services that teachers will be stimulated and take part in activities. As might be expected, the power dynamics are likely to play out within the discourse.

Similar preference of in-service training is made in the RNPE 1994:

[The] government intends to embark on a number of measures aimed at raising the status and morale of teachers so that they can perform their tasks more effectively. Such measures will include both improved in-service training, a package of incentives and improvements in the conditions of service (RNPE, 1994, p. 11)

As for science teachers:

[T]he shortfall in science teachers which is being met through recruitment of foreign teachers should be addressed through an aggressive and deliberate long term project to specifically train science teachers for senior secondary schools. Special incentives should be developed to attract suitable candidates for training and subsequently to retain them in the teaching profession (RNPE, 1994, p. 25)

From these policy texts, it is clear that the government capitalizes on in-service training as well as provision of incentives. The two practices are used as strategies to reform science education. In the second policy statement, science teachers are clearly identified for training. These measures were a follow up on prior observations made in 1976 which suggested that educational background of teachers was “unsatisfactory” (RNCE, 1977, p. 134).

During those early years of Botswana’s education transition, the main output of teacher training was to have a developed teaching capacity which had the ability to

provide quality education. Apart from teachers being trained for purposes of quality education, their training was a manifestation of improved professional support. To illustrate the government's commitment to professional support, RNCE (1977) states that government's mandate was to support a stronger sense of professional identify among teachers. Although this step was encouraged, it was open to teachers to "take it up through their own professional associations" but the report indicated that they "believe the authorities have an important role to play in providing feedback and supporting services for professional development" (p. 133). The statement showed some contradicting signs. Further recommendations by the commission indicate that:

More opportunities for two-way exchange between educational administrators and teachers, or between teachers themselves, should be created so that classroom teachers do not feel abandoned or their contribution is unimportant. (RNCE, 1977, p. 133)

Teachers are mentioned and interaction between them and administrators for purposes of inclusion is suggested. The statement acknowledges the fact that teachers do make contributions to the improvement of education. Furthermore, the policy text explains the teachers' role in the entire process of training and development, even though it is principally controlled by the leadership. The report states that:

To a large extent responsibility for improving this situation lies with leadership of the education profession in the Ministry of Education... Their decision on how far they will consult teachers on matters affecting the education service itself, on working conditions in schools, and on education policy more generally, will indicate the importance attached to teachers and their contribution to the education system. ...there should be a wide consultation with teachers on all these matters and that the involvement of teachers in the work of curricular reform will pay valuable dividends... Another way in which teacher status may be enhanced is by greater involvement in the affairs of the local community. (RNCE, 1977, p. 133)

According to this text, consultation is used as a functional concept to ensure that teachers become part of issues affecting the education system. The suggested consultation process that is coordinated by the leadership anticipates teacher participation. Through a number of consulted efforts the ministry of education is likely to assume teacher participation in any form of educational reform.

Discussion

Across the three discourses, the government's role is dominant and pivotal to discourse formations. National development discourse underlies every government's intentions to establish a quality driven education. The curriculum discourse is key primarily because the success of an educational undertaking is guided by the curriculum template.

Throughout the education reform, emphasis on teacher training and development as a strategy that reinforce government's presence in the development of education is explicit while teachers' role in their capacity development is implicit. For example, RNCE (1994) indicates that improvements in the supply of teachers must be underpinned by the need for quality education. Consequently, the training of teachers and their development is strategically employed as a way of enhancing the idea of teacher participation as they engage in training. In an explicit way, the concentration of power in one level of the hierarchy plays out in the description of teacher development. The approach to consult teachers is mainly coordinated through leadership, heightening the hierarchical nature of power or different power axis that exists within an organization.

Summary

This chapter outlines three discourses that emerged from the analysis of the two policy documents. They are national development, curriculum, and teacher training and development. Across these discourses, the use of certain language cues such as “inexperienced” or “training” were strategic. Some of the suggested strategies support “in-service” training programs that allow teachers’ professional growth. Overall, there are no explicit statements on teacher participation. Yet the government views participation as relevant to national development, successful curriculum development and implementation, and meaningful teacher training. Furthermore, students’ needs are based on teacher capacity.

With reference to curriculum discourse, the policy texts translate into less emphasis on the involvement of teachers while more attention is on the syllabus document. The commission indicated that the syllabus was “crowded and attempts to cover too much ground, both in terms of the number of units and their composition”, and gave structure to the syllabus to provide a basic framework. All these tasks were centrally managed, limiting teacher involvement.

Another common feature within the policy texts is the generic approach to participation which is distinctively signified by the use of “all stakeholders”. According to these texts, consultation is used to imply participation of teachers, while its proposed coordination is earmarked for leadership.

CHAPTER 6

TEACHERS' EXPERIENCES OF PARTICIPATION

This chapter is comprised of the descriptive summaries of the main ideas and discourses found from the analysis of science teachers' interviews. The findings are presented in two sections. The first section presents the findings from the analysis of the college of education science teachers' interviews. The second section presents the findings from the primary and secondary school science teachers' interviews. The end of the chapter provides an opportunity to present the commonalities as well as discontinuities across all cases. The teachers' expressed views shed light on the discourse of participation and its practices.

This phase of the analysis also sought to identify contextual factors of participation at each institution. The dominant contextual factor that anticipates teacher participation seems to be student achievement as measured through examinations. From Foucauldian perspective, examinations are a technique of differentiating individuals and judging them (Rabinow, 1984).

The results suggest that teachers' understanding of participation is creative and flexible. Furthermore, it reflects participation framed as a strategy for policy implementation. The findings show how science teachers' experiences inform their

current understanding of participation, its practices, and how their views relate with the arguments raised in the reviewed literature on participation.

The findings demonstrated that there is no single unified discourse of participation among teachers. Instead, there are a number of commonalities reflected through different discourse contexts. By discourse context I mean situations in which the characteristics of the social, administrative arrangements are led and controlled by statements that interpret rules and procedures. The relevance of discourse context is its ability to situate social interactions, actions, and highlight the role of discourse in social reality (Heracleous, 2006). The findings are mirrored in studies that indicate that there are varied understandings and practices of participation that are communicated differently because they are embedded in multiple discourses (Lavié, 2006). Differences in understanding of participation depend on the “organization of the field of statements where they appeared and circulated” (Foucault, 1972, p. 56).

To illustrate some of the responses from the science teachers, I will draw on excerpts from the interviews with science teachers in a college of education, then science teachers in a primary school and secondary school. The following statements will illustrate how teacher participation was experienced by bringing out descriptions of participation as embedded in cultural forms that blur the boundaries between personal and professional, and at the same time stimulate interdependency and collective responsibility.

The findings also depict participation as a concept used in search of a “new professional” who is capable of getting involved in participatory practices within an ever-learning organization. In general, the findings show how discursive formations

nurture contextual factors both internal and external, and shape the way in which participation is understood and largely practiced in institutions. The findings from the interviews with key informants at school level and ministry officials in the Department of Curriculum Development and Evaluation are discussed in Chapter, 7.

College Teachers and Initiatives from Inception to Implementation

Most of the science teachers from the college of education described their involvement in implementation of new initiatives as remote. They claimed that participation is mostly for the “invited” few. Many talked about a “few” representatives of science teachers in decision making who were mostly senior teachers. According to many of the teachers, the description of the entire process of implementation is dependent on the ministry of education and school administration.

Ben was a secondary teacher before becoming a college lecturer, while his other colleagues taught at primary school before becoming college lecturers. He was responding to the question; *what is your experience in how science teachers are involved in science education in Botswana?* He gave a descriptive response:

I was teaching at [school A] for quite a number of years...one of the reforms in science that was **introduced** was course work assessment ...[it] was done to replace practical aspect of one of the papers...They thought instead of student writing that paper it should be replaced by this course work assessment. It’s a continuous assessment kind of initiative...I think it was hatched in the mid 90s but it started at [school A]. But it has since been introduced to the rest of the schools (Ben, L. 5-16).

Ben talked about his past experience in which he witnessed the introduction of an improvement to the existing program. According to him, the reform initiative “was introduced...to replace”, already a purpose for the reform was already decided upon.

This is illustrative of the externalities of idea formation as he directly indicated, "...they thought instead ...". His statement showed that he had an idea of the process, "it has since been introduced to the rest of the schools". However, he did state that he took part by being one of the trainers:

I have taken part in it and at one stage I was *called* to be one of the trainers one of the trainers for the other schools. That is those who have not started it (Ben, L. 18-20).

Ben talked about his "direct" involvement in the initiative as a trainer. It is worth noting that he was "*called* to be one of the trainers". His experience suggests that the idea of being a trainer was not intended from his part. There is no clarity as to who called him to take part as a trainer. What is known is that his previous school (school A) was "one of the schools" where course work assessment started.

The same teacher provided a detailed account of why he was assigned the task to train others:

... most of the time you are given this task because the authorities are sure that you are competent...also as a person you want to be involved because it's for the benefit of the students. It's for the benefit of the community in a way. It's mandatory that one has to participate (Ben, L. 60-64).

He stated that he was given this task because "the authorities are sure that [he is] competent". The element of authorities and their influence in decisions to assign a task partly suggest *who* called him to be a trainer. He further mentioned his personal interest as a driving force in his participation because "it's for the benefit of the students". At the same time, he gives the impression that he participated because "it's mandatory". His comment illustrates the blurred boundaries between the personal or self gaining and professional factors that are embedded within the cultural and teacher discourses that

exist and preexist in institutions. His observations are made alongside the norm practices of extending the reform as he states it; "...it has since been *introduced* to the rest of the schools..." (Ben, L. 14-16), and also that the students benefit is a motivating factor for his participation. Even though his involvement is motivated by the students' ultimate benefit, he also expresses the view that he participates because of "interest" in the organizations' prospects:

...you have to be willing. That is, if you are you have interest of the organization at heart there must be some willingness in you because if you are not willing that poses the problem of not seeing the organization growing. So if you are part of the organization my feeling is that you have to be willing to take part in whatever initiative is taking place. (Ben, L. 78-83)

His statement is structured such that it is in a third person position. Ben is not the centre. He sees participation as a notion that has to be based on an individuals' interest. Although in his earlier statement he indicated students' achievement as a motivating factor for his participation in an activity, this time motivation is personal and organizational. Personal is qualified by "...there must be some willingness in you because if you are not willing that poses the problem...", and the organizational aspect is addressed when he mentioned that "...if you are part of the organization...you have to be willing to take part...". In his statement, the growth of the organization depends on individuals' enthusiasm.

In the following segment of the interview he explains how his involvement has been led by "policy". At this point there is no internalized motivation, that is, his involvement or the implied involvement of other employees does not come as a result of "interest" as was the case in his earlier statement. This time, he interprets his involvement or that of other employees as externally influenced.

... there are situations where of course you do certain things because it's expected. As an employee you have to take part. Let me give you an example of a performance management system that is presently taking place in our institutions. There are certain things that we don't agree with. I don't agree with but because its policy that one has to be involved...one finds themselves doing that even though you might have certain views which you don't necessarily agree with (Ben, L. 88-95).

Ben still maintains a passive position "you"; it was only towards the end of the statement when he used an active voice "I". He clearly mentions that not everything that is introduced or an employee is ordered to do includes them as interested and agreeing partners. He points to a compromising position that is presented by "policy". In his view, the difference in opinion on an initiative is not likely to have a bearing on the reform (e.g. performance management) "because it's policy that one has to be involved...one finds themselves doing that even though you might have certain views which you don't necessarily agree with". He continued to emphasize policy and the expectation of the authorities.

In a lot of cases I would say the involvement of teachers is there to satisfy the expectation of maybe the employer or the institution. In a lot of cases but of course here and there you may find of course cases of management trying to solicit some views from the staff to improve the institution. But in a lot of cases I think things are done to satisfy the policy makers (Ben, L. 114-119).

Ben is making a situation analysis, though there are no specifications made. He talks about teachers' involvement as a way of satisfying authorities. Still, the interest of teachers is secondary.

He further expressed his views on policy driven involvement by making a comparison between teachers and administrators. He expressed his views when responding to the question of sameness or difference in understanding of participation between teachers and administrators:

My view is that we are doing it. At different levels they are doing it so that they can have things done according to how they perceive them. The way they should be done. My view is that policies when they are made so that at the end of the day they should be done in the school it's not necessarily that whatever you suggest here say you disagree with certain things those disagreements are going to make or block whatever initiatives administrators would want to put forward. Usually things are done or policies are effected from the top you may be informed of what is going to happen but usually decisions are already made (Ben, L. 130-139).

There is a clear difference between “we” and “they”, that is, teachers and administrators. The levels are different, there is top, where policies are formulated. There is difference in perception and view points between teachers and administrators. He indicates that “teachers” may be informed, with no mention of consideration of teachers’ views. What he is specific about is that decisions are already made.

Ben further extends his views on the difference between teachers and administrators with reference to policy by indicating that there are different players who influence policies:

...the involvement of politics in issues which usually relate to education sometimes they do have some negative effects. We are for instance looking at maybe involvement of students in school so that at the end of the day we have some graduates. But if you look at the way things are obtained now there has been a call for maybe students graduating from schools with maybe some life skills now. Because politicians are viewing have their own views we realize that students go through the system but at the end they leave the school without anything without any life skills to put to their better use. Now that is a negative result of involvement of politics in education. I would say that's one of the problems now we have many students who complete their form five the government is trying o appease the electorate. We are not sure of what importance or their relevance because of that. I can foresee students are going to complete their courses. Many of them will be frustrated when now times comes to start looking for employment and so on and these things I attribute to involvement of maybe politics(...)policies which are made because of the involvement of you know political decisions (Ben, L. 149-167).

There is a switching of point of reference from “we” to “I”. He presents his observation of the education system in a more passive voice than active. He talks about political influence. He started off by talking about the negative effects of politics in education, which according to him result in quantity than quality of graduates. In his view, political decisions influence policies, but not in a good way. There is the involvement of politicians because he talks about the government appeasing “electorates”.

Another teacher from the same institution, Macy, described how they, as college science teachers developed or improved their own syllabus. She talked about “their” involvement which is motivated by the idea of approval by a different body outside the college:

...in colleges we are involved in making our own syllabus and improving [it]...right now we have been trying to improve our content so that we can be approved by CCC. So they have to look at the syllabus and approve it. Whether the content of the syllabus is ok or not they have to look at the syllabus (Macy, L. 258-263).

Macy qualified her explanation for college teachers’ involvement with a reason: “so that we can be approved by CCC”. Most importantly, Macy preferred using inclusive phrases such as “we are involved”, “we have been trying to improve” and “they have to look at the syllabuses”. Pronouns such as “we” denote collectiveness while “they” is an excluding reference.

The description of involvement in syllabus development was followed by brief details of the purpose of subject panels at college level:

We meet as panels at college level. We are given respective areas to work on...in this college this year we were to work on earth science and see how we can improve the contents of the syllabus as regard to what we are teaching in earth science. Certain colleges are given certain areas to work on and then we look at

the syllabus individually and then come together and decide on the improvement that we can make on the syllabus (Macy, L. 268-274).

The same teacher continued to expand on involvement in the development of the college syllabus. She emphasized the improvement of the syllabus content. But note that the work they engage in as colleges is “given” to them to work on. She followed by giving a detailed description of how syllabus components are assigned to each college for improvement. The exercise of syllabus improvement gives them (as individuals and as a team) the opportunity to make decisions to the changes in the syllabus “we look at the syllabus individually and then come together and decide on the improvements”. She continued using inclusive subjective pronouns such as “we”, to suggest collectiveness: “we” is used seven times in a seven line segment.

Another college science teacher, Rodney, described his involvement in reforms as collective. He started by giving an example of a program (Teacher Education), something different from his colleagues:

...if you take teacher education for example it has evolved from certificate to diploma level and I am not very sure but I am made to understand that very soon around NDP 10 maybe there will be a move into degree programs. This calls for reforms in the curriculum because it has to match the standard of teachers that we want to produce. It has to be reflective of what we aspire to achieve as a nation so the curriculum reforms that are really emerging relates to issues of how best to offer science. They relate to methodology which is the best to offer science. They relate to content what type of content should these people receive so that in turn they are functional when they join the teaching force (Rodney, L. 4-15)

Rodney also used the word “we” when describing his involvement in reform initiatives, though he earlier used an active voice “I”. According to his description of involvement it was not a solo activity. Rodney displays his knowledge of the education system. His

description of the expected curriculum reforms shows him as someone knowledgeable on matters of education policy, even though he indicated that “he was made to understand...”. There is depth of knowledge displayed as he talks about degree programs and anticipated reforms in the curriculum. Apart from the collective representation in his statement, he goes on to show that his understanding of reforms is guided by national goals. In the second part of his statement, the description of participation was compelling “we have to be responsive...” and “we have to look into...”. Again, Rodney’s description of his involvement is not only trying to express collectiveness, it is also particularistic:

At our level I would say we are basically following what the nation intends to achieve. You see, we have to be responsive to the needs of the society and whenever new issues arise we have to respond to that. So, in the case of colleges of education we look into what is offered in primary schools and try to develop our curriculum such that uh.m it addresses what is going on in primary schools... (Rodney, L. 44-49).

Interestingly, Rodney indicated that they (implying teachers) follow the aims of education as set in the policy documents (these are goals to be achieved to meet the needs of the society). From what he stated, there is not much initiative on the part of teachers. Instead they basically follow what the intentions of the national education entails, in order to be responsive. He hinted that as they respond, they ensure that the college and primary school curriculums correspond.

Rodney described how subject panels are used as forums where teachers take part in developing school curriculum, idea formation and sharing:

At our level its panels...we have science panel that is meant to direct the activities taking place in colleges of education. Well it has a range of people from different sectors. We have college lecturers, primary, and secondary. We have representation from the department of curriculum development and

evaluation representation from vocational colleges just to mention a few. There is a wide spectrum of people involved (Rodney, L. 52- 58).

According to Rodney, there are subject panels, such as the science panel, whose task is to “direct” teachers in curriculum development. According to his description of science panels, “they are meant to direct the activities in colleges of education” suggesting possible ways of compromising teacher participation. The word “direct” is consistent with his earlier statement where he indicated that they “follow” the intentions of the education system. He described the structure of the science panel, and some of the reasons for the science panel to work with the supervisory department in the ministry of education because “it is the one that is financing the activities of the panels so that they work effectively at panel level”:

...this panel has a chairperson the secretary and additional members and they are both selected or elected from among colleges of education lecturers. In most cases these panels are headed by heads of departments and then during the planning period we keep in touch with the department of teacher training and development. That happens to be the supervisory department. All I am saying is it is the one that is financing the activities of the panels so that they work effectively. At panel level we sometimes get a memo requesting for agenda items, even though when we get to these panels meetings you will find that some of the items have been removed but at least we get the opportunity. With ministry they draw the plan they want us to know something they think is important. You know they know the policy better than us because they work with policies than us teachers. At the same time we know what needs to be improved in our science program (Rodney, L. 61-75).

It is perhaps not surprising that Rodney talks about memos requesting agenda items because according to earlier descriptions of the science panel, it is structured and responsibilities are assigned to different people. Therefore, in terms of normalized practices that prevail in structured institutions, hierarchy is the norm and so it is followed. In other words there are rules and procedures that are used to control and to

govern institutional practices. A significant comment is the omission of some of the items or issues to be discussed by the ministry because “they draw the plan”. He stated that the ministry draws the plans because “they want us to know something they think is better...”. He noted, with conviction that this is mainly because the “ministry” thinks they know the policy better than them (teachers), and yet they are not involving teachers who have ideas on what to improve in the curriculum.

His response prompted a question that explored further his participation: Have you been invited to workshops? He responded by indicating that not all science teachers have had the opportunity to attend workshops:

Yes even though not all of us had a chance some of us have been invited more than once. ...sometimes you find that some workshops are not relevant to what we want to do in the college. Then you question. But you know they introduce new topic to include in our teaching or projects and we have to take part so that you can come and train your colleagues because at the end it is about the students they have to benefit and achieve better results in science (Rodney, L. 137-144).

Still Rodney has not mentioned teachers but rather, he has maintained the pluralistic approach in his reporting. Indications are that the unbalanced opportunities for teacher involvement result in some views (possibly of teachers) that “some workshops are not relevant”. Despite workshops being described as irrelevant, “they introduce new topic to include in our teaching”. There is less consideration of teachers’ position with regard to the value of the workshop. Instead, achieving unspecified goals intended by the authorities is still a dominating factor. The description Rodney gave indicated that they have to take part only “to come and train” their colleagues. Though “their” taking part is externally motivated, there are still some compelling reasons for being involved

directed towards students, e.g., “at the end it is about the students they have to benefit and achieve better results in science” (Rodney, L. 144).

Summary

College science teachers are mostly experienced teachers who have taught either at primary or secondary school levels or both before becoming college science teachers. All the interviewees had more than 10 years of teaching experience. This experience was reflected upon throughout their interview responses. Some of the interviewed science teachers made comparisons between the current institution and the previous one. They were also able to draw an in-depth understanding of teachers’ views of participation compared to that of administrators. For teachers, participation is about quality results, while for administrators it is more of quantity than quality. They remarked upon the political influence in decisions.

The college teachers identified two motivating factors for their involvement. They are personal interest and organizational interest. They also indicated that involvement is policy driven. Their statements showed some depth of knowledge or awareness on issues of education policy.

Throughout the descriptions of their understanding of participation and how it was practiced, they explicitly indicated that teacher participation at the start of an initiative was minimal. Teacher participation was largely dependent on the discretion of the authorities. Even in cases where they had an opportunity to participate, such as at science panel level, their decisions were to be assessed and accepted by supervisory department(s). The techniques of involving teachers in an initiative were described as

more external than internal. The externalities were shown through the use of terms and expressions such as “whenever new issues arise [from elsewhere] we have to respond”. They had to be “called” and “wait to be called to attend”, in order to respond, they indicated that they had to be “given” tasks to engage in. In instances when participants tried to situate themselves in the reform process, or define their role once reform initiatives are implemented, most of them used subjective pronouns such as “we” to denote collectiveness. The use of “we” is not only collective it is also particularistic. The participants particularly used “we” to describe their role and presence in tasks where they were engaged as a group, such as the development of a syllabus and its improvement.

Primary and Secondary School Teachers and the Inception of Initiatives to Implementation

At the time of interviewing primary school teachers, only two teachers were available. They indicated that they were responsible for coordinating science in their school. Science coordination was a new reform and so these teachers mentioned that they were not yet familiar with it. From these two teachers who agreed to be interviewed, only one agreed to be audio taped, while the other one declined. In the following presentation, the reported statements are excerpts taken from the teacher who was audio taped.

The interviewed teacher had one year of experience. The school he was based at was the first school in his teaching career. Nevertheless, he shared his views on the concept of participation. This is what he says:

Involvement I think is when someone takes a part whatever you are doing sharing ideas with others commenting and asking questions...teachers meet and discuss something that you want to use in your class to help your students (Lisa, L, 86-88).

According to his statement, participation is underscored by idea sharing and interaction.

He explains participation as a purposeful practice. That is, an individual teacher takes part to improve his or her pedagogical practices. He continued:

I think participation can be inside the school and outside. As far as I can remember I don't think we have participated much outside the school. Our participation is only in teaching. I don't think there is anything much that we have done...I take part in helping my students a lot...outside is only the science fares. Of course yes fares they do invite us outside to go and participate (Lisa, L, 15-31).

First, he explained his understanding of participation in terms of location: inside and outside the institution. According to his recollection, there is not much participation inside the institutions on issues pertaining to science education and little is noted of teacher involvement outside the institution. Another dimension emphasised is that participation is selective, teachers are invited. There is no specificity as to "who" invites teachers, what is clear is that the teacher has no contribution in the selection of participants because "they do invite us".

As for the secondary school science teachers' interviews, their teaching experience ranged between four and eleven years. During those years, some of the teachers have worked in more than two schools. This is not due to a change of employers but rather is a result of the transfer policy that Botswana education system uses. According to the teachers, the movement from one school to another enriched their experiences. Some of the secondary school science teachers were able to draw

from participation they experienced at previous schools and made comparisons between what transpired in their previous work place(s) and the current experience.

Secondary science teachers' responses were different from those of college science teachers because of their different work experiences under different conditions. Nevertheless, there were some prevalent statements and language that formed patterns throughout the interviews. Such language or expressions included statements about the integration of new topics or how initiatives were first introduced, with an expectation from the part of administrators that teachers were to implement them. Another pattern that weaved through the secondary school teachers' statements was the absence of examination of how initiatives were introduced to try and see if there was an element of teacher participation. Throughout the group interview, some of the teachers were brief while some were detailed in describing how initiatives are "introduced" and later implemented in their daily teaching.

Pam started by saying that "...they *introduced* something called course work a few years ago it has been piloted in some schools and our schools happens to be one of those..." (Pam, L. 36-37). Pam talked about introduction of "course work" into the school curriculum. She was not specific as to who introduced the initiative, instead she used a passive voice "they" to refer to those who introduced the initiative.

In her next remarks, Pam's view of the introduced initiatives is reserved due to the disorganized way of administering the reforms:

...if it's done right and administered right...it would have good consequences...the way it's been done currently is not organized nobody seems to know what it entails or how it is supposed to be examined (Pam, L. 68-72).

This is a follow up to a statement she made earlier on the introduction of course work. Clear reference is made to the administration of the “so called course work”. Although she did not detail ways in which the initiative is currently administered, she instead used the words “right” and “good” both in one sentence to reflect the administration approach. The use of these terms signifies the dominance of administrative discourse. To make a comprehensive observation, it is important to note the first part of the statement “...if it’s done right and administered right...”. From her point of view, there are best practices, denoted by the word “right”. Lack of knowledge of the reform is shown by the statement that “...nobody seems to know what it entails and how it is supposed to be examined”. However, the statement has multiple functions. What I mean is that she is able to offer critique and feedback. The teacher offered a critical assessment of the initiative “...if it’s done right and administered right” (critique), followed by feedback “...it would have good consequences”. In spite of the discursive institutional practices, the emphasis is on “good” practices for “good” results.

She continued by giving a brief description of the process of how the initiative started from being introduced to one school and later “piloted in some [other] schools”.

A further significant description of the process indicated that course work “start[ed] as a pilot”. In her description of piloting, more phrases showed an element of external origins and none suggested involvement of teachers: “it was said that it started with five schools”. She also recollected earlier thoughts about the initiative:

Some of the things you know they will start as a pilot...and then from there they are never reviewed properly. I think as far as I can remember when we started this issue of course work it was said that it started with five schools no three schools and then from there it was said it was just a pilot project. I remember after sometime they said we should learn to cope with this course work because

it has been extended to other schools. But if you ask have you reviewed? Have you got the ideas from those who are doing it? (Pam, L.116-129).

Pam highlights piloting as a strategic approach used by administrators, marked by a lack of reviewing. She mentioned more than once the prescriptive approach used when the initiative was being piloted: “it was said that...”; “it was said it was just a pilot project”; and “they said”. This is a clear indication that course work assessment was externally designed. One other compounding problem that exemplified the externalities of program design was its lack of review from the teachers’ point of view. The comment that “they are never reviewed” suggested that Pam struggled to understand how the course work pilot was extended with no review or feedback from teachers who were implementing the initiative.

The introduction of course work was not only observed by Pam: other secondary science teachers made similar observations. In the following extract, Cameron provided a detailed description of the purpose of course. In his view, piloting was used as a mechanism to introduce the “new” initiative:

...there has been a number of reforms that have been tried out ... like in the sciences there is more of a need to push more towards say I think practical base than what has been just more academic based. Then in that field we have seen **introduction** of course work where students are being assessed on continual bases rather than writing or sitting for a particular exam at the end. But rather they are assessed on continual base throughout the whole year then the marks contribute to the final mark at the end of their course. In that particular field there has been quite a number of workshops. It was piloted 2002 or 2001 I am not quite sure of the date. Then as a result we were taken through a rigorous training to pilot the exercise and now as I speak it has been rolled out. It started with 3 schools and now it has been rolled out to 15 schools (Cameron, L. 4-17).

In his description of the introduction of course work, he reported his involvement as distant and also in pluralistic terms - “we” is used differently here. He included himself as a participant who has had an opportunity to observe or be present at a time when

course work was introduced. This scenario might have given him the opportunity to understand the process and underlying intentions of introducing course work in secondary schools. He described fully course work and how it is used as an assessment tool. Teacher involvement is implied when he stated that “[they] were taken through a rigorous training to pilot the exercise”. This statement also suggests that training was an externally motivated program because they were taken through it. There is no indication of teacher initiative or input in the entire process of introducing, piloting and rolling out course work.

His response teased out questions of who designed course work and also the extent to which teachers were involved in decisions leading to piloting of course work.

The respondent was not hesitant to respond:

If you look at the...I mean we are operating under the Exams council. I think their curriculum is being accredited by the University of Cambridge so one way or the other they must operate or do things that are seen in line with the UC... What I am saying I think it was more less the package that comes from Cambridge that students must do course work. We didn't say well we didn't have much input that's what has been done in the UK. That's what I am made to understand. So we went through some workshops so that we can do the piloting of it. I think that one particular thing that comes to mind and then another I have been an examiner. I started teaching in 2000. After year service I was trained then I did well maybe then I went...after a year I marked again. The second time as an examiner again then the third year I was sent to item writing where I was taught to set exam question which I have done before after training. I was able to undertake the job of setting exam questions after I was made a team leader so I was doing some training to become (surest) other examiners I think that's what comes to mind (Cameron, L. 20-36).

First, Cameron gave a contextual and structural analysis of the examination process. It is not surprising that he brings up the examination structure to explain the context under which his school operates because “one way or the other they must operate or do things that are seen in line with the UC ... and also that [he] think[s] it was more less the

package that comes from Cambridge that students must do course work ...”. The external motivation or influence on the formation of course work is clearly indicated by his contention that “[they] didn’t have much input”, and that “[he] was made to understand”. Further confirmations of the external nature of idea formation for course work assessment and the matrix of implementing it are provided by Cameron’s statements that show him as a follower rather than a leader, such as “I was trained”; “I was sent”, “I was taught” “I was made a team leader”.

Another secondary science teacher, Lula, responded slightly different to the same question that Camron answered earlier. In his comments, he highlighted the challenges of time schedules due to the externally driven initiatives. This teacher commented on the newly introduced course work by making reference to its length and lack of resources. His point of reference for the participants is exclusively illustrated by words such as “they have”:

...I think it’s too long there is this new concept which is coming. It is congested then no job material now. They have incorporated what is called course work assessment which is supposed to run throughout the year then you plan your schedule such that within the teaching period you have to organize how you fit it in. And then is something that is going to be part of the results for the students and then maybe to some extent I just feel that at times it takes a lot of time and then if we have limited time for completion of the syllabus then we end up having problems. Sometimes we end up completing the syllabus for the sake of completing not necessarily meeting the needs of the students. And then another thing I think err there has been complaint (.) from both students and teachers that because this is **categorized** into pure science and then combined which is the science double award and the singular award. Then there was a complaint by former student that they have done science singular but it’s useless. You can’t go and do health sciences using the results of science singular award so it was like kind of difficult but it was I would say use the word useless even though I feel ^^ it was difficult for the science singular award to cope with it. But at the end of the day even if they get a good grade they can’t use it to continue with science. So we felt that it does not benefit the students anyhow. In the past we have been trying to talk with different institutions. Why can’t they consider it if

the student had a very good grade in it then...its only one third of the syllabus so it's very limited (Lula, L. 51-81).

First, Lula noted a number of limitations – time and congestion of the course material – which according to him come as a result of the “incorporation” of course work. It is worth noting his position when he talks about his experiences, i.e., his use of “I” to express his views on the categorized science components. In other parts of the statement, he reported his experiences in inclusive terms when he talks about group action. For example, “if *we* have limited time for completion of the syllabus then *we* end up having problems sometimes *we* end up completing the syllabus for the sake of completing not necessarily meeting the needs of the students”. His reporting is in pluralistic terms: he has positioned himself as part of the group to shed light on participants’ actions and described teacher-led strategies to mitigate the challenges. For example, “you plan your schedule...you have to organize how you fit it in”. The description of the science program is punctuated with complaints from both students and teachers that “they have done science singular but it’s useless” and that “they can’t go and do health science using the results of science singular”. This suggests a lack of involvement of teachers from the point when the science program was *categorized* into singular and double awards.

Other secondary science teachers express their concerns about how newly developed initiatives are integrated into the existing science program. In the following segment, Pam was critical of the process used to involve teachers in the implementation of course work:

...it starts with senior teachers around here like we have senior teacher chemistry biology physics...If they feel there is something they want to workshop us on

they do get to have those workshops internally...But externally you would expect let's say two or three people from the ministry once in a while such things like external marking they resource us. But sometimes they don't do that often I have been teaching for five years and I only got trained this year. Imagine I have been teaching for all these five years without any training...you find that you have been teaching for five years you have no idea what standards are being used for exams but you are expected to teach students for that standard and there are workshops for item writing and you are supposed to be given skills...we don't have the skills...They introduced something called course work a few years ago it has been piloting in some school and our schools happens to be one of those unfortunately...we were expected to actually run that course work but we did not know what we were expected to do (Pam, L. 13-40).

Pam described the process of including teachers at a point where they are expected to implement course work. She repeatedly referred to the administration as "they" and what they do for teachers "if they feel there is something they want to workshop us on". She commented on the training she got after having taught for five years and showed her disapproval of the training plan, by stating that as a teacher she finds it frustrating when "you find that you have been teaching for five years you have no idea what standards are being used for exams but you are expected to teach students for that standard". These comments suggest Pam doubts the approach used for inviting them for workshops, providing them with skills, and ultimately the expectation that they should run the introduced course work: and yet they did not know what they were expected to do.

Despite her disapproval of the approach used for involving teachers, she welcomes the current changes of "introducing" course work, still with a caveat:

...if it's done right and administered right...it would have good consequences...the way it's been done currently is not organized nobody seems to know what it entails or how it is supposed to be examined (Pam, L. 68-72).

She talked about the administration of the initiative, even though she did not detail ways in which the initiative is currently administered. Pam noted that there

improvement was needed in the “administration” of course work by emphasizing the words “right”, used twice in one line, complemented with “good consequences”. She felt that the current practices are not organized.

Her statement is framed in a way that reflects the root of the “difficulties” she mentioned earlier: there is a part of the system that is responsible for the entire development of the initiative in question. This is carefully illustrated by her explanation of the experiences which give a picture that nobody seems to know what [the course] entails. The statement has multiple functions – it offered a critique and feedback. The teacher offered a critical assessment of the initiative: “...if it’s done right and administered right” (critique), followed by feedback “...it would have good consequences” (feedback). The emphasis is on “good” practices for “good” results.

The process of analysis uncovered two main sets of expressions “to introduce” and “to pilot”. These two expressions appear to be synonymous. Thus, when an initiative is introduced with the intention of getting it into the program, at the same time the benchmarks are set to measure its success on a trial basis as piloting, later extended to other institutions. In the meantime, teachers’ comments suggest that the discourse of introduction is normative practice. Introducing in the form of piloting or “trialing” is framed from the understanding that teachers will participate in the implementation of the reform to fulfill the intended education policy goals.

Discussion

This chapter presented the findings of the analysis of the participatory strategies and mechanisms used in the implementation of educational reform initiatives as experienced

by science teachers in the primary school, secondary school and the college of education. According to Foucault, the strategies are used as “the means employed to attain a certain end” (Rabinow & Rose, 2003. p. 142). Therefore, both the interviewed science teachers and the “implied” policy makers were evidently employing strategies for the successful implementation of the introduced initiative. However, most of the strategies used by teachers were “self-determined” and “self-engaging”, and also compliant in nature. They were embedded in institutional and administrative discourses. For example, “... most of the time you are given this task because the authorities are sure that you are competent...also as a person you want to be involved because it’s for the benefit of the students it’s for the benefit of the community in a way its mandatory that one has to participate” (Ben, L. 60-64).

Throughout the statements, I was able to identify ways of getting reforms into school or college without necessarily ensuring teacher input or involvement. For example some of the teachers indicated that “one of the reforms in science that was *introduced* was course work assessment ... [it] was done to replace practical aspect of one of the papers...they thought instead of student writing that paper it should be replaced by this course work assessment” (Ben).

The identified discourse “to introduce” was contradicted as excluding, primarily because there was no clear indication of teacher involvement in the early stages of the reform initiative. There is no mention of teachers leading the “introduction phase”, instead it is a phase reflected through the use of persuasive language: “they introduced something called course work...” (Ben); “it was said that it started...” (Ben); “we didn’t have much input...” (Cameron); “we have seen introduction of course work...”

(Cameron); and “they introduce new topic to include in our teaching...” (Rodney). At the same time, some teachers appeared to be aware of their role in the power matrices where power was gradually invading: “now they have incorporated what is called course work assessment...then you (teachers) plan your schedule such that within the teaching period you have to organize how you fit it in”. According to (Rabinow, 1984), the invading powers alter their mechanisms and impose their procedures.

It was evident from a number of teachers’ statements that the newly introduced initiatives were “handed down” to teachers through mechanisms that have become institutional norms and practices. In such instances, the conclusions suggest that once teachers implement the introduced initiative, it becomes a normalized institutional practice (Rabinow & Rose, 2003). Lack of knowledge of the ministry’s intentions prevailed among the interviewed teachers.

The overall assumption of the common use of the systematic mechanisms and strategies, such as “to introduce” and “to pilot,” is that they are understood as administrative technical discourses and relegate teachers to conform to “coerced” participation. Discourse analysis reveals that participatory language and discursive practices limit the involvement of teachers from the early stages of the program, therefore narrowing the possibility of introducing initiatives that are owned by teachers.

Summary

During the interviews, teachers from primary, secondary, and college of education described how initiatives “find their way into existing science program”. These are mostly initiatives developed during the time when the implementation of the

current curriculum is underway. In this chapter, the findings illustrate how formulated education policies, which are aimed at improving science in Botswana schools, are interpreted through teachers' discourse. The results describe teachers' understanding of participation in relation to their experiences. Their descriptions responded to the research question that explored teachers' understanding of participation explained through their experiences. They also reflected the administrative practices that are externally motivated, persuasive, and played on a power base that "discipline the mind" (Foucault, 1980). The administrative discourse is technical in the sense that it employs "power" strategies which according to Foucault are "the means put into operation to implement power effectively and to maintain it" (Rabinow & Rose, 2003, p.142).

Participants described numerous ways of how "newly introduced" initiatives become part of the existing programs and further reported their participation through the use of expressions that translate into teachers' participation. They described how the administration, micro or macro, "introduces" new initiatives, mainly through "piloting". Some of the teachers noted some challenges as they tried to find "better" ways of incorporating newly introduced initiatives and take part in implementing them. However, teacher participation is practiced within specific institutional arrangements. These institutional arrangements, such as training workshops, coupled with mechanisms used to introduce reform initiatives, such as piloting, created challenges for teachers to successfully implement reform initiatives. The challenges included time, lack of feedback, and exclusion from the decision making process. In their explanations of how these challenges impacted on their participation, some science teachers also established ways of mitigating such challenges. They reported contextual factors such as a goal

oriented discourse field and the obligatory nature of the mechanisms used to involve them where they still “have to” incorporate the introduced initiative(s) to fulfill one of the overall goals of the national education policy “to emphasise science and technology in the education system” (RNPE, 1994, p. 4). In such instances, Foucault would argue that these rules or procedures to be followed by teachers are disciplinary practices that connect with political and economic contexts (Rabinow, 1984).

CHAPTER 7**THE CENTRALITY OF DISCOURSE: KEY INFORMANTS' RESPONSES**

In this chapter, I focus on the interviews with key informants. The findings show the predominance of some discourses over others and suggest that secondary school and college teachers' descriptions of their involvement in reform initiatives were shaped by administrative discourses which, by and large, define institutional practices. Management frequently used terms such as "invite" and "select" when describing ways of involving teachers in the implementation process. From a Foucauldian perspective, management is seen as a surveillance discipline, according to which there is an open and an obscured system of assessment of individuals (Rabinow & Rose, 2003). In other words, the selection or invitation of teachers *can* present a concealed form of assessment because there is no mention of rationally defined procedures of who is selected and/or invited or what happens when satisfaction or no satisfaction of the results is achieved. Therefore, Foucault warns that administrative discourse creates and imposes disciplinary power over and above the action of the individual (Anderson & Grinberg, 1998).

Key informants who are part of management, both from secondary schools, the college of education, and the Department of Curriculum Development and Evaluation gave extensive descriptions of their involvement in implementation of reform initiatives, using words and phrases embedded within administrative discourses. In general, the key informants recounted their experiences with regard to management

invitation procedures. The different respondents provided rich description of their own involvement or interaction with teachers and of how teachers were tied into the implementation process of reform initiatives.

The manner in which the findings are presented shows how key informants' experiences inform their current understanding of participation, its practices, and how their views relate with the arguments raised in the reviewed literature on participation.

Department of Curriculum Development and Evaluation

Key informants are part of management in their respective institutions. Their degree of participation in decision making tends to differ from that of teachers as reflected through some of the statements they made. In the excerpts drawn from key informants' from DCDE statements, of which the examples will follow, there is a common denominator of decisions being centrally made: there is a clear and a common practice that the ministry of education spearheads the decisions. There is a common use of the collective pronouns "we" and "them" which translates into two levels of decision making and participation. For example, Bob recalled his experience of how the department (DCDE) involved teachers:

...we at the department involve stakeholders like mostly all the divisions of the ministry of education because at the department we don't have teachers...If we have to use teachers in the departments that work directly with teachers...help us out so we would ask for ...We would constitute task forces and panels and in doing so we would request for teachers from secondary department and they would submit a list of teachers...we would just ask for individuals (Bob, L. 59-65).

The use of "we" is prevalent (it is used seven times in the segment), suggesting a collective approach on the part of management in how teachers are involved. Through

management discourse, science teachers' role in curriculum matters is acknowledged. They are invited through requests made to other departments: "we would request for teachers from secondary department and they would submit a list of teachers to constitute task forces and panels". Even though this is the case, the overall participation of practitioners is superficial. For example, "... if we have to use teachers..." and "...we would just ask for individuals...". To add to the superficiality of selection, the respondent mentioned that other departments "help them out". There is no reflection of teacher input in the entire selection exercise. Teachers are needed only at certain phases of the initiative, such as the constituting of task forces and panels. Again, the use of expressions such as "submit a list of teachers..." and "...just ask for individuals..." represent teachers as objects, and also as instruments of power. Bob described the interrelation between departments where there is no mention of teacher input in the entire exercise of "listing" or even "submitting" of teachers' names.

The same key informant continued to describe the process of "bringing" teachers in to take part in the development of science curriculum:

It's not necessarily like that...we would say we are developing a science curriculum and we would like to have teachers of science. If it is biology who have expertise in biology and sometimes we have never put experience...we need an expert in the field and then when we have enough because we can even give them the number...we try to make sure that practitioners in the field are more than half the membership...Say we need twenty people we would upon invitation request for ten or more teachers and the rest would be coming from different divisions and that is how we try to involve teachers (Bob, L. 70-76; 81-85).

Bob provided a collective approach in his description of how teachers are invited to be part of the curriculum development team by including himself as part of those who request for teacher participation. They collectively make decisions as to who they want

in the entire exercise of curriculum development. In this case “we would say we are” signifies collectiveness from the part of DCDE. He described how “they” ensured representation of teachers. He indicated that they were in control of the process because they can even give “them the number”. They were clearly requesting the number of teachers without indications of input from schools’ administration and teachers in particular. It was interesting to note that representation and expertise were key elements for involvement. As he explained, “we need an expert in the field” and “we try to make sure that practitioners in the field are more than half the membership”. At the same time, the “need” is central: teachers’ needs are not featured, it is only the ministry administrators who qualify their need(s) and employ mechanisms to ensure that some aspects of participation such as representation are addressed. While he elaborated extensively on how the invitation to reform making works, he recounted how disappointed he felt when other departments which he referred to as “sister” departments did not respond accordingly:

We have never evaluated that is why I am saying the departments for individuals are to blame even if they did not perform we will probably keep on extending an invitation. Sometimes teachers are invited to a weeklong reform initiative...they will not attend or attend the first one...and then the rest they will not attend but we have never gone further to tell their superiors...we have never really gone back to their employers to say this is the situation but when the numbers dwindle and they tend to drive you to none performance... (Bob, L. 177 188).

While he elaborated on the extensive invitation process, he expressed disappointment with the invitation exercise: “we never evaluated...the departments for individuals are to blame”. He gave a full account of the impact of lack of evaluation, “even if they did not perform we will probably keep on extending an invitation”, and of the consequences, “but when the numbers dwindle and they tend to drive you to none performance...”. The

respondent seems to deflect criticism by directing blame to other departments' personnel.

Coming to the way teachers respond to invitations, note the frequent use of the word "attend", rather than "participate". For example, sometime they attend the first part of the session(s) they are invited to and "the rest they will not attend". From what he says, a lack of correspondence with participants' immediate supervisors contributed significantly to teachers' non-performance: "we have never really gone back to their employers...". These and other comments suggest that attendance relates with performance, even though not much elaboration was provided on what happens once teachers attend workshops. He further explained what the concept of participation is or understood by administrators:

...involvement is very difficult to satisfy when we get teachers and different people into the task force. We are doing that in the spirit of involving...when we go out after developing the program to consult...we are doing that as a way of involvement...So people sometimes when the program is developed they simply focus and say there wasn't much involvement (Bob, L. 250-255).

From what Bob is saying, to consult is to involve. It is the administrators who "go out after the development of the program to consult". What is made clear is that consultation is done after the program is developed. There is no mention of teacher involvement. It is not clear as to who is consulted and on what aspects of the program.

Another key informant in the same department made a critical point regarding the process used by the ministry in selecting teachers:

In our case it sometimes frustrates me when I see teachers sent to workshops without information of what is expected of them. They try you know and make sure that when they leave they have accomplished what the ministry wants (Lucas, L. 16-18).

The respondent also expressed disappointment leveled at the ministry of education. He talked about lack of information prior to workshops and that despite this lack of information, teachers continue to show their keenness during workshop attendance. According to what he said, teachers “try” to ensure that the goals set by the ministry of education are met.

According to this informant, the central ministry has a large stake in controlling what goes on in improving science programs in schools:

...there are times when you can see that teachers are not interested especially...I don't know if they see that they isn't much change they can make. They always want to take part but we do not use their knowledge. I think the authorities think they know everything. You know this reminds me when I was still teaching we always wished the ministry will allow us to design our own curriculum because the one they wanted us to use was too loaded...even now it is loaded it is difficult to know if teachers are doing very well when they are here. They simply listen they don't contribute much...I would like to belief that if they are given a chance to contribute and see how the points they are making are used they will be more interested (Lucas, L. 64-72).

The respondent started by pointing that teachers' interest diminishes once they realize that their contributions are not used. He has drawn a distinct line between them as ministry administrators and teachers. It was clear in what he said that teachers had different expectations from those of the ministry of education. This is shown in the example he used when he included himself as one of the teachers, using “us” to describe his position and expectations during his teaching career. In his experiences while teaching, he mentioned that there were no significant changes with the entire process of involving teachers. It is most likely that the lack of changes is responsible for diminished teacher interest. According to his conviction, interest depends on availability of opportunities for teachers to be part of decision makers in program development.

In responding to some of the questions that sought to explore the strength of a link between administrators and teachers during the entire process of program design and implementation, this is what he said:

...you know administrators do not expect teachers to ask many questions. We have a syllabus to be finished. The administrators at different schools know that they have to have a high pass rate at the end of the year. So teachers are made aware of that as well. They know they have students who expect teachers help any time so we expect teachers to work hard to produce good results...but I don't think we are fair to the teachers. I know I did not like to be pushed by the principal always telling me that students from previous years did not do well and I was expected to make a change. This put a lot a lot of pressure. Sometimes I used to think that maybe the school was not interested in my contributions but you know what after I got this position I now realize how difficult it is for administrators in schools to satisfy teachers. They have to answer to the ministry so they choose some people to attend workshops because they know they will listen and make changes (Lucas, L. 103-120)

He indicates that teachers are “expected” not to ask questions, to help or meet student academic needs, and to work hard to produce good results. It is clear that once there is an element of teachers being expected to deliver, there is pressure. According to Lucas, he did not like to be put under pressure and so he thinks the current teachers he was working with want to be pressured. He mentioned that the school heads contribute to the pressure placed on teachers and regrets the situation.

School Administrators' Responses

School administrators also commented on the understanding of participation between practitioners and policy makers. The interviews sought to establish how teacher participation is ensured and to explore any mechanism used to involve science teachers in implementation of educational reform initiative. On the question of teachers being invited to attend workshops on the improvement of science education, key informants

from the college of education and the secondary school provided a detailed description of how teachers are involved.

Betsy gives a description of the process used to invite teachers to attend workshops. The process applies to all science teachers, whether they are part of management or teaching staff. The initiatives that she got involved in were numerous, and in her account, management is responsible for selecting, inviting science teachers, and ensuring that they become part of the reform. For example:

...invitations go through management and as such management will decide whether to *call* you to that meeting or to *send* you to represent them or not depending on whatever judgment they make... (Betsy, L. 13-15).

“To call” or “to send” are two distinct actions taken by management and they reflect how participation is controlled. This is immediately followed by the use of the word “represent”. It is clear that the “called” or “sent” individual is not only attending but also has to ensure that s/he represents “them”, meaning management or the institution. From the way the respondent explains different mechanisms of involving teachers, it now becomes logical that the participant is called, sent with the intention that they represent the institution. The decision to call or send is hierarchical, and so is the power relation between management and teachers that are being “called” to take part in meetings.

She reiterated the exceptional role played by local management. She offers a useful insight into the nature of participation discourse and the reason why teachers fall outside these discursive selection approaches:

...one meeting I have been representing in this college...the meeting is called by the university of Botswana whereby they...inviting all the colleges or institutions, colleges of education including nursing colleges and agriculture to a meeting...They want to integrate HIV/AIDS into the science curriculum...so we

were trained to come and train other teachers as to how to integrate HIV/AIDS across our science syllabus meaning that biology physics chemistry environmental science and any component of science...We were called to that meeting and trained so that we can come back and train our colleagues. Here we were called to another meeting because from that meeting we were expected to do something...and we were invited to another meeting this February which I did not get the letter, but I was told that the letter was sent to the college...I was phoned by the university to find out why I was not attending the meeting because we were to report...The letter never reached me. I was phoned by the individual lecturer from the university one of the people who is running the workshop...so I managed to go on my own...fortunately this time I was acting as the principal and the rest of management they were not in... (Betsy, L. 26-48).

The word “management” is used frequently, indicating how important management control is to the process of involving teachers in taking part in the implementation of educational reform initiatives. There is no mention of teachers opting to be part of the workshop or meeting. The explanation of the process of involving teachers in initiatives is quite revealing. She gives a detailed description of the invitation process and behind the scene activities, such as letter invitations and telephone conversations to ensure her participation. The mechanism was more involving for the management team than for teachers. From what she says, this was the initial stage of a reform initiative outside the MoE. This is a phase at which “management” is most likely to expect teachers to be highly involved, mainly because they are regarded as representatives of their respective institutions. However, it seems that the most emphasized strategy was to train the attendants, with the anticipation that they will train their colleagues when they return to their institutions. It turned out that the invitation process was not as swift as it initially appeared. The institutional frameworks had boundaries and procedures to be observed.

In another setting, a secondary school teacher who is part of management expresses her views, contesting the issue of leaving the selection process to the schools.

Her statements indicate that she prefers ministry management to select participants because they will be based on competence:

In a lot of cases it's based on their competence because we call teachers from all over the country...I have been involved with this exercise for quite some time about five years so every year...what I have realized is that sometimes we get a good group of teachers who are mostly active even those who are not active can carry on the job. But sometimes like the previous year we had a group of teachers who were reluctant to work and we ended up choosing another group of people because they were not so active our work wouldn't be finished ... (Stacy, L. 10-11; 17-24).

The issue of ability difference of participants is a common thread which is likely to be regarded as criteria for selection. The secondary teacher has taken it forward by explaining how “they” as teachers deal with non-active participants. She describes three different groups of teachers who come to workshops. Their differences come as a result of their level of participation. Such groups are “a group of teachers who are mostly active” (L.19); “those who are not active” (L. 20); and those teachers who were “very reluctant to work” (L. 21). She gave an interesting account for those who were not active. According to her, there are counter techniques to ensure the involvement of less active participants, such as the reassigning of tasks to be completed and the selection of a different set of participants.

In her account of how involved teachers tend to be in reform activities, Stacy fell short of outlining and explaining factors that contribute to teachers being active, less active, and reluctant. She indicates that once they (site-management) realize that the group is less active or reluctant to take part, they choose another group of teachers to complete the task. Her statement tries to depict a powerful body of management that controls what guarantees the participants continuity in the reform activity. Her statement is not detailed enough to give a picture of “actual participation” without

having to support her position with the “degree of participation” (active or less active).

In other words, what do participants engage in that illustrates their activeness?

...when we are invited to such meetings the response from teachers’ side is positive [they] want to take part in the development of science education...The only thing I have observed ...we are not regularly invited...It takes too long because sometimes before you can be invited to such meetings...the invitation go[es] through management and as such the management will decide whether to call you to that meeting or to send you out to represent them (Betsy, L. 6-15).

From what is said by this key informant, teachers’ interest in participating is unmistakable. They display an enthusiastic character by always wanting to be involved, despite infrequent invitations: “I have observed...we are not regularly invited”. She spoke about the time it takes for “them” to get invited, mainly because management has to have an input or decision on who is invited. It is also management that has to “call you to that meeting or send you out to represent them”.

In another segment, the same key informant continued to make comments about the procedures for inviting teachers. According to Betsy, teachers should not wait for an invitation but should instead have an opportunity to willingly to take part. As such teachers are likely to be interested in “taking some initiative to do something not waiting for invitation”:

I think in order for us to develop or to go forward, there must be willingness to do it. Not only to wait for invitation...when we are invited we should be able...not to wait for the university for example if there is willingness one can even go out to schools to find out what they are doing...it should be taken by somebody taking some initiative to do something not waiting for invitation (Betsy, L. 153-164).

Her comments show that an invitation to participate is an inclusive exercise: for example, “when we are invited”. Betsy was not in favour of teachers having to wait for

an invitation. This is interesting because she is part of the administration which has been portrayed as responsible for inviting teachers. She talked about “development” of teachers and tied it with teachers’ interest as one of the conditions that can ensure development.

She went on to explain how the coordination of syllabus development between her institution and ministry department curtails progress. She expressed her doubts about the involvement of the head of the institution in scheduling. She stated that:

It’s a plan that comes. We are not sure the heads or principals were involved in that drawing of schedules ...we find it as a limitation because it will be saying we are going to discuss exams for two days when we know that we have been...making our own schedules we have been discussing the exams for two nights this other day we were going to do one two three and also the ministry through TT&D were also saying if they want to cancel they will just cancel...Unlike the other years we have not been experiencing that for example we could have finished our syllabi. We are reviewing our syllabus we could have finished it but the meeting was cancelled saying that we are not going to go to any meeting because there are no funds (Betsy, L. 215-226).

Her statement is detailed as it explains her doubts on the involvement of school heads. She mentions her uncertainty with involvement of the school head and its effects on the intended goals: “we find it as a limitation”. According to her comments, teachers at college level have some element of autonomy or leeway as they have access to drawing their “own” schedules. She cited some activities such as syllabus reviewing in which they participated. Unfortunately, their flexibility is curtailed by the supervisory department (TT&D). The department has become an autocratic arm of the central government because “if they want to cancel they will just cancel”. She explained in detail how their schedules are offset by the supervisory department (TT&D). The restraining “orders” from the ministry department is claimed to be a new practice

“unlike the other years we have not been experiencing that”. Betsy described the cancelling of meetings by TT&D as disruptive because “we could have finished our syllabi we are reviewing our syllabus we could have finished it”. She repeatedly used the word “finished” to emphasize the importance of allowing “them” to take part without “interference” from the ministry department.

She suggested that participation should be an open concept “they should leave it open and invite everyone”. Her response was prompted by the question about the effectiveness of allowing science teachers to take part in initiatives based on their interest:

On the part of development they should leave it open and invite everyone because we all need to develop. The other thing...those who are willing will go there instead of I will be invited when I [find] I have no interest and this is a drawback because after attending these meetings, I will not take any initiative to even share that information with the rest of science department members. Whereas if the workshop or invitation was open we could have all went there (Betsy, L. 197-205).

Betsy talked about professional development as a key element in teacher involvement because “[they] all need to be developed”. According to her statement, there is a need for flexibility in professional development which “they should leave ... open and invite everyone”. She also spoke about interest of those invited as a yardstick, because without interest they “will not take any initiative to even share that information with the rest of science department”. But if the process were open “we could have all went there”. To conclude, for Betsy, interest relates positively with teacher involvement and what is made clear is that without interest participation is compromised.

Ken described how important it was for teachers to take part in implementation of reform initiatives primarily because “it is their job”. His description of the job is

domineering: it is the government who “instructed them to do something” and so the dominating aspect filters to the college level:

Well it is their job that is the job uh.m what is it called uh.m the guideline job. Attached to the guideline what we expect from the personnel when they are employed. In fact the government instructed them to do something... When they come to the college usually they follow the college and that's what they are doing. Time and again when we need something from those lecturers or whoever is there uh.m it is what is called (.) prerogative of the college usually the principal can instruct to do something. Anyway within the= setup **they** usually do that. Most of the lecturers are supposed to teach when they know little about that particularly... Senior lecturers we put them in some committees all of them are in committees but leading committees. When they are heads of department they are participating in management that is how the college is running (Ken, L. 3-16).

Ken's statement is punctuated with pauses and staggering, which indicates how hard he was trying hard to find “better” words to describe the involvement of teachers, if any. According to the description he gave of how teachers expect and are expected to be involved, he begins by talking about the existence of “job guideline” and the expectation that comes with the job. In this atmosphere, this administrator expects teachers “to follow the college” because it is the “prerogative of the college”. He spoke about the college principal being able to “instruct...within the setup”. The language used by Ken is autocratic, because teachers or lecturers, as is the case in college of education, are instructed and “put in some committees”. He used the word participating once when he talked about heads of departments’ “participating in management”.

Ken continued to show that he was divided on the notion of teachers having to opt to participate. This time the reason was the target set by the government. In his reporting, he included himself as one of those making decisions or tasked with overseeing the running of the institution:

... its advisable to choose but choosing has some difficulties...we have a target we have to fulfill a target. Government has given us a target that we have to reach. There we have to follow that one first and after that there are some other voluntary organizational or committees out there we ask them to choose ...We have a kind of fixed syllabus and guidelines. Nobody is allowed to go beyond that. It's a national policy we are actually not very free like high institute the lecturers maybe the professors they **decide** ah **they** have that opportunities but not here (Ken, L. 30-40).

Ken clearly stated that it is advisable to choose but he was quick to indicate that choosing is an idea bordered with some challenges. He claimed “they” have a target, yet the target is “given” to them by the government. He noted that they have to “follow” in order to fulfill the target. However, the target is not stated but it is clear that “they have to follow” what the government has targeted. Later in his statement he indicated that teachers are “asked” to make choices to volunteer in unspecified committees. Ken indicated that “nobody is allowed to go beyond the national policy...we are actually not very free...”. He compares their level of activity with their counterparts in higher institutions, presumably the university, where the teaching staff has a role in decision making.

His continue with a description of the process of validating the curriculum in which teachers were involved in its development:

Yah it is done by the teachers even the curriculum they prepare a draft and then it goes to the curriculum committee. Err but uh.m there are also independent UB people supposed to be also there. The specialist from UB from TT&D there, it is representative ...there is science specialist err principal education officer or senior education officer or from UB somebody who is a science lecturer anyway subject based. So they are there sometime those who are smaller administrators we also sit down with them sometime just to monitor to guide them so that they are doing the right thing uh.m yes err (.) They are quite involved and they are generating something which is good. Sometimes some of the things we may think...is this possible to do but when they sit down to do the task something comes out very good and very concrete which is workable we can see sometime and that is good (Ken, L. 78-91).

He clearly states that teachers take part in curriculum draft preparation. He talked about the process from the draft to the final copy of the curriculum that “goes to the curriculum committee” where there are ministry of education officials, representatives from the ministry department, and science specialists from university. The process of validating the curriculum is hierarchical. He talked about their role as “smaller administrators” where they “sit down with them sometime just to monitor to guide them”. At the end, after a short pause, the statement he made implied teachers. He used “they” which could be confusing due to the many constituents in the group, but the response was aligned to the first line of the extract, where teachers’ role or involvement was clearly identified. Ken acknowledges the positive impact that the college gets once teachers are involved in reform making.

Panels appeared to be the most reported reform that teachers are involved with:

...we appreciate it and even this year I made the calendar already for next year and I put uh.m particularly for panels. We meet three times. Panels should meet and they usually report back before examinations. They sit down to set the question paper whether it is standardized whether the syllabus is covered and how to mark it. The marking key they also making. I find it is quite good and if something is not necessary in the syllabus they suggest that we should eliminate it and if there is something we have seen somewhere is a good thing has arrived which we are not teaching it should be included. It is sometime the central committee who is approving it. They don’t meet...you may not get everybody together sometimes the meeting is postponed due to that. Most of them I can tell you are not reviewed some due to the central what is it called CCB curriculum committee board but they couldn’t meet when some key stakeholder was not there. So anyway there are some other things I don’t know it may happen otherwise things are going on alright (Ken, L. 94-109).

Here, Ken talks about the relevance of panels in the running of the college. He described fully the roles of teachers as they “sit down” in the panel meetings. He found

the entire exercise of panel meetings rewarding because if something is not necessary in the syllabus, teachers make suggestions for improvement. Even though efforts are made to involve teachers in panels, he indicated that there are still some limitations with the independence of panels and decision making.

Discussion

The findings illustrate the complex intersection of dynamics operating at a point when individual science teachers and key informants participate in the implementation of educational reforms in science education. The three types of institutions (primary, secondary, college of education) from which data were gathered had one commonality: the administering of the science education program by the MoE.

The administration discourse does not suggest devolution of power, a factor echoed in the reviewed literature on participation. To support this position, the use of some signifying language that points to major control over programs by some institutions emerged in the data. There are discrepancies in the extent of involvement of respondents across the three types of institutions. For instance, some institutions have much latitude in their programs, while others experience limited control.

Another complex and immediate problem faced by both science teachers and key informants is informational. In other words, the establishment of a unit that adheres to diverse teachers needs for educational reform initiatives, by way of giving out information on reform initiatives before they are introduced, is not procedurally outlined. For example, guidelines on the pedagogical tools and procedures issued by the central administration should be effectively communicated to the participants. It has the

potential to build teacher confidence, aptitude, and provide a sound grounding in subject specific knowledge.

The discursive institutional practices, where the head of the institution uses techniques of control to ensure that the selection and invitation of participants follow the normalized practices is contrary to the general national education policies that suggests the involvement of “all players”.

Summary

The key informants addressed issues of the institutional arrangements in procedures and rules for participating. Across the key informants’ statements of their understanding of participation and its practices, there were elusive procedure(s) or sets of rules used to invite teachers into the implementation processes. These subtle ways were characterized by inexplicit expressions, yet widely used by key informants to indicate the mechanisms used to involve teachers. There were no questions as to “who they invite” and “the invitee’s experience once taking part”; in other words their activities were not *evaluated*. This lack of questions is a result of administration “being trapped within a discourse of efficiency, productivity, and effectiveness...that makes critical reflection difficult” (Anderson & Grinberg, 1998, p. 344). The administration or management as indicated across many of the key informants’ responses is concerned with output, thus, teachers achieving the intended goals, and this has to be carried out in a diligent, calculated approach.

Different expressions were used to highlight the role of administration/management in involving teachers in reform initiatives, yet indicating

that their respective institutions were not responsible for selecting teachers to attend workshop. Such expressions included; “we invite” “we choose” “they are called” they send” “they are expected”. By so doing, teachers are a temporary feature of involvement procedures because their participation is conditional: “teachers who were reluctant to work and we ended up choosing another group of people because they were not so active” (Stacy). There were undisclosed criteria to support these expressions. These were discourses that were normalized in educational institutions and that shape discursive practices. From these normalized discourses, it is clear that teacher participation is an exercise for which an individual has to “wait to be invited” and that his/her involvement is monitored. The monitoring of teacher involvement, though not obvious, is indicative of subtle disciplinary practices, based on rules that have been historically constituted because they have “kind of fixed syllabus and guidelines nobody is allowed to go beyond that it’s a national policy” (Ken).

The selection of an individual to attend reform initiatives was bordered with expectations, such as to give feedback to colleagues as a form of training. To the authorities, the idea of feedback seems attractive because it ensured that many teachers will eventually be involved in the reform initiative, mainly because feedback is believed to encourage interaction among participants. There were a number of factors indicating that teacher participation is multifaceted. This was shown by a host of negative forces, resulting in poor coordination between government departments, lack of evaluation on how the participatory task forces work, as well as issues of feedback among teachers at school level.

CHAPTER 8

DISCOURSE AND POWER: THE GENEALOGICAL INTERPRETATION

The previous chapters provided a description of some of the major discourses that emerged from data analysis. This chapter provides a discussion of the key findings of the study. In the discussion of the key findings, the research questions guiding the study will be revisited. The second part of this chapter discusses these findings in terms of a Foucauldian theoretical framework of power discourses, including his idea of governmentality.

Overview of the Study

This study sought to address the following research questions:

- How do the different notions and practices of participation held by policy makers and practitioners influence their experiences of participation?
- How does the distribution of authority impact on experiences of participants regarding decision making during and after their participation in a reform initiative?
- How does participants' knowledge and understanding of the organization's goals and interest in job-satisfying activities encourage or discourage commitment to participate in the reform initiative?

A Foucauldian discourse analysis was used to produce answers to these questions. Two techniques were used for collecting the data that were analyzed to respond to these questions. The sources of data were 1) document review of two published policy documents, RNCE, 1977 and RNPE, 1994; and 2) interviews conducted with individual science teachers and administrators in educational institutions and ministry of education departments. The interview data provided insight into the notions and practices of participation as understood by science teachers from a primary school, a secondary school, and a college of education, as well as administrators from schools and ministry departments. It also shed light on power discourses within participatory practices in an effort to respond to the impact of the distribution of authority on science teachers' experiences regarding decision making.

Discussion of the Findings

Based on the research findings, each research question is addressed and the major discourses are discussed. These findings are then discussed through Foucault's concept of discourses as manifestations of power.

Research Question 1: Notions and Practices of Participation

The first research question guiding this study was: *How do the different notions and practices of participation held by policy makers and practitioners influence their experiences of participation?*

Researchers have described participation as a concept that has become an increasingly important aspect of program development (Fiorino, 1990; Reitbergen-McCracken & Narayan, 1998; Rosener, 1978; Sewell & Phillips, 1979). Participation

has also been conceptualized in relation to the notion of information sharing, control and influence in decision making (Reitbergen-McCracken & Narayan, 1998). Researchers who have studied participation in organizations, such as Rowe and Frewer (2004), have indicated that a variety of perspectives and interpretations of the concept of participation makes it difficult for researchers to agree on a definition. At the same time, the Foucauldian view of discourse indicates that the notion of meaning bears no significance because meaning does not reside in discourse itself; instead it resides in the actions of people (Foucault, 1980).

The same variation in views on participation was evident across the findings. There was no single, unified discourse of participation in the policy texts or amongst the teachers and administrators. Instead, there were multiple definitions and practices that operated under the use of the concept of participation and hence different understandings of the term by practitioners and policy makers. In addition to the varying meanings and understanding of participation, the teachers had a distinct discourse with regard to the factors contributing to the success of participatory practices. However, the various descriptions and experiences of participation had anticipated outcomes which included:

- attaining consensus
- educating participants through training
- generating the best decisions through feedback from participating teachers
- improvement of existing initiatives or successful implementation.

The notion of participation was presented as a multifaceted phenomenon with multiple discourses that met and crossed within different environments.

To further understand teachers' flexible views on participation, I start by discussing the commonalities or ideas that weave through participants interview statements. The common thread that weaves through teachers' views throughout the findings was "sharing" and "feedback". Furthermore, the interconnectedness of their views was reflected through the use of a list of interchangeable terms that denote participation. Such terms included consultation, public/community participation, involvement, and collaboration. Similarly, the terms are used collaterally by different scholars (Christie, Ross & Klein, 2004; Davis, 2004; House, 1999; Rowe & Frewer, 2000), to illustrate the engagement of program participants in the reform process. These terms are pervasive in the findings and tend to reflect a preference by each interviewee or institution.

Information Sharing and Feedback

The results of this study illuminated a number of connecting aspects across statements from all participants. Throughout the interviews, participants referred to the prominence of sharing information between teachers who have had the opportunity to take part in an initiative and those who have not. Their strong opinions support earlier studies that indicated that the idea to participate gives an individual the opportunity and ability to "share" views (Reitbergen-McCracken &, 1998; Rosener, 1978; Sewell & Phillips, 1979). Many of the science teachers in both secondary and college of education, as well as one primary school teacher who agreed to be audio taped, acknowledged that sharing of information gathered from training workshops gave them

the opportunity to engage in implementation of reform initiatives. They pointed to feedback as one aspect that enables them to share information. According to Simons (2007), feedback is explained as “circulation of information”.

In the case of this study, the views of teachers on feedback and its role in informing their actions was a desired outcome. How feedback was actually practiced did not recognize the underlying principle of circulation of information. Instead, there was no circulation of information because of a lop-sided image of feedback. For example, the interviewed teachers in secondary school indicated that information was shared among teachers by way of workshops within the institution, but information circulation between “them” and the “workshop coordinators/administrators” (on matters pertaining to newly introduced initiatives they were “expected” to be part of) was nonexistent. Simons noted that there is less evidence of power relations when information is exchanged. In other words, the receiving individual is limited in terms of exercising power. There is much reliance on those who give information and *can* determine what kind of information to give. Thus, lack of feedback is indicated as a barrier to effective information sharing. The situation showed that participants were cognizant of the fact that in order to ensure effective sharing of information, feedback is equally needed.

The idea of feedback was not only explained in terms of teacher to teacher relations, administrators also valued it as a factor in securing optimal performance of teachers. To administrators, feedback is used as a simple instrument to alter administrative mechanisms so that individual teachers feel involved and engaged. This contention is within the argument raised by Foucault that participants are often unaware

of the sources of multiple ideological components or the tremendous power of the discourse forces (Foucault, 1998). Nevertheless, the significance of feedback is based on propositions that feedback proposes “informing people” and “getting informed” (Simons, 2007). Therefore, the views of participants indicated that the majority of them were in favour of feedback and resonate with Simons’ position: they wanted to inform and be informed. In a recent theoretical study, Simons argued that feedback is strategically important: “feedback information is experienced as indispensable in order for actors to position and reposition themselves in a *competitive* environment” (p.532). Foucault, with his interest in the role of the individual in power relations, and his view that individuals should not be viewed as the source of discourse, would argue that the lop-sided portrayal of feedback rests on the tenet of a disciplinary strategy of self-control and self-surveillance (Foucault, 1972).

Minor procedures of discipline came through the idea of being involved in training workshops and training colleagues once they get to their field areas. Foucault explains “discipline” as “...the power that “makes”... individuals both as objects and as instruments of its exercise” (Rabinow, 1984, p. 188). As feedback is being sought and possibly provided, modern techniques of power seek to discipline individuals through an internalized gaze of the other (Foucault, 1972/1980). Most of the teachers who commented on feedback had an underlying assumption that information ‘given’ will be ‘received’. How the received information was going to be used did not seem to matter because it was not mentioned in their statements. In order to make such assumptions, there are observations made and communicated back to other teachers as well as administrators. The observations are techniques for keeping teachers under the gaze i.e.,

to be seen and assessed by the administration while they are involved in training workshops or giving or receiving feedback from colleagues. Observations are internalized and become part of the discursive practices. Teachers tend to understand feedback as an obligatory exercise with subtle force that controls the individual by shaping ones' behaviour.

There were a number of examples that indicated the effects of lack of feedback. According to some interviewed teachers, lack of feedback on initiatives denied them the possibility of knowing the current or future impact of the initiative on educational reforms. For example, some of the teachers from both secondary and college indicated that they "did not know because [the training that they were involved in] was never evaluated" (see Chapter 6, Macy & Binn excerpts). From these teachers' comments, it is clear that they are aware of the impact of feedback on policies that are intended to inform practice. Researchers who study organizational relations and involvement have called for "permanent evaluation and progress", in order to facilitate "circulation of information" (Simons, 2007, p. 542). Other researchers, (Shakeshaft, Sarason, Shaker, 2004) have emphasised that governments can achieve progress in exchange of information through combination of performance targeted policies and improvement of initiatives. The science teachers in this study strongly believed that circulating information informs decisions on the design and production of initiatives and improves mechanisms used to involve them in implementation of reform initiatives.

Research Question 2: Authority Impact as a Dominant Discourse

The second research question is addressed in this section: *How does the distribution of authority impact on experiences of participants regarding decision making during and after their participation in a reform initiative?*

What results from analysis of the policy documents are principles that construct narratives or statements and inform discursive practices. There were external factors in the description of techniques used to integrate “new” initiatives into existing educational programs. There is no variation in the strength of responses that pointed to the externalities of the origins of reform initiatives. The science teachers equally indicated that “they were called” or “invited” to participate in implementation of educational reforms initiatives. Science teachers from the secondary school and the college of education described *introducing*, *piloting*, and *training* as processes that they found themselves tasked with. To administrators, these processes were techniques of ensuring teacher participation. As for the interviewed teachers, they described their knowledge of the processes and their participation in them as remote.

To further illustrate the government’s techniques, the findings reflect the prevalence and dominance of certain discourses over others. Predominant discourses are mainly administrative, and feature minimal questions from teachers because of their “disciplinary practices and normalising effects” (Anderson & Grinberg, 1998, p. 330). Throughout their responses, there was one unifying element that was common amongst the teachers: they held a strong view that their participation is essential because it enhances students’ achievement. This may be viewed as a teacher discourse, because

being an effective teacher means acting in the best interests of the students. However, wanting to be the best teacher for their students was driven by self interest, as well as by the internal and external forces that urge teachers to do what “is expected” of them. This picture illustrates the dominance of administration discourse over cultural discourses. These discourses shape how science teachers view their role in the implementation of reform initiatives. It also shows that teachers have normalized these discourses because what is most essential is for the school to be efficient. These strong beliefs reflected the policy strategies aimed at ensuring that the Botswana education system increases the number of graduates in science related fields (RNPE, 1994). The position of teachers being motivated by students’ achievement appears to be professional and personal. The teachers had a distinct discourse. This discourse is cultural because their participation is embedded in cultural forms that according to Lavié (2006) blur the boundaries between the personal and the professional and stimulate interdependency and collective responsibility.

Management discourse suggests that teacher involvement is mandatory, due to the interpretation of the education policies aimed at achieving the national education goals. However, it must be borne in mind that in any institutional context, some people will be in stronger positions to be involved than others. This is particularly significant where the institutional context is one where the participants are in different and unequal institutional relationships to one another. According to Foucault, the positioning of individuals and their ability to make decisions based on the position they hold within the organizational structure exemplifies the nature of “hierarchical power” (Foucault, 1980).

Authority as an External Context

The findings indicated how authorities who operate in a different discourse environment influenced how participants interpreted their experiences and articulated their understanding of participation. In the case of this study, authority is used to describe management or administrators at ministerial level. Two external contextual factors were identified: management as authority and policy text as a set agenda. Management discourse was prevalent and controlled the formation of discursive practices of teacher participation. Through management discourse, teachers were expected to respond to “directives” and articulate their actions and reformulate other discourses. Most college and school teachers did not feel strongly about their internal leadership and the control it had over the selection of teachers to participate in any “outside” workshops. The sense of control over initiatives that originate in schools shifts away from teachers and the management power influences the discourse field. This is the exercise of power and control at micro-level sites.

In many cases, where college and school teachers talked about tasks, it was evident that “selecting” a representative was a role dominated by the school leadership in conjunction with administrators from ministry departments. According to most of the comments made by the teachers, they did not find their leadership “supportive”. Instead the authority was concentrated on a small number of individuals, mostly heads of departments or senior teachers who were to “select” or “invite” or be the ones to take part in initiatives. The findings are contrary to Rogan and Grayson (2003) who suggested that “schools in developing countries are more dependent on the quality of

leadership” (p. 1187). Supporting this idea is the assumption that the successful implementation of a program is dependent on the powerful portfolio of beliefs and values of a leader (Hargreaves & Fink, 2004; Heck, 2000; McEwen, 2003; Rogan & Grayson, 2003; Spillane & Halverson, 2001) and also that success in the implementation of initiatives is credited to “good leadership” which according to Rogan and Grayson (2003) serves as a component of the capacity to support initiatives.

While researchers have studied leadership and established that it is critical to successful implementation of reforms (Rogan & Grayson, 2003), they have not fully explored the perpetual process of discursive formations of the concept of participation by reformulated management discourses. While other scholars have extensively studied educational policy with contradicting discourses (Bochel, 2006; Gilmour, 2001), they have not fully studied the impact of internal and external agendas in education policy discourse environments and their impact on the formation of strategies that help in shaping reform initiatives. The results of this study add empirical evidence to support the relevance of teacher participation in planning programs that are doable because of teachers’ “better” understanding of students and the learning environment (Hord & Huling-Austin, 1986).

The policy environment was another external contextual factor that emerged from the study. This study strengthens arguments raised in other studies that the policy environment and agenda is embedded in discourse (Bell & Stevenson, 2006; Bochel, 2006). The participants were aware of the rules and procedures they were to follow in the event that they were involved in an initiative, such as syllabus design. Authority uses these modest forms of power to alter teachers’ activities. Several of the college

science teachers described how they were required to participate to meet the defined goals by indicating that they participated because “it is policy they had to participate” (see chapter 6, Ben, L. 36-38). Hence education policy seeks to instill a particular orientation to teachers.

Research Question 3: Knowledge of Organization’s Goals

This section addresses the third research question: *How does participants’ knowledge and understanding of the organization’s goals and interest in job-satisfying activities encourage or discourage commitment to participate in the reform initiative?* The results of this study illuminated some of the discourses that reflected participants’ knowledge or lack of it, of the intentions of the organization.

“To Introduce” – A Strategy to Reform

The results of the study show that overall, across all three schools, the first time that teachers experienced involvement in reform was when initiatives were *introduced* to them. “To introduce” was a pervasive procedural and persuasive expression which emerged in the study. It is procedural in the sense that once an initiative is introduced, there is an unquestionable reaction by teachers to implement it by following administratively suggested schemes and strategies. From the way many of the interviewed teachers described how initiatives were incorporated into existing programs, it was clear that introduction is a process. To make it clear, some of the interviewed participants commented on the complex and challenging issues that emerged during the introduction of initiatives. Such issues included teachers’ knowledge, the availability of resources and time, teacher capacity and sustainability. All these issues were observed at different phases of the newly introduced initiative.

The outlined thematic components are not peculiar to this study: organizational theorists such as Reed (2000) have raised arguments about organizational change recognized in a Foucauldian perspective as “technologies of government”, through which targets or policy outcomes have to be met.

“To introduce” was used as a “strategy” which according to Cousins and Hussain (1994, in Grant, Keenoy, & Oswick, 1998) is a common institutional, administrative or political drift and pattern. In other words, once initiatives are introduced, it is taken for granted that the initiative will be implemented. Analysis of teachers’ descriptions of how they were involved in the introduction of course work suggests that this introduction is better explained as compliance, with no questions raised, and therefore no exercising of control over the initiative.

“Introduction” is persuasive in the sense that administrators “expect” and teachers are aware that they are “being expected” to implement the introduced initiative. The participants described their involvement mostly when initiatives were incorporated into the science program. It has become a normative practice for the administration as it “expects” science teachers to incorporate the “new” into the existing science program. According to many of the science teachers, it was a well known phenomenon that once the initiative had been introduced, its failure or success was regarded by the administration as a reflection of teachers’ commitment and competence.

There was a strong use of other expressions to extend the idea of introducing an initiative, such as *to pilot* and *to train*. These two expressions had subtle and/or implied participation: they promote discursive formations of practices. They are situated within administration and cultural discourses. Teachers across all the three school levels were

in favour of “training”. This was reflected throughout statements that were policy oriented and binding to the participants. To adopt or assimilate the suggested modifications, teachers reported challenging tasks which they had to initiate to balance their previously held conceptual frameworks with those at odds with the improvement of the curriculum discourse, mainly for two reasons, time and content quality. Their previously held notions of science education were undermined by their overall intention of collectively working towards the common goal of succeeding in the implementation of reform initiatives.

Reed (2000), who is a critical of Foucauldian approach to discourse, argued that Foucault would see the use of such expressions as to pilot and to train as a “...promotion to discursive formations that are patterned or ordered practices...” (p. 194).

Administration discourse informs and shapes how teachers would engage in an initiative once it is introduced, piloted and teachers undergo training (Anderson & Grinberg, 1998). The manner in which this is achieved is one of Foucault’s main interests in studying power relationships. According to Foucault, an individual becomes a subject by being objectified by institutions as an object of production (e.g. teachers expected to engage with the introduced initiative and produce test results) and power (e.g. disciplinary technologies where teachers are under direct/indirect surveillance and ultimately have to conform and be part of the implementing team), and situated within “complex power relations” (Foucault, 1982, p. 209). The linearity of the process is what Foucault challenged in the arguments he raised about strategies and training, where he pointed out that administration as a form of keeping control has carefully configured rules and procedures that are used to control and discipline the individual (Foucault,

1979). According to some of the key informants, reform initiatives are introduced based on rules and procedures controlled through government departments.

Taking part in implementing what has been introduced extends the idea that teachers have normalized the practice because through teachers discourse they regard themselves as “implementers”. This would be particularly true in an approach grounded in the notion that teachers are mostly “implementers” of educational programs and have a bearing on the implementation of programs (Geijsel, Slegers, Van den Berg, & Kelchtermans, 2001; Schmidt & White, 2004).

The descriptions of their experiences with initiatives such as course work assessment were embedded in improvement discourse (Anderson & Grinberg, 1998). Most of the teachers across all levels viewed their participation in reforms as an opportunity to improve the existing program. Improvement was a normative linguistic practice rooted in the culture of reform. Thus, mechanisms for change were strategically designed to bring in an element of improvement. For example, college teachers got involved in science panels for the purposes of improving the syllabus.

Subjectivity, Attitude and Commitment

The findings indicate that a number of teachers demonstrated positive and mixed attitudes toward the *introduction* and later *piloting* of the new reform initiative. Many of the interviewed teachers who demonstrated a positive attitude were more committed to student achievement than the school (Midthassel, 2004). The vast majority of responses, across all three schools, felt positive but it was more about the student achievement than the organization. The positive attitude of some of the science teachers shows that when there is “sense of purpose”, participation is possible (Locke &

Taylor, 1991). The findings support the literature on teacher attitudes (Midthassel, 2004; Midthassel & Bru, 2001), commitment and teacher participation in educational contexts (Carr, 2007). Based on the “subjective norm” (Midthassel, 2004), teachers’ positive attitudes seemed to be a result of some form of pressure to perform or take part in an initiative. The results are also consistent with the belief that teachers’ positive attitudes toward the introduced initiatives will not only benefit students but teachers as well (Fullan, 2001, Midthassel & Bru, 2001).

Mixed attitudes also emerged. Some of the teachers disapproved of the procedure for introducing new initiatives (see chapter 6, Macy, Pam, Lula). For example, Lula talked about initiatives first starting as a pilot and in no time they are extended with teachers having no knowledge of the initiative. Cautionary voices which were illustrative of the presence of “local knowledge” (Foucault, 1984) were made, yet dominated by other discourses.

Discourse and Power in the Genealogical Period

Foucault provided two approaches (Archaeology and Genealogy) to determine how discourse and power historically operate to produce taken-for-granted practices. To discuss the findings, I will focus on Foucault’s latest approach, referred to as genealogy, which focuses on how discourse and power operate and helps to explain why some discourses prevail over others. This chapter provides a general discussion of how control is exercised and how regimes of truth such as strategic supervision and management techniques are formed and normalized through discourse practices. According to Anderson & Grinberg (1998), a primary goal of genealogy is to approach

disciplinary practices as strategic elements with relations of power aimed at interpreting discourse.

Discourse as Manifestation of Power

The findings of the present study indicate that multiple discourses of participation are in operation and show how some of the emerging discourses prevailed more than others. It was also interesting to see how discourses shape how participation was practiced and reported. Interviewees were asked questions about their experiences of participation and whether their understanding of the organizations' intentions had a bearing on their commitment to participate. The results show that overall, across all three school levels, participation was viewed as a practice commanded by management and for teachers, and their interest to participate was mainly due to their commitment to students' achievement. These points illuminate several "disjunctures" with the meaning of participation. "Disjunctures" is a Foucauldian view of the dispersion of discourses. The disjunctures are the sum of multiple power forces that exist in institutional practices where power resides and is exercised.

Lack of questioning on the part of the science teachers of why some discourse practices such as introducing and piloting have continued for a long time, is illustrative of some form of discourse dominance. The results have shown that the interviewees, despite their reported dissatisfactions with institutional practices, still continued with the normalized practices of participation. There was no indication of the respondents trying to establish the origins of certain discourses. Instead, some strategic elements within relations of power were manifested. From this backdrop, the main discourses

that emerged could be a result of historical practices that have often been neglected as regimes of truth, that is, taken for granted.

Throughout the findings, the emerged discourses potentially give an insight into unclear and unequal power relations that lead to the exclusion of teachers. Throughout the findings, the gaze of authority, with its disciplinary power marks teachers as objects (Foucault, 1995) of governments, where control is exercised and discourses produced. As a result of the “humble modalities” of disciplinary power (Rabinow, 1984), there exist underlying silences, where some discourses are silenced by others. Luke (1999) explains the silences as hidden forces. They weave through discourses to establish and re-establish the power axis. For example, the development of strategies throughout the policy text was aimed at configuring and achieving specific results. According to Foucault, the task of strategy building is to address challenges. Power is exercised through strategically formulated activities. The case at hand shows that the education review presented in the policy text described a socio-economic context that needed trained, effective and efficient practices.

The notion of participation has been characterised by shifts in power, i.e., shifts in power location and ways in which power is exercised. In the case of this study, practitioners, specifically teachers, highlight disparities between policy and practice. The teachers responded to issues of power location and how control is exercised. They brought up their capabilities and potential in educational reform development, along with the need for their knowledge to be listened to and appreciated (refer to Chapter 6 for Macy, Ben, Binn, Lula excerpts). Other themes recurring in teachers’ discourse include the need for their role in decision making to be recognised, their ability to take

part in newly introduced and piloted initiatives, their contribution to the success of implemented initiatives, and their values and ideas about student achievement and professional development. The implications of power appear to underlie each of these themes. They may be in the form of maintenance of power, gaining of power, concentration of power at certain points of the decision hierarchy, and the imbalances of the exercise of power, all of which are barriers to participation. These multiple frames have proven useful both as lenses through which to make sense of the complexity of participatory practices and as conceptual challenges to research and practice.

Participation as a Discursive Practice

“Participation” has increasingly become a symbolic concept in many development issues (Bochel, 2006; Christie, Ross, & Klein, 2004, Harrison, 1996), health care services (Hodge, 2005; Milewa, Dowswell, & Harrison, 2002), social care services (Carr, 2007), and educational reform initiatives (Ansell, 2002; Fullan, 2001; Suzuki, 2002). In many cases where governments are the main constituents of the education system, they have configured policy texts to reiterate the relevance and importance of teacher participation (Midthassel, 2004; Midthassel, & Bru, 2001). This is unsurprising, given the government’s commitment to education treaties that emphasize the mainstream participation of every player. At the same time, it is the tactical use of control of individual participants to feel empowered in a discursive practice. The notion of empowerment is felt once the rationality of the intended inclusive practices capitalizes on “mentioning” teachers in every aspect of the activity.

There are many illustrations of teacher involvement rooted in strategies aimed at improving their capacity. But the discourse of strategies has been articulated with no

mention of teacher participation. For example, in creating participatory policy documents, the foreword/preamble of the two policy documents made no substantial reference to teacher participation. Rather, the authors used a holistic approach to the participation of teachers in educational reform initiative. For example, RNCE, 1977 reported a “spectacular growth in education since Botswana’s independence and rapid growth in education has been made possible by hardworking and sacrifice” of stakeholders. Teacher labour is implied, not their participation. Participation is discursively practiced through the use of discourses that connect with political, cultural, and economic contexts and are enacted within specific local institutional arrangements. Different levels of participation have been acknowledged and outlined amid competing discourses. From both interview statements and policy text, participation ranges through being “selected”, “invited”, “called”, “consulted”, to the “introduction” of an initiative. The proposed levels of participation within policy documents tend to be at the lower end of the scale.

A crucial finding relating to power dynamics within teacher participation in reform initiative is that degrees of resistance seem inevitable. There are extensive power differentials between teachers and administrators, stemming largely from strategies developed through exclusionary policy techniques. The learning needs of students cannot be underestimated and therefore it has been used as a powerful leverage in administration discourse to ensure teacher compliance. Experiences involving the selection of teachers to participate, with no clear criteria are also exposed to some form of resistance.

The Governmentality of Participation

Within the analyzed government documents, there has been no indication of shared authority over what is designed and developed as school curriculum. The policy documents are government apparatus used to advance the changing rationality of government (Tikly, 2003). The function of the government is to institutionalise the way of thinking about its practices and to avoid questions of who can participate, and of who and what is governed (Burchell, Gordon, & Miller, 1991). The government's task is to develop programs and communicate them through government techniques directed towards involving teachers, such as training workshops and the introduction of CWA, as is the case in this study.

Foucault (1991) uses the word "government" as an "art" (Gillies, 2008; Rabinow & Rose, 2003; Tikly, 2003). His view of governmentality contrasts government practices with discipline. In the case of this study, there is an emphasis on mechanisms of "consultation" in the preambles to the policy texts (RNCE, 1977, p. 5 & RNPE, 1994, p. 4). The idea of consultation was mentioned by key informants as a technique that involves stakeholders, with teachers included. Where policy text is concerned, its aim is to legitimize and benefit government, rather than to empower individuals (Hills, Davis, Prout, Tisdall, 2004). The government emphasized monitored training. Based on what the interviewed teachers said, monitoring was a controlling and disciplining mechanism, where teachers were constantly under the gaze of the authorities.

As for training, it is a concept transferred to other jurisdictions within government and also as a form of disciplining the mind of the individual (Foucault,

1980). It is also a concept that controls what the participant is expected to know. In other words, through training, government “conducts the conduct” of individuals (Dean, 1999; Gillies, 2008; Hindess, 1997). This is Foucault’s concept of *governmentality* (Gillies, 2008; Rabinow & Rose, 2003). The strategies suggest supervisors or school leadership take the responsibility (Gvirtz, 2002) to ensure that teachers are trained and monitored to eventually have the ability to teach scientific concepts as intended. The idea of training teachers is a focus point in the policy text as the strength of the socio-economic capacity of the country depends largely on its trained personnel (Ansell, 2002; Steiner-Khamsi & Quist, 2000; Quist, 2003). These strategies, as thought by the policy makers, were developed to curb some of the identified problems of a small number of qualified science teachers, which had a negative effect on the number of students’ enrolment in science. The limited occasions where teachers’ participation was mentioned occurred predominantly under strategies on *Enhancement of the Performance and Status of the Teaching Profession and associated discourse such as the curriculum discourse*. Overall, the limited ascriptions of teachers as participants from both interviews and policy texts lead to questioning the implied participation of practitioners in educational reform initiatives.

Teachers’ Subjugated Knowledge

In the case of this study, the findings from teachers and key informants’ interviews are a better representation of their knowledge. Their responses to interview questions took the form of *tacit knowledge*. For example, teachers expressed how they responded once course work assessment was introduced, finding ways of meeting the demands of the program. In the same way, they ensured that students get the “best” out

of the program. This is mainly because during interviews, participants had the opportunity to share their experiences and communicate their knowledge of the content and of “better” practices. The shared experiences exposed science teachers’ knowledge of the current reforms aimed at improving educational initiatives.

On the surface, teachers hold power/knowledge in the classroom. They also hold disqualified knowledge, i.e., knowledge that is not considered intelligent (Ball, 1990; Peters, 1996). What this means is that policies and strategies formulated within structured discourse networks require experts in different fields to provide specialized knowledge and suggestions to inform classroom practices. However, teachers’ knowledge is not considered to be sufficient for implementing those policies, let alone developing them. Moreover, the RNCE, 1977 and RNPE, 1994 policy documents address school administrations, yet most of the responsibility that the strategies are directed towards falls on the teacher. Paradoxically, “the teacher”, who has been singled out as a “catalyst in education” (RNPE, 1994, p. 6), is not given the space to explore his/her knowledge. According to Foucault, “power produces knowledge...that power and knowledge directly imply one another, that there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presuppose and constitute at the same time power relations” (Foucault, 1977, p. 27). But where knowledge is marginalized or not acknowledged, power is not relational. Ultimately, there exist the powerful and powerless.

Summary

This study has provided a new way of looking at teachers' response to participation and unraveled the idea that policy structures are the main forces that form teachers' discourses. The findings reveal less action from the teachers in terms of the way they exercise their power, a revelation contrary to Foucault's idea that power is exercised and exists in action (Rabinow, 1984). Although the general participation of teachers in decision making may resemble that of past research findings, this study has analyzed teachers' participation in terms of discourse environments, discursive formations and discursive contexts and practices. The discourse environments are a result of discourse rules that have been formed by major policy documents. These findings have provided a new way of looking at teachers as individuals with power/knowledge where, when exercised adequately, they can better the implementation of educational initiatives. The findings have also illustrated that policy text undermined or marginalized teachers' power, rendering them to be followers.

The interviewed science teachers in this study subverted the dominant administrative discourse of participation and created their own flexible understanding of participation by adopting the position of doing what is best for students. The results of the study indicate that teachers had flexible ways of understanding participation and interpreting the discursive practices inside and outside institutions. It is worth noting that the participants in the study are not a homogeneous group of individuals and that they operate under different administrative environments. They are characterized by a multiplicity of discourses, with formations from varied discourse contexts, hence resulting in a discourse of participation. In Foucault's terms, interpretation attracts less

attention because according to his arguments, discourse is what shapes practices (Foucault, 1980), and his response to administrative environments indicates that administrative sciences are trapped in the discourse of efficiency, effective and productivity (Anderson & Grinberg, 1998), and so interpretation does not occupy much of the debating space in participatory practices.

Because policy documents addresses school practices rather than content and instructional practices, it is difficult to find areas that directly relate to science education. The rationale of the two policy documents is stated broadly; it is hard to specify disagreements or contradictions between the curricular beliefs espoused in the two documents. This is mainly due to the prevailing discourses referred to as national and economic, as well as administrative, at the time of the development of the two policy documents. Botswana's social, political, and economic issues of the late 1960's into the early 1990's were reflected in the increasing changes in education. Changes were marked by domination of certain discourses over others. For example, student assessment, teacher training to address teacher quality and capacity, as well as sustainability, and curriculum reform, dominated educational discourse. On the part of teachers, the two documents assert "training" as teacher preparation (Lavié, 2006). The focus on training has diminished the focus on participation, with many of the interviewed teachers interested in "being trained" for their personal and professional development.

CHAPTER 9
CONCLUSIONS, IMPLICATIONS AND CONSIDERATIONS FOR FUTURE
RESEARCH

One of Foucault's recommendations for undertaking research on discourse is to relate discourse to practice. This is what the study attempted to do by responding to research questions that examined the discourse of participation. This section presents three levels of conclusions, implications and future research direction. This is done by drawing conclusions: 1) on how practitioners and policy makers understand and experience participation that is evaluated on its rationalities – strengths and weaknesses – in revealing discourse information, 2) on the relevance of Foucault's perspective in establishing the power discourses that were dominant within the distribution of authority as to who participates and the implications it has in traversing the norm practice of policy driven reform initiatives, and 3) the limitations of the study are presented as well as the possibilities for future contributions of this research study to the body of literature on participation and implementation of educational reform and Foucauldian discourse analysis.

Conclusions

To respond to the three research questions that guided the study, I problematized participation as a complex, multidimensional phenomenon in organizational structures, which is communicated through policy oriented strategies. Overall, the study responded to research questions by:

- establishing the flexible understanding of participation by practitioners, and establishing the common constructs between the interviewed science teachers and key informants,
- explaining the distribution of authority by the hierarchical nature of decision making,
- establishing that commitment to the purpose and values of the organization, which provide a sense of direction, was minimally demonstrated by science teachers. This might be the result of lack of background against which decisions pertaining to teacher participation or their role in the reform mechanisms can be viewed.

The interviewed teachers and administrators have demonstrated commonalities and differences in a conceptualization of participation that is embedded in discourse. The study illuminated differences in articulation of participatory experiences where involvement of participants varied and depended on the initiatives to be implemented. The context is influenced by discourses of different magnitude, where some discourses prevail and dominate the entire process of involving teachers. Experiencing of participatory practices by science teachers and administrators from the schools used in the study and DCDE was best described through the use of discourses of different roles and relationships. The technologies of domination of some discourses such as national development were indicative of how the government, through its meticulous management, influences the understanding and practices of participation by practitioners and policy makers. Again, the findings from the teachers' and administrators' interviews demonstrated that administrative structures made it possible

to conduct the conduct of teachers once they are “invited” and “called” to participate in educational reform initiatives. Interactions across aspects of participation were noted. The summaries of the findings indicate that information sharing and feedback formed major themes that connected the flexible meanings of participation as experienced by respondents.

On the question of distribution of authority, the study has shown subtle and nuanced techniques used by administrators to involve teachers, as a result of which invisible forces were exerted on “unsuspecting” individual teachers through supervision. Mechanisms aimed at enhancing teacher capacity such as training were prominent in many ways and forms. Teacher participation was marked by conformity mainly because the common denominator was student achievement. There was the dominance of authority that gazes through the unsuspecting individual science teachers. As a result, individual science teachers are mechanically transformed to govern their approach to educational reform initiatives. Given their focus on student achievement, there was less attention on questioning the practicality of certain reform strategies. The issues of value and efficiency dominated the discourse. The developed strategies were externally motivated and aimed at training and introducing new concepts or ideas, maintaining academic values, upholding school curriculum, and formal practices of teacher preparation and development. In all the discourses: student achievement, value and efficiency laden discourses, developed strategies are the techniques and procedures for directing science teachers’ towards the behaviour “expected” to implement educational reform initiatives. The matrix of these prevalent discourses was indicative of the location and exercise of power. There was an echoing of the hierarchical nature

of disciplinary power allowing some respondents to conceptually challenge the power dynamics and suggest measures that would have seen power locations and the exercise of power unsettled and reconfigured.

“To introduce” was identified as a major discourse that reinforced teacher participation in the study. Feedback and decision making were identified as organizational conditions through which teachers’ question their role within a discourse field that is influenced by dominant discourses. These prevalent discourse strands were imminent for both teachers and key informants. The two conceptual constructs were found to be an influence on the discourse of introduction, and recognition of teachers’ feedback and role in decision making was key to participation. Professional core values and management authority over curricular decision making replaced concerns for teacher orientation.

In an effort to demonstrate participants’ knowledge and understanding of the organization’s goals, the study demonstrated that participation is situationally practiced within discursive contexts. There was little provision for teacher involvement and constant shifts from the intended provisions of teacher involvement to immediate accomplishment of goals through policy implementation. To further substantiate the knowledge gap on policy, policies and/or goals that were directed towards the involvement of teachers were not visible. It was therefore difficult for the science teachers to focus on continuous improvement of science education. There was a limited sense of involvement or of a significant role played in the introduced reform initiatives. Overall, the nature of the government apparatus used to communicate participative

measures i.e., policy documents, presented challenges for science teachers because of a lack of understanding of the organizational conditions framing teachers' involvement.

Recommendations that were made in the two policy documents were discourse possibilities, i.e., their practicality were discourse founded and dependent largely on the underlying function of the discourse. Strategies supported existing ideologies and normalized institutional practices. Policy orientation to science education pedagogies was less predominant. The discourse was marked by consensus. In other words, discourse activity was more focused on points of agreement.

This is the first qualitative study exploring the discourse of participation conducted in institutions that are governed by the same administrative structures, which apply the same rules and procedures with less consideration for the diverse contexts and teacher experiences. The results are unique in the sense that teachers reflect the dynamisms of the forces that are exerted in all directions, illustrating the relational element of power. Lastly, the government apparatus is disciplinary in nature with the underlying purpose to control the behaviour of individual teachers as they participate in educational reform initiatives.

These concluding remarks trigger a set of questions regarding teacher knowledge. Questions of how best teacher discourse serves within a discursive field can be asked to prompt investigations of what participation entails and who it serves, as well as of the culture of participation. It is also important to bring out questions that sought to transform the discursive schema of the government, as well as that of the school power structures. The discourses analyze in this study are a demonstration of the organizing principles behind Foucault's perspective and the kind of data revealed by

such inquiry. The strengths and weaknesses of each discourse and its particular function have potential in refining early stages of policy formation to the point of its implementation. It is conceptually compatible with research needs that allow the analysis of discourse and consistent with the goals of Foucauldian discourse analysis.

Contribution to the Literature

Overall, this study makes a valuable contribution to the body of knowledge on participation, specifically by adding the discourse dimension of participation. Much has been published on participation as a symbolic concept used mainly in community development activities (e.g. Suzuki, 2002) or health services (Carr, 2007). In the case of education, especially the school as a community, participation is used to promote teachers' professional development (e.g., Simons, 2007). The diverse interests of teachers in taking part in educational initiatives view teacher participation as part of professional development.

Much of the published work, specifically that of the 1990s, has been primarily survey research as indicated in the literature review. It appears that most of the literature of the 1990s on participation concentrated on highlighting aspects of participation and examined factors that contribute to "effective" participation such as resources, leadership, and the democratic nature of the concepts that underlies participation. Participation is largely an administrative tool. It is employed and interpreted within the administrative context. In all the findings in this study, the initiatives of administrators in involving teachers are embedded in notions of "training", aiming at enhancing teacher ability, and increasing and sustaining capacity. However,

the degree of involvement and the approach used does not equally aspire to substantially transform understanding of participation. Instead, it is likely to reinforce existing practices and values. In all the discourses in the literature, the instrumentality of teachers in making the initiatives a success was explicitly acknowledged, in a form that leaves the core elements of participation intact i.e., once teachers are mentioned, their commitment, decision making abilities, as well as providing feedback, heightens the essence of participation. The core discursive elements were based on consensus. These discourses reinforced the assumption that teacher participation is not a process of questioning values but rather, a technique for improving implementation of educational reform initiatives.

As a symbolic tool, embedded within discursive practices, understanding participation has not occupied debates for decades. Rather, a simplistic approach to its use has been the norm. Recent research studies are trying to explore the concept of participation differently by employing non-conventional research tools, such as discourse analysis. Some studies are beginning to establish the relevance of discourse in participatory practices (e.g., Anderson & Grinberg, 2005). Although there is a notable element of discourse investigation in recent scholarship, the influence or relevance of discourse to idea formation on the concept of participation has not been fully explored. In the case of education, participatory practices are experienced and described at classroom level. As a result, the angle at which individuals see themselves involved is explained in terms of their level of involvement and contributions to pedagogical activities. At the heart of the function of participation are the pre-planned and discursively organized goals to be achieved. Therefore, understanding participation as

dependent on discursive definition of the broader purposes of educational programs and teachers work, leads me to frame participation endeavors not so much as a question of technology, but as a question of purpose. The consensual principle of participation overshadows the questions of 'who participates' and on 'whose agenda' because of its generic application. In the context of African institutions, of which Botswana education system is a part, not much has been published on the relevance of participation of teachers outside student achievement. What has been covered is primarily parental and community participation in education (e.g. Suzuki, 2002, on the case of parental involvement in education in Uganda). Values and principles that influence participation and form discourses were not featured in any of the reviewed literature.

The empirical evidence in this study was derived through the use of qualitative methods of research. The qualitative aspect of the study provided the researcher with the opportunity to establish the understanding of participation by practitioners and policy makers. It also allowed an in-depth analysis of the policy text that has been written over and over to communicate strategies for change. This approach enabled the researcher to establish the discourses that surround the notion of participation at different phases of reform making i.e., from policy formation to implementation. Focusing the study on three school levels, administered by one central body, the Ministry of Education provided a cross-sectional view of the research problem. Although this study is limited to idea formation about participation, in many respects, the approach (FDA) revealed more about dominant ideologies in the field by examining a broad range of local curricular guidelines through policy texts and activities as part of implementable educational reform initiatives.

The approach aided me to establish discourses and contexts within which ideas, values, and beliefs about participation form. Each discourse, while representing a different dimension of participation, internally establishes the relationship between ideology and political intention and action through policy and strategies. In this study, the organizations' ideology is contextualised within government intention and action. As for teachers, they are contextualised within the observational gaze of authorities that can be both 'visible' and 'invisible'. These are techniques of power, such as, for example, supervision.

The results of this study make the case for how the existence of discursive contexts shapes the understanding and institutional practices of participation. Discursive contexts influenced every aspect of participation (the policy contexts, structural contexts, and administration) where things were said differently and expected to be commonly practiced. This is the first empirical study in which discourse through a Foucauldian lens was employed to explore practitioners and policy makers' experiences and understanding of participation, specifically in a transforming education system and evolving educational program. The results of this study illuminated varied experiences of participation and connected practitioners and policy makers' views on participation.

The study maintained Foucault's view that the understanding of social practices and their meaning within discourses is found in the play of discursal dominations and discontinuities. They provide the themes or rationalization for any discourse choice. In other words, the discourse 'patterns' are behind the organization's discursive choices, rationales for choice and mechanisms of choice. In policy discourse, the emphasis was on placing discourse side by side to identify 'sameness' and chart the 'rupture', where

difference in practice occurred. For Foucault, such rupture indicates change in power. Over time, the break away from the norm through strategically motivated actions of teachers will eventually mark the change in belief systems, in power structures, in dominant processes, and in the social forces impacting decision making.

Implications of the Study

Before limitations of the study, I put forward what I consider implications of participation embedded with discourse. I want to point to two possible directions: one is at the administrative level and the other at theoretical level. It is imperative to note that day-to-day decision making regarding what, why and how to implement rests with administration on a large scale. Therefore, implementation is not just about rolling out programs, it is a political process aimed at improving education. The implied meaning is that the implementation of educational reform needs to move beyond the normative, political ideological positions of complying with global images produced under the pretext of competitiveness (e.g., a drive for national discourse), to a strong teacher involvement that builds capacity and ensures sustainability. Science teachers and administrators working in the development and improvement of science education reform should consider how the scope and nature of participation challenges and influences their involvement in role taking such as decision making and idea formation with regard to reform initiatives.

The study leads to the increased effectiveness of participation once the existence of discourses is taken into consideration. The thinking that participation exist within discourses and can actually be fostered is grounded on the assumption that creativity

and divergent thinking represent positive attributes that need to be cultivated, and that knowledge is not to be subjugated. These intellectual attributes need to be encouraged, harnessed, and articulated throughout government policy text or strategies. Educators and theorists can benefit by not investing time in finding a unified theory of participation, but make the conceptualization and process of participation an informed and reflective endeavor. Practitioners and policy makers working towards the implementation of educational reform initiatives should consider the scope and nature of participation as viewed differently by all involved parties. Reaching a consensus on what is a 'better' practice of participation is not an easy task because of the competing visions that exist within broader social, economic, and political contexts that affect different players in education. What is relevant is to acknowledge the significant role of discourse in participation.

The findings presented in this study, and the broader body of literature on participation, should prompt researchers to look at the notion of participation in new ways. No longer can researchers look at participation as a symbolic, technological concept that legitimizes programs, but rather as a complex social phenomenon manifested in many discourses, and in many discursive contexts. Participation can be interpreted according to both situational and social forms. As these forms of discourse interact, they influence and shape one another. Therefore, teachers should have the space to develop techniques and capacities in the areas of facilitation, interaction and communication.

The effectiveness of the research values of the Foucauldian perspective cannot be underestimated and they are the primary evaluative criteria in this study. The

implications for curriculum, organizational reform and policy study are an important aspect of evaluating Foucault's theoretical relevance. The value of FDA to the study of the notion of participation:

- examines the way ideas are formed over and over such as is the case in science education program.
- charts the range of internal and external ideological paradigms impacting the teaching profession.
- helps in the understanding of the circumstances under which ideas, and beliefs with participatory practices form and emerge.
- identifies and explains how teachers define and expresses their role in the reform process through collective action.
- explains why curriculum decision making often appears inconsistent and contradictory.

In this study, we have seen how certain discourses prevail over others. This has been explained by how discourse practices and power operate. Foucault invites us to view the production of disciplinary practices as strategic elements within relations of power.

It requires a different type of approach of questioning the taken-for-granted and writing about the present while moving back and forth from accounts of specific, local situations and practices of the past. The focus of Foucault's work is on how control is exercised, how discourses are produced, and how regimes of truth are formed through discourse practices. It allows for some critical questioning of an intellectual disposition and opens up new perspectives on areas of inquiry in the field. In practice, there are fundamental problems of what to do with the suggested 'new thinking' around the

notion of participation. There is the fundamental challenge of taking for granted the underlying factors of arguments as to what being 'part' simply means. It is intriguing to develop sets of questions on how new thinking on the notion of participation can transform our practices at both micro and macro levels of organizations. In terms of the current study, we *can* pause and assess previous studies and policies that have existed over time. The other challenge is to explore the mainstreaming of aspects of participation, such as how it spreads through techniques and strategies used to implement the intended reform initiatives in science education. In doing so, I turn to Foucault's position that:

The longer I continue, the more it seems to me that the formation of discourse and the genealogy of knowledge need to be analyzed, not in terms of types of consciousness, modes of perception and forms of ideology, but in terms of tactics and strategies of power (Foucault, 1980, p. 77).

Foucault's method of analysis is intended to demonstrate that power is exercised in all social settings regardless of the forms it takes. In other words, his work is not to help administrators to do what they do more effectively but, rather, to question their ways of thinking and acting, ways that are played out of awareness through the exercise of power and through processes such as normalization. Foucault points out that administration, though it is a field constituted by power relations, is incapable of asking critical questions, primarily because it is trapped within a discourse of efficiency, productivity, and effectiveness that makes problematization difficult. Foucault's work suggests a new role for scholars in educational administration, one that is less prescriptive and more problem posing: this is the only way we can escape being enmeshed in the dynamics of power that constitutes the field as a regime of truth.

The present research has contributed to literature on participation by building upon past research on participation of teachers in educational reform activities. It has taken a sharp turn by including teachers' experiences as a way of exploring the discourses of participation. The study has, in Foucault's terms, found new ways of discussing the notion of participation through the inclusion of the voice of every individual involved. Although it is clear that participation is an administrative strategy, and that the general functions of participation resemble past research findings, this study has analyze discourses that are mainly administrative and have become internalized as 'norm' practices. This analysis has looked in new ways at teachers' understanding of the concept of participation. More especially it has unraveled the idea that policy structures within certain discourse field are the main force that underlie dominant discourses. The study has analyze experiences to uncover discourses that shape interpretation and understanding of participation.

The findings of this study are intended to benefit Botswana's education system by providing the successful inclusive design of educational reform initiatives. Further applications of the findings of the study are intended to inform the educational reform process in regional Southern Africa. The information gleaned will highlight new areas of research and provide practical implications for future endeavors in the formulation and implementation of educational reform initiatives, not only for Botswana but also for international education organizations. In addition, this study will bring forth new knowledge on the understanding, and the impact or influence of involvement of science teachers in reform initiatives aimed at improving science education programs.

Having identified research as an important tool in informing policy and reform decisions, the empirical evidence drawn from the literature on participation and educational reform pertaining to Botswana, shows a research gap in studies that explore participation of teachers in implementation of educational reform initiatives. This results in a “disfigurement” of the educational reform agenda that intends to ground its activities in the realities, values and praxis of those who are involved with reform initiatives (Riddell, 1999).

Limitations and Delimitations of the Study

There were a number of limitations to this study. It is important to acknowledge them. Some were related to the selection of participants, the interview schedule, lack of stipulated reform initiatives from the ministry and the schools, lack of an explicit definition of reform from participants, and there were no clear guidelines of what science education reform entails.

The purposeful approach used to select participants is not representative of all the science teachers and coordinators in schools. For example, teachers who agreed to take part in the interviews, especially from primary and secondary schools had few years of teaching experience. Therefore their teaching experiences may have limited their opportunities to participate in educational reform initiatives.

Although I recruited participants from all science departments in the schools used in the study, their training preparation prior to teaching differed considerably. For example, some science teachers in secondary school had College education in secondary education, while some had University education in science, and teachers in a

college of education had a second university degree in education. Teachers in primary school have diplomas in primary education obtained from a college education. This might have resulted in limiting teachers' experiences in taking part in a number of initiatives because of the difference in the magnitude of their training.

Another potential limitation of the study was related to interviews. At the beginning of the interview, the questions were open and later limited to the type of reform initiative the participant has had an opportunity to participate in. This created some variations because the less experienced science teachers did not expand their responses with examples as compared to those who have had opportunities to be involved in reform initiatives. Some participants did not appear to have a clear picture of reforms in science education within their institutions. The use of interviews which depend on close interaction with interviewee may lead participants to modify their involvement, responses and/or interactions accordingly, but it is envisaged that time in the field and the development of a good rapport, which may be enhanced by my prior working relationship, will reduce the effects of my presence. Some interviewees did not feel comfortable for the interview to be recorded, resulting in brief responses.

Despite the scope and flexibility offered by the Foucauldian perspective, it still delimits this study in many ways. Based on text analysis, the methodology is based on 'rich' texts, texts that address topics or issues important or relevant to science education and science education policy. Few texts in education directly address science curriculum as policy or provide curriculum statements revealing underlying policy concerns or strategies. Similarly, finding 'unheard' voices in a discourse field, voices not represented in published documents, is a challenge in any study relying on textual

analysis. Policy documents rely on simplified statements intended to appeal to the broad spectrum of stakeholders. By choosing to examine policy documents which are intended for a small or limited audience and purpose, this study may not reveal some of the consistencies or inconsistencies in a discourse field's ideology. The choice of Foucault's perspective creates problems of focus and emphasis in analysis.

The focus on government and its apparatus may limit the scope of reform issues in science education programs. The study's focus on individual institutions may overshadow the less obvious practices in science education, as well as the larger political, economic and structural changes around the discourse field. The emphasis on institutions (e.g., schools) and to a lesser extent on organizations (e.g., Ministry of Education) may diminish the focus on individual discursive practices, which is a strong discursive element in a relatively small field. Foucault's discourse analysis applied to policy text is mainly descriptive and analytic rather than evaluative. It is limited to providing information about discourse relationships. A set of procedures based on Foucault's genealogical interpretation must be constructed and incorporated into the methodology to interpret and evaluate the reform process.

Future Research

Foucauldian discourse analysis presents abundant opportunities for future research. It provided an increased understanding of policy driven decision making. It will be interesting to investigate its applicability for other types of concepts and idea formations within the realms of reforming educational reforms. Discourse could be analyzed in similar research studies and provide plausible means of explaining the

relationship between ‘anticipated’ participation and reality. The Foucauldian approach *can* be further utilized to provide a focused examination of discourse processes related to policy formation, specifically that of science education. Policy makers’ and practitioners’ role in decision making and in provision of feedback could be better featured once methods that are consistent with Foucault’s theory and mode of analysis are employed. The value of discourse analysis to policy formation and its influence on the implementation of educational reform initiatives is, in part, its concern for policy function. As it charts conceptually the policy environment, the implementation aspects and discourses, it provides useful contours of discursive and non-discursive interactions between economic, political, and institutional structures. As such, a reality of policy function can emerge.

The analysis of discourses in this study could provide further in-depth study for the relationship of external structures and process. Foucault’s view of administration offers opportunities to calculate the impact of discourse contexts, processes and structures within the policy formation and implementation across other concepts that are used to improve educational reform initiatives. All of these relationships would provide a different view of established structures, concepts, and processes impacting on science education. The next step from the research study would be to provide a more detailed instrument based on each phase of reform making, where the potential for Foucault’s approach to discourse could be fully realized. Although Foucault resists theory as a base for his investigations, his approach of confirming and reconfirming patterns and the genealogical interpretation could allow researchers to write and reformulate policy interventions as well as investigate implementation processes and

binding discourses. However, it is critical for the researcher to be aware of Foucault's approach to his work, his "tool box" of methods allowed him to use the approach that seem appropriate for the work, rejecting it for another, creating his own, and most important allowing for contradictions and tensions within his work without the need to resolve them (Dreyfus & Rabinow, 1983).

There are still some ambiguities in the genealogical interpretations of the policy discourse field. For example, in order to make the analysis more functional, the policy texts could be improved with clear guidelines and identification of the significant roles of speakers, as well as the impact of individual and institutional forces outside the organization. Language plays a vital role in identifying discourse ideology, purpose, and function. Therefore, concept analysis, such as that of participation, requires more in-depth study of language function relevant to Foucault's perspective.

Recommendations for further refinement or modification of procedures and practices are dependent on some reassessment, interpretation, and organization of policy concepts. The Foucauldian discourse analysis approach needs a clear textual means of gathering information. Foucault's approach to research or techniques are often abstract: they lack direct examples to guide the researcher. Every precaution has been taken in this study to represent Foucault's work accurately, yet the possibilities of misinterpretations are possible, more especially in understanding his rationale for recommendations. A careful rereading and further clarifications of Foucault's theoretical concepts is a reasonable recommendation for further research.

This study is another step in the building of discourse process and the analysis of such. It is a stage of research development where the investigative processes of

discourse are essential and may be complementary in providing alternative theoretical spaces to the researcher. Foucault's acknowledgement that reality has multiple dimensions and that reality has many interpretations opens up research spaces that reality may be viewed indirectly through many lenses. The potential difference between practitioners and policy makers can be further investigated to find out the effects of power from the different levels of hierarchy.

Summary

All inquiry is a form of discourse analysis. Discourse is everywhere and exists in many forms. The intellectual interests, beliefs and values of the researcher not only influence the choice of the research topic and questions to be addressed, they also influence the design and choices of debate made throughout the study. In order to understand the researcher's world view, the choice of methodology is a guiding principle. The choice of Foucault's perspective and analysis of discourse reflects the researcher's interest in understanding the abstract, and going beyond the common understanding of power. Foucault's view of discourse shifted from a total embracing of rules and laws or procedures and their discursive formations to more pragmatic concerns with the effects of discourses on practice. This position allows the discourse analysis of concepts to bring out views on power and politicizing views on knowledge, i.e., knowledge that is biased towards the producers and serving the interest of the dominating discourses.

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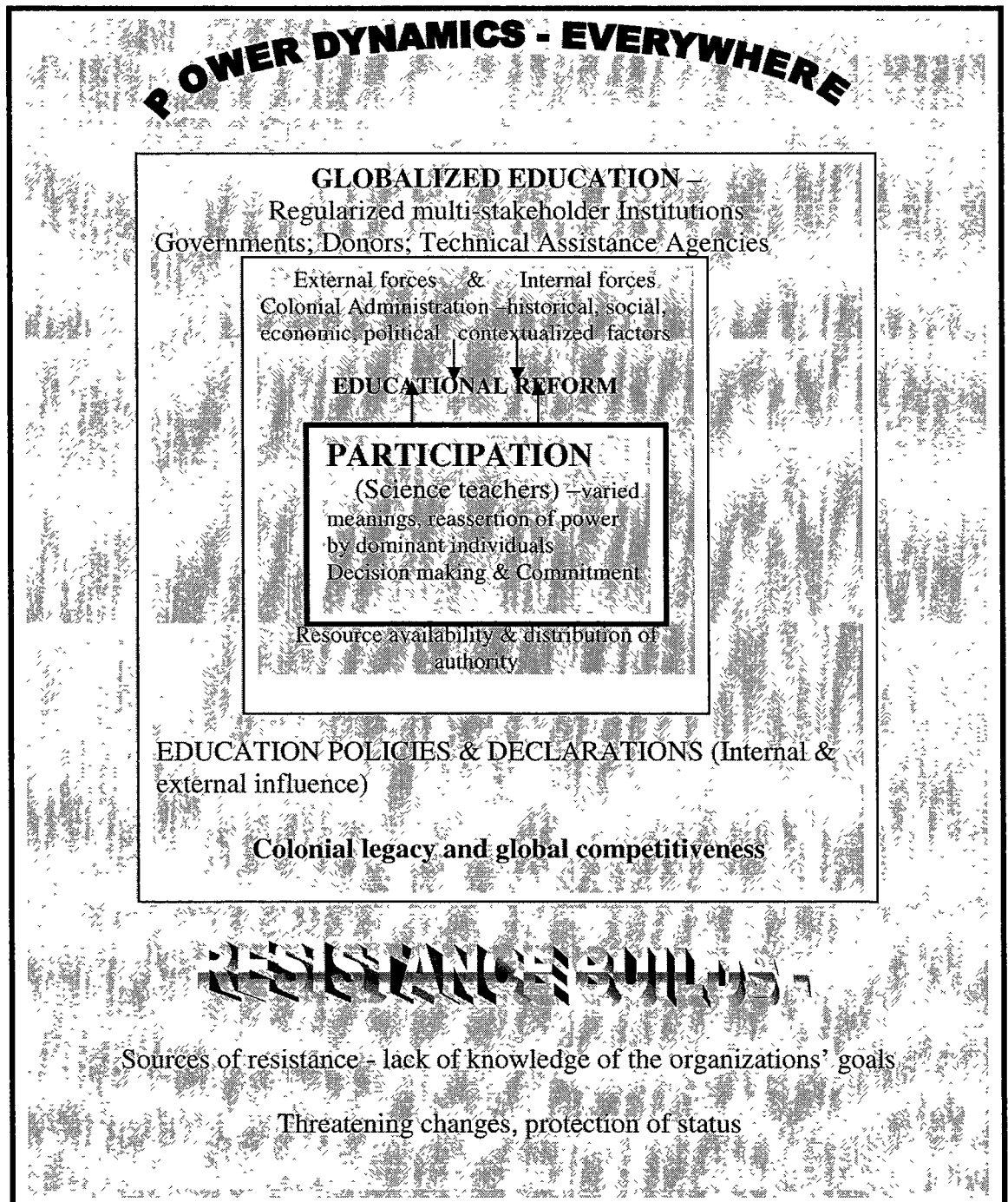
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APPENDICES

APPENDIX A

Figure 1: Teacher participation in controlled contexts:

Power dynamics are everywhere



APPENDIX B

INFORMATION LETTER FOR DIRECTOR - TEACHER TRAINING AND DEVELOPMENT (MINISTRY OF EDUCATION)

This letter serves to inform you that I am conducting a PhD research project, in an effort to explore the discourse in participation of teachers in the implementation of educational reform initiatives. The purpose will be:

(a) to explore how science teachers and administrators experience and value the process of participation in the implementation of educational reform.

(b) to explore how participation given the availability of resources, both human and financial, as well as the distribution of authority impacts educational reform.

Data will be gathered by reviewing documents – previous and current - mainly policy documents, memos for meetings, workshop proceedings and reports. Other tools to be used for collecting data include interviews for science teacher educators and administrators involved with the improvement of educational programs. The interviews (in-depth) will be conducted with science teacher educators from one college of education, and administrators of this particular institution, as well as ministry officials from science departments who will be key informants. The interviews will be held face-to-face over a period of three weeks. Following these individual interviews will be group interviews where teacher participation will still be needed. The participants will be identified by the use of pseudonyms so that their names do not appear anywhere. Furthermore, alterations of minor context details in the dissemination of findings will help ensure full anonymity. The final report will be written or presented in a way that conceals the identity of participants.

Preliminary interview dates will be scheduled by the researcher and the participants. Participating in this study is voluntary. There is no risk, or any form of discomfort involved in the whole process. Note that participants in interviews have the right to withdraw from the project at any time or, during an interview, and have the right not to answer questions without reprisal.

Botsalano Tsala Mosimakoko, PhD Candidate
Dr. Richard Barwell, Thesis Advisor
University of Ottawa, Ontario, Canada

APPENDIX C

INFORMATION LETTER FOR THE PRINCIPAL - COLLEGE OF EDUCATION

This letter serves to inform you that I am conducting a PhD research project, in an effort to explore the discourse in participation of teachers in the implementation of educational reform initiatives. The purpose will be:

(a) to explore how science teachers and administrators experience and value the process of participation in the implementation of educational reform.

(b) to explore how participation given the availability of resources, both human and financial, as well as the distribution of authority impacts educational reform.

Data will be gathered by reviewing documents (mainly policy documents, memos for meetings, workshop proceedings and reports). Other tools to be used for collecting data include interviews. In the college, I will be conducting in-depth interviews. The interviews will be held face-to-face over a period of three weeks. Following these individual interviews will be group interviews where science teacher educator's participation will still be needed. Another strand of interviews involves college administrators, namely; deputy principal – academic, and head of department-science. The participants will be identified by the use of pseudonyms so that their names do not appear anywhere and alterations of minor context details in the dissemination of findings will help ensure full anonymity. The final report will be written or presented in a way that conceals the identity of participants.

Preliminary interview dates will be scheduled by the researcher and the participants. Participating in this study is voluntary. There is no risk, or any form of discomfort involved in the whole process. Note that participants have the right to withdraw from the project at any time or, during an interview, and they have the right not to answer questions without reprisal.

Botsalano Tsala Mosimakoko, PhD Candidate
Dr. Richard Barwell, Thesis Advisor
University of Ottawa, Ontario, Canada

APPENDIX D

INFORMATION LETTER TO COORDINATOR SCIENCE UNIT – DEPARTMENT OF CURRICULUM DEVELOPMENT AND EVALUATION (DCDE), AND DEPARTMENT OF RESEARCH AND EXAMINATIONS.

This letter serves to inform you that I am conducting a PhD research project, in an effort to explore the discourse in participation of teachers in the implementation of educational reform initiatives. The purpose will be:

- (a) to explore how science teachers and administrators experience and value the process of participation in the implementation of educational reform.
- (b) to explore how participation given the availability of resources, both human and financial, as well as the distribution of authority impacts educational reform.

Data will be gathered by reviewing documents (mainly policy documents, memos for meetings, workshop proceedings and reports). Other tools to be used for collecting data include interviews. Concerning the science unit in DCDE, I will interview tutors or resource persons who conduct seminars and workshops, in which science teachers come together to work on ways of improving science education program in their various institutions – such as primary, junior and senior secondary, and college of education. The participants will be identified by the use of pseudonyms so that their names do not appear anywhere. In addition to this, alterations of minor context details in the dissemination of findings will help ensure full anonymity. The final report will be written in a way that conceals the identity of participants.

Preliminary observation schedules will be drawn by the researcher and the coordinator. Participating in this study is voluntary. There is no risk, or any form of discomfort involved in the whole process. Note that you have the right to withdraw from the project at any time.

Botsalano Tsala Mosimakoko, PhD Candidate
Dr. Richard Barwell, Thesis Advisor
University of Ottawa, Ontario, Canada

APPENDIX E

CONSENT FORM- SCIENCE TEACHERS – PRIMARY, SECONDARY AND COLLEGE OF EDUCATION

When the research project involves individuals and is carried out by researchers at the University of Ottawa, the Ethics Committee of the University requires the written consent of the participants. The intention is to assure the participants of respect and confidentiality.

The purpose of this research project is to explore the discourse that participation is embedded within, as a way of seeking different and better ways of understanding the concept in question. In doing so, the research study examines my participation as a science teacher educator or coordinator in implementation of educational reform initiatives, in particular science education program. It is envisaged that this study will identify the connectedness, contradictions, puzzles, bringing out ruptures and discontinuities involved in the historical emergence of participation. At the same time, the study intends to highlight the forms of power and the channels it takes. The information gleaned from the interviews is hoped to provide fresh outlook into participation for better implementation of programs.

After being informed of the intentions of the project on the discourse of participation by science teachers in the implementation of the educational reform initiative, I consent to participate.

I am aware that the interview will be open-ended and in-depth to probe deeper to solicit comprehensive understanding of the discourse on participation. I will also participate in group interview which will last between one hour and two hours. The interview will be held in the college during working hours where schedules will be arranged between me and the interviewer prior to the interviews.

I fully understand that there will be no direct benefit for my participation in the study. However, I can get a summary of the interview report at the end of the interview if I so wish. I am also aware of my right to withdraw from the project at anytime or during the interview, and my right not to respond to questions I deem unnecessary without any prejudice.

In addition, I understand that the results will be kept confidential and that my name will not appear in any publications of the study, instead, I will be identified by the use of pseudonym. To further protect my identity, I am aware that alterations of any leading or minor context details will be done to ensure full anonymity. The final report will be written in such a way as to conceal my identity. Finally, I understand that the data will be kept in a secure place and will be destroyed five years after the publication or dissemination of the findings.

If I have any questions about the study and my involvement, I may contact the researcher and her supervisor.

For any reasons regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550

Cumberland Street, Room 159, Ottawa, ON. K1N 6N5, at (613) 562-5841 or ethics@uottawa.ca

I, (please print your name) _____, hereby consent to participate in the above-named study. My participation is voluntary and I have been given the opportunity to ask any questions regarding this research and these questions have been answered to my satisfaction.

There are two copies of the consent form, one of which I may keep.

Signature of the participant: _____ Date _____

Signature of the researcher: _____ Date _____

Botsalano Tsala Mosimakoko, PhD Candidate
Dr. Richard Barwell, Thesis Advisor
University of Ottawa, Ontario, Canada

APPENDIX F

CONSENT FORM – KEY INFORMANTS

After being informed of the intentions of the project on the discourse of participation by teachers in the educational reform initiative, I consent to participate.

I am aware that the interview will be open-ended with in-depth probing to solicit comprehensive understanding of the discourse on participation. The interviews will last for about 45 minutes. The interview will be held in my work place during working hours where the schedules will be an arrangement between me and the interviewer prior to the interviews.

I fully understand that there will be no reprisal and direct benefit for my participation in the study, however, I can get a summary of the interview report at the end of the interview if I so wish. I am also aware of my right to withdraw from the project at anytime or during the interview, and my right not to respond to questions I deem unnecessary without any prejudice.

In addition, I understand that the results will be kept strictly confidential and that my name will not appear in any publications of the study, instead, I will be identified by the use of pseudonym. To further protect my identity, I am aware that alterations of any leading or minor context details will be done to ensure fully anonymity. The final report will be written in such a way as to conceal my identity. Finally, I understand that the data will be kept in a secure place and will be destroyed five years after the publication or dissemination of the findings.

If I have any questions about the study and my involvement, I may contact the researcher and her supervisor.

For any reasons regarding the ethical conduct of this study, I may contact the Protocol Officer for Ethics in Research, University of Ottawa, Tabaret Hall, 550 Cumberland Street, Room 159, Ottawa, ON. K1N 6N5, at (613) 562-5841 or ethics@uottawa.ca

I, (please print your name) _____, hereby consent to participate in the above-named study. My participation is voluntary and I have been given the opportunity to ask any questions regarding this research and these questions have been answered to my satisfaction.

There are two copies of the consent form, one of which I may keep.

Signature of the participant: _____

Signature of the researcher: _____

Date: _____

Botsalano Tsala Mosimakoko, PhD Candidate
Dr. Richard Barwell, Thesis Advisor
University of Ottawa, Ontario, Canada

APPENDIX G

REPUBLIC OF BOTSWANA

Research Permit Application Form

Two copies of this form should be completed and signed by the applicant who wishes to obtain a permit for conducting research in the Republic of Botswana, and send to the Permanent Secretary of the relevant Ministry (See guidelines for addresses). These forms should not be submitted unless the Guidelines for the research have been carefully studies. A copy of any project proposal submitted to funding agencies must accompany this application. Please refer to annexure 1 attached to this application form. **Fill this form in full.**

Description of the Proposal

1. Title of Research

.....
.....

2. Name and address of applicant

.....
.....

e-mail:

3. Name and address of home institutions (if any) which you are affiliated

.....

4. Name and address of supervisor of research in home country or responsible referee:

.....
.....

Research plans

5. a) Main aims (general)

.....
.....
.....

b). Objective: detailed description of issues/problems and/ or topics to be investigated, relevance of the research: hypothesis etc. (attach a separate sheet if necessary).

.....
.....
.....

6. Budget for the costs in Botswana (give detailed breakdown of research costs such as subsistence, traveling, local staff, secretarial services, seminar, printing etc). Please state the amount in Pula.

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.....
.....

7. Name and address of financial sponsor(s) if appropriate.

.....
.....
.....

8. Has funding already been obtained? (Yes/No)

a). If yes, please state the total amount granted, and the name and address of the funding agency:

.....
.....

.....

b). If no, what steps are being taken to ensure sufficient funding?

.....

.....

.....

9. If you have previously done research in Botswana please give details of the research.

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10. Name and address of institution in Botswana to which the researcher is to be affiliated.

.....

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11. Details of Botswana-based personnel that will be involved (names, functions, qualifications).

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12. Places in Botswana where the research has to be undertaken

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13. Proposed time – schedule for the research

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14. Plans for dissemination of research findings

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.....
.....

15. How are the research findings going to be used in the home country?

.....
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.....

16. Any other information

.....
.....
.....

17. Signature of applicant: _____

18. Date: _____

APPENDIX H

INTERVIEW GUIDE – SCIENCE TEACHERS

Years of Experience:.....

Gender: Male / Female

Thank you for agreeing to take part in this interview. We understand that you are very busy and want to thank you for taking the time to be interviewed today. In this interview we hope to obtain information that will be used to explore the discourse of participation, as a way of seeking different and better ways of understanding the concept of participation and its practice. In order to do so, the research study examines the involvement of science teachers in implementation of educational reform initiatives, in particular science education program. The information collected through interviews, which is likely to be contrasting, will assist the researcher in presenting and discussing data with a view of mapping out connections, shifts, contradictions, and puzzles. As a result, claims will be generated, written, and supported with quoted data from the discourse. Overall, the information gleaned from the interviews is hoped to provide fresh outlook into participation for better implementation of educational reform programs.

According to the Ethics Committee of the University of Ottawa, we assure you of the respect and confidentiality.

Please feel free to respond to a set of questions that forms a baseline for more in-depth and probing type of questions.

1. Who has the privilege to invite participants to meetings, workshops, and seminars?
 - (i) Are you invited because of your input or is it because you are a member of staff?
 - (ii) Are you invited because of your years of experience?

2. Is the invitation to participate in seminars done on the basis of position or competence or both?
 - (i) What is your experience in being part of the decision making team in the last 15 years?
After pilot interview, the question changed to:
 - (ii) What is your experience in being part of the decision making team?
 - (iii) Do you think it is advisable to disregard the position when the teacher is selected into a science panel?

3. Are the activities shared among participants?
 - (i) In your view, are the activities divided among the participants? If so who distribute the tasks?

- (ii) If you are given the opportunity to choose the task(s), would you feel more committed than when you are assigned the task?
4. How would you describe your involvement if you have the control over activities and resources to be used?
 - (i) In your previous engagement in the initiatives, were you aware of the availability of resources (finance or material) before you engage in an activity?
 - (ii) How did your awareness or non-awareness impact your involvement?
 5. Is participation a willingness exercise?
 - (i) Are you given an idea or an opportunity to understand the intentions of the initiative before being invited to take part?
 - (ii) Do you think it is advisable to be allowed to choose to participate?
 6. In your opinion, does the school administration invite you because they see the need or are they doing it to satisfy the record?
 - (i) Are you invited because there is need? If so are those needs made known to the participants?
 - (ii) Are you given the opportunity to initiate ideas which you think are context based?
 7. Does participation in implementation of reform initiatives help the education system to advance its policy mandate?
 - (i) Before taking part in a reform initiative, are you fully aware of the policy or recommendation to be implemented?
 - (ii) Does the ministry of education give you feedback on the reform initiative you took part in?
 8. In your opinion, how has the participation of teachers contributed to the development of science education program in your institution?
 - (i) Since your involvement, if any, are you seeing any improvement in science education program?
 - (ii) Do you feel encouraged to take part in future improvement of science program?
 9. Do you think your contribution in making decisions adds value to the decision making process relating to implementation of science program.
 - (i) Are other participants contributions used to influence decisions?

- (ii) How would you like your contributions better used after your involvement in the reform initiative?

10. Describe the intensity of your involvement in cases where you opted to be part of the participating group.

- (i) Do you opt to participate because of activities that interest you?
- (ii) If the activity is not interesting to you, how do you describe your involvement?

APPENDIX I

INTERVIEW GUIDE – ADMINISTRATORS (COLLEGE, TT&D, DCDE, TUTORS, HEAD – REGIONAL EDUCATION OFFICE)

Years of Experience:.....

Gender: Male / Female

Thank you for agreeing to take part in this interview. We understand that you are very busy and want to thank you for taking the time to be interviewed today. In this interview we hope to obtain information that will be used to explore the discourse of participation, as a way of seeking different and better ways of understanding the concept of participation and its practice. In order to do so, the research study examines the involvement of science teachers in implementation of educational reform initiatives, in particular science education program. The information collected through interviews, which is likely to be contrasting, will assist the researcher in presenting and discussing data with a view of mapping out connections, shifts, contradictions, and puzzles. As a result, claims will be generated, written, and supported with quoted data from the discourse. Overall, the information gleaned from the interviews is hoped to provide fresh outlook into participation for better implementation of educational reform programs.

According to the Ethics Committee of the University of Ottawa, we assure you of the respect and confidentiality.

Please feel free to respond to a set of questions that forms a baseline for more in-depth and probing type of questions.

1. Is participation a willingness exercise?
 - (i) Are science teachers given an opportunity to understand the intentions of the initiative before being invited to take part?
 - (ii) Do you think it is advisable to be allowed to choose to participate?
2. During active involvement in the decision making process that enhance reforms in science education, do you play an influential role?
 - (i) How often do you make an input?
 - (ii) What value does your input add to the process of decision making?
3. What words are commonly used to refer to participation?
 - (i) Do you think you have the same understanding of the words used to refer to participation with science teachers? If not explain the differences or variations.

- (ii) Do the words used determine the level and degree of participation?
4. Do you think the idea of inviting science teachers should be based on their content knowledge and competence, and position? If so why?
 - (i) Does the 'degree' of participation depend on their status?
 - (ii) Does a teacher who seem confident and competent show commitment in participation?
 5. What do you see as the benefits of involving teachers in the implementation of the reform initiatives?
 - (i) Are programs better implemented when teachers are fully or partly involved?
 - (ii) Does science teachers' contribution to decisions on the designing of blueprints stall or enhance progress?
 6. What do you see as the challenges facing your department in terms of involving teachers in implementation of reform initiatives?
 - (i) Do you think teachers like sharing ideas and taking part in decision making?
 - (ii) In your view, would teachers welcome the idea of being involved from the initial stages of the educational reform or will they find it time consuming?
 7. In your opinion, how has the participation of science teachers and your involvement contributed to the development of science education program in the last 15 years?
 - (i) Do you think you gained valuable experience during the time you have participated in science education reform initiative program?
 - (ii) Explain how lack of, or minimal involvement of teachers in the reform initiative impact on implementation of science program.
 8. Who else is involved in the whole process of educational reform up to the implementation phase?
 - (i) Are science teachers aware of the involvement of other actors in the reform process?
 - (ii) Do you think all actors or key stakeholders share the same understanding of participation? If not, explain the impact on implementation of programs?
 9. How does participation in educational reform initiatives ensure that science teachers are commitment in their work?

(i) From your observation and experience, how do you describe the participation of teachers who chose to be part of the initiative (e.g. module writing) against those who are selected?

(ii) Do you think teachers show commitment because they are gaining something from the entire participation process?

10. Please describe your experience with participation in science panels and policy advisory committees in the past 15 years?

(i) Do science teachers have control over their creativity in developing resources?

(ii) In your opinion, do science teachers have equal opportunity with administrators in controlling what goes into the blueprint?

APPENDIX J

FIELD NOTES SCHEDULE FORM

Date & Activity	Time	Place	Notes/Comments
Pilot Interview			
Member Check			
Consent Form Signed			
Interview School 1			
Interview School 2			
Interview School 3			
Profile			
Transcribed			