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**How do teachers respond to prescriptive curriculum changes? A study in
teacher discourse about educational reform.**

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Declaration

I declare that this research report is my own unaided original work. It is submitted for the degree of Master of Education at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree or examination in any other University.

Thomas Pugh, 9th December 2011

Abbreviations

ANA	Annual National Assessments
AS	Assessment Standard
C2005	Curriculum 2005
CAPS	Curriculum and Assessment Policy Statement
DBE	Department of Basic Education (post-2009)
DoE	Department of Education (pre-2009)
DfEE	Department for Education and Employment (UK only)
FfL	Foundations for Learning
GDE	Gauteng Department of Education
HOD	Head of Department
HREC	Human Research Ethics Committee
LEA	Local Educational Authority (UK only)
LO	Learning Outcome
LTSM	Learning and Teaching Support Material
MLMMS	Mathematical Literacy, Mathematics and Mathematical Sciences
MTSF	Medium Term Strategic Framework
NLNS	National Literacy and Numeracy Strategy
NNS	National Numeracy Strategy
OBE	Outcomes Based Education
PCK	Pedagogical Content Knowledge
RNCS	Revised National Curriculum Statements
TIMSS	Trends in Mathematics and Science Survey
UNESCO	United Nations Educational, Scientific and Cultural Organisation

Abstract

How do teachers respond to being told by the state what to teach? Whilst some suggest prescription can be instrumental in rapid system improvements, others believe that it has a deleterious effect on the profession. In this study, I firstly look at whether South Africa can be classified as a system increasing its levels of prescription and secondly consider how such an approach may affect teachers. Detailed investigation of policy documents finds that South African primary mathematics is an example of 'unprescribed prescription', typified by documents with hugely detailed teaching and learning practices but which are never made sufficiently mandatory.

Studies of teachers' responses to prescriptive educational reform are hindered by stereotypes, often based around teachers' unwillingness to change. In-depth interviews allow the study to explore the positive and negative effects which teachers' professional identities have upon decisions regarding policy reform. Equally, far from being passive in their reception of change, teachers displayed highly-ordered and well-reasoned viewpoints on how educational change should be successful. This allowed me to place teachers into four discrete categories according to their response to prescription and the implications of these categories for policy makers are put forward.

Keywords: elementary teachers, comprehensive school reform, prescription, instruction, school reform, educational change.

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Chapter 1: Introduction

Statement of problem

Basic education is top of the South African government's list of priorities, 'Ideally, we should be able to focus on one catalytic priority, namely education' (The President's Office, 2009a:3). The rationale behind this is that education is an instrument which can turn around inequities in South African society and contribute to greater equality. However, standards in South African primary education are very low (DBE, 2009a) and the South African government has, since 1997, been rolling out policies to try and improve overall standards. As with any state, the South African government seeks to legitimise itself by producing measurable improvements in public services such as education. There is not unanimous agreement on how to improve primary school mathematics and so a variety of policies have been enacted in the last two decades. This has led to a very complex policy landscape in which many programmes have overlapped and numerous directives are issued at once. My study will explore how teachers talk about the methods and purposes of policies, such as Foundations for Learning (Ffl) and the Department of Basic Education's (DBE) issuing of workbooks, as well as how they respond to these reforms.

Analysis of the succession of mathematical policies reveals the DBE's overarching manner of improving educational standards- this is often called a 'model of educational change'. Underlying this is a 'theory of educational change' which should be distinguished from a 'theory of education' and it is the former which I will be investigating. In the words of Fullan, 'a theory of education includes the substance of content and pedagogy' whilst 'the theory of change, or action, concerns what policies, strategies and mechanisms are going to be used, in effect to implement the theory of education' (Fullan, 2003a:52-53). I am therefore not looking at which curriculum content is selected but, instead, I will categorise how teachers respond to these policies and the effect that these responses may have upon the challenges facing the South African education system.

One of the key challenges facing South Africa is how to shift teaching practices to ensure improved learning outcomes. Many national policies since 1997 have targeted significant gains but the indicator

chosen by the government to measure learner progress, attainment levels in standardised tests, remains stubbornly static (DBE, 2009a). The reaction of many governments around the world to issues of improvement inertia has been to seek further control over schools and teachers by being more prescriptive (for example in England, see Barber, 2008:337). This prescription has usually taken the form of increasing levels of detail being issued by the state, including in-depth lesson plans, recommended pedagogies and statutory resourcing. This prescriptive model of change is thought to trigger specific responses from teachers due to such factors as decreasing the space for professional autonomy, standardising practice and an over-emphasis on examination results. There have been many studies focussing on how teachers respond to prescriptive policy implementation, most of them in England and USA. This study will explore whether these responses are mirrored in developing states, namely South Africa. Whereas research in such cases, following that of Sarason (1982), has often focused on *school* context when exploring the implementing of policy changes, I intend in this study to classify the specific patterns of *teacher* discourse with regards to South African primary mathematics.

Background

The pressing need for reform

There are numerous indicators of the unsatisfactory situation in South Africa's mathematics over the last ten years, including both national and international studies. The DoE's systemic evaluations (2007:4) showed average Grade 6 mathematics scores at 27% for in 2004 and 35% in 2007 whilst the most recent data from the Annual National Assessments (ANAs) (DBE, 2011a) gave a Grade 6 average at 30%. Conducted in 1999 and 2003, TIMSS (Trends in International Mathematics and Science Survey) placed South Africa last of all participating countries in both years in both Maths and Science (Mullis *et al.*, 2000). The Minister of Education added in 2008, 'Our scores in international assessments of reading and numeracy have been poor to alarming. The aim of these international rankings is to spur reform' (Pandor, March 2008).

From the figure below one can see that Mathematics lags behind even other learning areas in the South African context. A mere 12% of learners achieving the required standard represents an unacceptable situation in South African primary mathematics.

Level	Level	Percentage	Languages	Mathematics
Not achieved	1	Less than 35%	70	69
Partially Achieved	2	At least 35% but less than 50%	15	19
Achieved	3	At least 50% but less than 70%	12	9
Outstanding	4	At least 70%	3	3

Figure 1 - 2011's ANA results in languages and mathematics (2011a:31)

Curriculum policy change has been one of the major instruments used to try and improve educational standards over the past fifteen years but it appears that the government is to move towards simultaneous change of many factors within the educational system. Accountability measures, of schools, districts, provinces and even for the Minister of Basic Education, are being emphasised in order for educational service delivery to become more transparent. ANAs are being given a higher priority and political goals are even being attached, in 2008 the former Minister of Basic Education pledged to increase, 'average learner performance in Literacy/Language and Numeracy/Mathematics to no less than 50%' by 2011.

This politicisation of the education agenda is reflected in the Green Paper in National Strategic Planning (2009b) which promotes a new, more rigorous and tightly monitored plan of service delivery in South Africa, including education. Moreover, President Jacob Zuma in his 2010 'State of the Nation Address' pledged to the nation that 'We will assist teachers by providing detailed daily lesson plans. To students, we will provide easy-to-use workbooks in all 11 languages' (Zuma, June 2010).

This led to the promulgation of the FfL campaign across South Africa in 2010 and the introduction of DBE workbooks in 2011. Given this high-profile promise, it has become an area with a large budget and much pressure to deliver results. Primary education is used as a template in the government's *Improving government performance* document of 2009 which is another measure to deliver improved results. With

‘the country’s high level aspirations categorised into focused strategies’ (2009b:4), its structure follows the government’s reverse mapping model of public policy, outcome → output → activity → input.

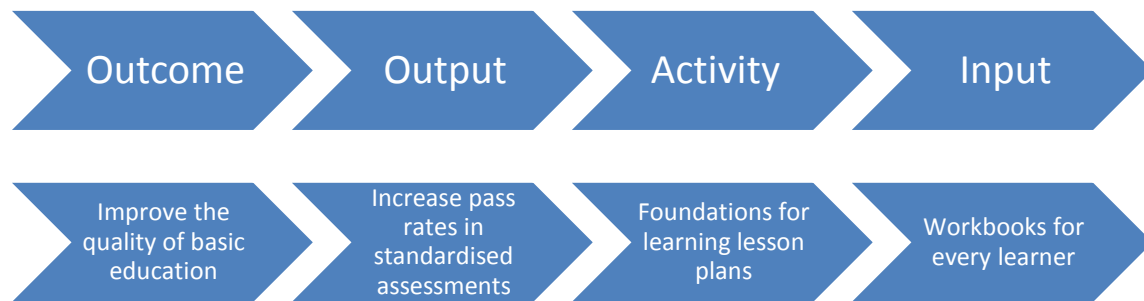


Figure 2 - Adapted from Improving Government Performance (2009:7)

This structure gives the model of educational change of the system as a whole- the targets that accompany this model are listed in Appendix A. These are very ambitious targets and it remains to be seen whether these are feasible within the deadlines given. In this study, however, it is not the overall levels of achievement given by such performance indicators in which I am interested but how teachers make sense of this model of educational change and how they have experienced it in practice.

Aim

The aims of the study are to determine whether South African curriculum policies are becoming more prescriptive and to understand how teachers frame their responses to prescriptive educational changes, specifically in the context of South African primary mathematics. In doing this, I hope to contribute to a wider understanding of teachers’ frames of reference regarding educational change.

Having selected the responses of teachers as the primary empirical criterion for this study, I aim to:

- a) Gather data on teacher discourse about prescriptive curriculum reforms
- b) Analyse trends from this discourse
- c) Explore what factors are important in influencing teachers’ response to prescription
- d) Generate categories of teacher response.

It is my hope that the formulation of a scheme of teachers’ responses will allow me further insight into teachers’ identities and their own theories of educational change. Understanding of these two factors will inform successful change strategies in the future. From interviews it was possible to assess how

purpose-suited teachers thought a policy was and whether it was likely to work in practice. The benefit of such an understanding is to shed light on the processes of policy making and implementation in South Africa.

Rationale

My focus is on some of the most recent curriculum policies rolled out in South Africa. The current curriculum policies in place are the Revised National Curriculum Statements (RNCS) but I also study the FfL campaign and the introduction of DBE workbooks in numeracy. In terms of prescription, I looked at what each policy sets out to do and how each policy aims to modify classroom practice to improve teaching as well as how teachers have responded to it. It is not my aim to carry out a full policy evaluation study. From the detailed gathering of this information about curriculum reforms, trends will become apparent and this will allow me to discern whether there is any significant move towards increased levels of prescription.

In order to do this, it is necessary to study in detail teachers' perspectives on and responses to change. This requires a qualitative methodology and close interaction with the teachers involved. Using interviews, I will question teachers' perceptions of the existing lines of communication and their perspectives upon whether teachers themselves are able to deliver this type of reform in practice. I will look at the underlying reasons which cause teachers to respond in the way they do and suggest any implications that subsequently arise for policy-makers.

I also expect that this research will shed light on whether South Africa is, indeed, moving towards more prescriptive methods in order to change classroom practice. This has significant implications for the education system as it reflects upon the DBE's model of educational change. Prescriptive reform is often a lynchpin of highly autocratic, 'top-down' change models.

It is hoped that this framework of teachers' responses will contribute to greater understanding of 'bottom-up' considerations. 'Bottom-up' policy implications are defined as those which start by looking at the main challenges faced at classroom level and then working these upwards into coherent policy rather than 'top-down' processes which take national areas of weaknesses, target them and seek to resolve them through policy-making. Rather than 'bottom-up', Elmore (1979:604) labels this 'backwards-mapping' and suggests that 'backwards-mapping explicitly questions the assumption that policymakers

ought to, or do, exercise the determinant influence over what happens in the implementation process.’ ‘Bottom-up’ approaches may include how teachers perceive change and what approaches are most likely to work in practice. Any such developments in our shared knowledge of educational change could be beneficially fed back into policy formulation processes in future, thereby improving learner outcomes.

Research evidence regarding educational change from the last fifty years (for example, Berman and McLaughlin, 1975 and Sarason, 1982) have shown that it is not common for a national educational reform to be put into practice exactly in the way it was initially conceived. Prescriptive educational changes often have a very precise manner in which they are intended to be implemented. In reality, the policy is likely to be modified in some ways as it is implemented. If the degree of adaptation of these policies is high *and* the policies fail to deliver the results that they have promised, then studies to pinpoint exactly where the failure lies are of critical importance. It would be unwise to scrap worthwhile policy content because of implementation issues or equally unwise to blame implementation issues when the policy itself was at fault. Consequently, I will be taking an in-depth look at each of purpose, policy and practice.

As mentioned above, there is already a framework in place for the way in which teachers engage with and enact prescriptive educational change in developed countries (mainly from England and USA). These two literatures are very different as, in summary, American studies have tended to focus on ‘principled objectors’ taking a stand against overly-prescriptive regimes whilst English studies have focused on teachers who have reluctantly acquiesced to increasing prescription. However, I have four reasons for thinking that neither of these approaches will map perfectly onto similar situations in the developing world, in particular in South Africa.

- 1) Mathematical teacher capacities (subject knowledge and pedagogical content knowledge) and the capacity to innovate vary far more between schools in developing countries. For example, South Africa has a very large amount of under-qualified and unqualified maths teachers (DBE, 2009c:11).
- 2) The clear chain between policy implementation, accountability, oversight and possible sanctions for non-implementation is much less well defined in developing world contexts (UNESCO, 2004:105).

- 3) Due to the problems with infrastructure, policies tend to be less comprehensive and coherent in developing world contexts (for a South African example see DBE, 2009b:7).
- 4) Attempts to standardise educational practice are more complicated when pre-existing practice is very uneven (Carnoy *et al.*, 2010:153).

It is a widely held belief (see McKinsey, 2010) that policy borrowing from one context to another can be very effective and allows education systems to learn from one another. It is an integral part of my study to look at whether contextual factors in disparate educational systems render policy borrowing ineffective. These reasons, and the lack of a significant body of previous research in these contexts, have led me to this attempt to generate categories of teacher response to prescriptive educational reforms. This will therefore constitute original research that may alter existing frameworks for teachers' responses in developed countries in order to make them more universally applicable.

Chapter 2: Literature Review

The first section of my literature review focuses on prescriptive educational changes. When trying to achieve rapid turnarounds in educational systems, trends in the models of educational change have moved away from schools learning from the best practice of one another (the school effectiveness model) to changing the system as a whole, often called Large Scale Reform (LSR). As I will develop further in this literature review, its proponents believe that this model has the power to achieve significant results rapidly whilst its detractors believe that it comes at a great cost to the teaching profession. I will analyse in detail the work of both of these groups and pay close attention to the role played by prescriptive policy changes in this change model. Recent publications from notable authors in the field suggest that the international policy climate is currently favouring approaches such as LSR and will be able to inform my findings in Chapter 4 about whether South Africa fits into this category.

The second section of my literature review focuses on teachers' responses to prescriptive educational change. This is an area in which wide-ranging academic research has taken place and multiple recommendations have been suggested. As mentioned in the previous chapter, my focus is not on how well teachers enact these policies but instead how they frame their viewpoints about prescriptive reforms. The remit of this study will therefore deal with teachers' perspectives on change and the factors that influence teachers' mindsets. I will also try to determine whether these studies expect findings from developed countries to be similarly applicable in the developing world. These levels of response are dependent on both the policy and individual characteristics of the teachers themselves, including experience in the job, experience of previous reforms and willingness to change. This literature will form the foundation of the theoretical framework of teachers' responses into which I will look to categorise South African teachers' responses.

The third section will compare the methodology of my study to others of its kind and position it within that context.

Literature review of prescriptive educational policy

The move towards large scale reform

As more and more educational change is attempted around the world, academics are attempting to incorporate these findings into a new and evidence-based body of change knowledge. The general trend in the literature has moved from theories in which schools are the unit of change to ones where national or district systems are completely overhauled in the quest for improvement. Hopkins, in his historical review of the data collected, summarises this change in approach as,

What is needed is a 'grand theory' of system change in education that results in relatively predictable increases in student learning and achievement over time... The review also highlights the increasing shift from individual school improvement initiatives to system wide (i.e. national, state or district) change. (Hopkins, 2010:1)

Fullan agrees with this broadened approach, stating, 'In order to bring about sustained reform in any school, we need to move beyond treating one school at a time to addressing all schools simultaneously' (Fullan, 2009:4).

What prescriptive educational reform looks like

Hargreaves classifies four models of system change, these are summarised by Fullan (2009:109) as:

The First Way teachers and the profession had great freedom and autonomy (let's say the 1960s and 1970s). The Second Way, says Hargreaves involved goals, performance targets, parent choice, and capacity building (the 1980s and 1990s). The Third Way is based on top-down government performance targets (as in the Second Way), along with capacity building, and lateral learning through peer pressure and support. Hargreaves' (2009) and Hargreaves and Shirley's Fourth Way consists of combining top-down 'national vision, government steering and support with 'professional involvement' and 'public engagement' all for the purpose of promoting 'learning and results' (Fullan, 2009:109).

Hargreaves notes that there are certain characteristics which have come to be associated with prescriptive educational reforms and which make it distinctive from other approaches. He classifies

these as the 'second way' - one in which educational standardisation means increasingly tight control of curriculum content, focuses on standardised testing and even recommends pedagogy (2009:25-30). This may come in various different forms, 'At the micro-educational level, governments exhibit increasing interest – through a concern with 'effectiveness' and 'improvement' – in direct interventions in pedagogy, professional development and institutional management' (Gleeson & Husbands, 2001:4). Simultaneous changes to such a large number of factors, or 'large scale reform', is defined by Fullan (2009:102, original italics) as 'deliberate policy and strategy attempts to change the *system* as a whole.'

The authority necessary to carry out prescriptive policies has also been contentious in the literature. Policies are often described as being centrally driven which means that they derive directly from the state or the DBE, the power of such policies will therefore relies upon the strength of the state and the policy's own internal legitimacy. The advantages of this, claims Hargreaves, are that 'central policies have widespread consequences, capture attention and generate substantial coverage in the media' (1989:215). Whilst, on the other hand, Lusi summarises the difficulties facing the state in driving central reform due to its being so far removed from the locus of implementation, '[n]ot only is the state trying to change the practice of a large number of practitioners over whom it has little control and no proximity; in addition, it is trying to make this change in a profession where good practice is nearly impossible to clearly specify and in an environment in which it is difficult to predict the effect of it actions' (1997:11).

What prescriptive reforms hope to achieve

Gandel and Vranek (2001) suggest that the aim of prescriptive reforms is simplicity of expectations for teachers. Such reforms generate a teachable set of standards which are characterised by their 'clarity and parsimony' (2001:9). In such cases each of the groups: teachers, parents and learners know what must be achieved. These prescribed outcomes go hand-in-hand with standardised testing which is, in turn, linked to teacher accountability. This is often called 'standards-based reform' and can, according to Gandel and Vranek lead to 'both equity and excellence' (2001:13).

Barber, who unapologetically labels large scale reform as 'command and control' (2008:341), claims that tight centrally driven prescription,

is often the first choice of governments that want urgently to enact change – and seen to be enacting it. As the phrase implies, it involves top-down management approaches and conveys at least an impression of government taking charge. If executed well it can be highly effective’ (Barber, 2007:21)

Barber, who himself was the architect of large scale reforms in England in the form of the National Numeracy and Literacy Strategies (NLNS) between 1999 and 2002, has gone so far as to say that ‘large scale reform is not only possible but can be achieved quickly’ (Barber, 2000).

When is prescriptive reform most applicable?

The context-dependency of educational change is re-evaluated in the influential 2010 McKinsey report (Mourshed, Chijioke and Barber, 2010:26) describing four stages that each system must go through. These each require different models of change and they progress in the order, ‘poor to fair’, ‘fair to good’, ‘good to great’ to ‘great to excellent’. The report analyses twenty different successful systems from around the world, examines the approaches they have used to achieve this success and hypothesises which approaches would take the system to the next level. The authors note that systems which have shown sustained improvement have used different techniques at different stages in their progress. They suggest (Mourshed *et al.*, 2010:36), that ‘poor to fair’ stage requires enforced focus on the basics of numeracy and literacy whereas the later stages focus on collecting good data and accountability (‘fair to good’), encouraging teachers and leaders to flourish (‘good to great’) and decentralising power in the system almost entirely (‘great to excellent’).

Hopkins *et al.* echo this sentiment stating (2011:15), ‘[i]t is also clear that strategies that are effective for improving performance at one “growth rate” are not necessarily effective at another.’ As an indicator of where South Africa lies in this continuum, the McKinsey report places the Western Cape (South Africa’s highest achieving province) in the category ‘poor to fair’ where the primary systemic goals are ‘achieving the basics of literacy and numeracy’ (Mourshed *et al.*, 2010:36). The methods suggested by McKinsey for the move from poor to fair were highly prescriptive, including recommending that, ‘the system creates instructional objectives, lesson plans, and learning materials for daily lessons to teachers lessons to enable teachers executing lessons rather than devising them’ (2010:38). This report is often regarded as

representative of the prevailing orthodoxy in educational change as it draws data from many systems over many years- suggesting its recommendations carry additional legitimacy and transferability.

An earlier McKinsey report (Barber & Mourshed, 2007) centres on the strength of the teaching profession as a major factor in the success of educational systems. As a result, the change theorists and those such as Hargreaves (2003:141) seem to group under-performing teachers with those teaching in developing countries, 'the scripted materials and strong support structures can benefit ... poorly paid and trained teachers in less developed countries, and other teachers whose knowledge, skills and overall expertise are weak or underdeveloped.' The assumption that struggling teachers in developed countries will respond to the same stimuli as underperforming teachers is open to much debate on the context specificity of educational change models. The existing research on what models may actually work in practice in Africa remains limited and Fleisch (2007:342) notes that despite there being many educational initiatives taking place all across Africa, 'a home-grown movement [of educational change] such as exists in North America, Europe or even Latin America is yet to come to the fore.'

This is why my literature review relies largely on research carried out elsewhere in the world. Fleisch again states, 'much of the sporadic work [in Africa] is largely dependent on research design models and theory from the European and the American literature. Questions need to be asked about the appropriateness and relevance of these to the various contexts of education on the continent' (2007:348). This is one of the gaps in the literature upon which this study aims to shed more light.

Methods of prescriptive reform

Fullan *et al.* (2001:6) set out the three levels for such reform to be successful in practice, 'you need to establish and coordinate ongoing accountability and capacity-building efforts at three levels- the schools, the district and the state'. He adds that the interdependence of these three levels needs to be stressed at all times as, 'working on coherence is the greatest need for complex systems' (Fullan, 2001).

It is generally agreed that prescription is not just about curriculum change but instead about the precise combination of factors which need to be altered to ensure reform successfully takes place. City *et al.* (2009) believe that only complementary changes to teacher practice, learner engagement and the content of policy will actually change teaching practice. Elmore (2002) also believes that improvements

in practice will only result from deep changes to the instructional core within schools. He adds the factors of consistent high-quality professional development and favours linking the accountability of external assessments back into teachers' practice. For professional development to be as relevant as possible to teaching, Elmore (2002:40) purposefully narrowly defines it as, 'primarily school-based and built into the day-to-day work of teaching.' The McKinsey report (Mourshed *et al.*, 2010) identifies largely the same factors in improving systems, calling them, 'intervention clusters' and aligning them in stages depending on the readiness of the system. First it changes classroom practice, next it improves accountability and data to feed back into this practice and then it looks to make teachers independently responsible for continuing these improvements.

Such highly prescriptive policy may be chosen independently or may form the first phase of a multi-phase reform, as in the NLNS in England (DfEE, 1999). In Phase I of the NLNS there was tight prescription of what to teach, when to teach it and, through a suggested pedagogy, how to teach it. This phase, it was hoped, would achieve short-term results, standardise practice and win over teachers before moving on to Phase II which places greater emphasis on professional autonomy, 'the challenge [of Phase I] was to get the message out to all LEAs [Local Educational Authorities] and schools, which necessarily suggested a top-down approach. Once the first phase was over, communication became more interactive' (Earl *et al.*, 2003:129). The rationale for this was that 'it takes capacity to build capacity' (Fullan, 2003b:7). To get into this strong position needed for Phase II, an initial stage needs to be undertaken to bring the capacity in the system up to the minimum necessary level. Hopkins (2006:17) explains this further when he claims that in order to get to a position in which teacher professionalism can lead the next phase of reform, an 'adaptive challenge' needs to be tackled. The challenge is that the knowledge to move to the next step is not yet in the system and is 'beyond the current competence of those involved' (2006:17). Critical in the change theories of both Hopkins and Fullan is the instigation of a necessary preliminary stage: the building of capacity within the system.

School-specific response to change

There exists a much wider literature about how *schools* rather than *teachers* respond to change and these studies suggest that a school's response is shared by all teachers within that school. Almost four decades ago, Berman and McLaughlin (1974:4) pointed out that schools often either willingly or unconsciously are places of 'dynamic conservatism' where even small changes took time and concerted

effort to take root. They postulated that successful responses to prescription involve a school adapting policy in order to generate a good fit whilst the school is itself also adapting in ways that accommodate the policy, this they called 'mutual adaptation' (1975:10). 'Mutual adaptation could involve a variety of adjustments...These adjustments often caused difficulties and did not invariably lead to a full achievement of the project's goals. But they typically increased the likelihood of changes in teacher and organizational practices' (1975:11). Such studies have emphasised the difficulty in anticipating either specific schools responses or the response of the school system as a whole.

The interdependency of policy change and context is captured by Sarason, who notes that schools do not run in perfect accord with the ideal of fully engaged pupils and fully reflective teachers and so, 'any attempt to change a curriculum independent of changing some characteristic institutional feature runs the risk of partial or complete failure' (Sarason, 1982:36). The overriding sentiment of this body of literature is that it is very hard to change the internal processes within schools and a large amount of this is due to the unwillingness of schools to change. As schools must reflect the characteristics of their employees, the logical implication of this is that teachers were, in some part, the underlying cause of such resistance.

Schools can also become adept at changing superficially whilst remaining the same below the surface. This is particularly common when there are pressure and incentives attached to such changes. In Elmore's words, American schools,

know how to change. They know how to change promiscuously and at the drop of a hat. What schools do not know how to do is to improve, to engage in sustained and continuous progress toward a performance goal. (2002:50)

The belief that reform will give a one-size-fits-all, attainable solution is a common misconception according to McDermott (2000:84) who states, 'Contrary to many reformers' implicit belief that at some point they will either "win" (by having their model implemented system-wide) or "lose" (by running out of time, patience, and money), partial implementation of many programs is a far likelier scenario'.

The effects of prescriptive educational change on teachers

The aim of this study is to understand how teachers formulate opinions about educational change. This is interlinked with how prescription affects both teachers individually and the teaching profession as a whole. In this section, I will firstly look at the purported effects of prescriptive policy change upon the teaching profession and, secondly, look at examples of teachers' discourse about prescriptive change models from other bodies of literature. Here it will be necessary to make a distinction between the literature emanating from England and that from the USA.

However, such close direction for all teachers presumes that all teachers need such guidance and has the potential consequence of de-skilling teachers in the long-term as they become over-dependent on scripted lessons. According to Hargreaves (2009:30), 'the Second Way enforced greater competition and increased expectations, but at too great a cost to student learning, teacher motivation and leadership capacity in schools.' Critics of large scale reform view the trade-off between short-term increases in results as insufficient compensation for the longer-term decline in the teaching profession, 'Leaders of teachers' professional associations claimed that even if the reforms did yield success, the goals could have been achieved equally well or even better by less professionally punitive means' (Hargreaves, 2009:28). Whilst Dadds (2001:55) claims 'tight central control is an anathema to the development of a confident and thinking teaching force'.

Tickle (2000) compares a profession which passively accepts prescriptive change with one which chooses to be independent about its own development. He writes, 'While the former might involve surrender to imposed ideas and the obedient use of method, the latter draws upon values, personal qualities, and professional characteristics of very different kinds' (2000:69). The latter Hargreaves (2003:131) calls 'principled professionalism'.

McNamara and Corbin (2001:260-261) suggest that teachers adapting prescriptive policy to suit their classrooms means that teachers are more in control of their classes than ever before, prescription may 'herald a positive process of recontextualisation, a real taking of ownership.' Contrary to the belief that prescriptive reform is most likely to work for under-confident and under-performing teachers, they claim that enthusiastic teachers who are willing to adapt their already successful practice are the most likely beneficiaries of such ownership.

The opposite is also true, that when teachers do not own the change, 'there are increasing concerns both about their negative effects upon teachers' motivation, morale, well being and effectiveness' (Day & Smethem, 2009:143). Studies into teachers' acceptance of policies have shown that teachers often feel that they 'experienced a lack of professional trust' (2009:147). Teachers felt that their sense of professional judgement was being reduced if they did not feel they had been given control of the speed and direction of the change, at least in local contexts. Day and Smethem's study also reported that although, 'many teachers welcomed the spirit of government initiatives to improve teaching and learning they felt a lack of support, and the pace and manner of implementation intensified their work; teachers felt a lack of ownership of change' (2009:147). Day and Smethem agree that if such prescriptive methods are continued for any significant period of time, 'the persisting effect is to erode teachers' autonomy and challenge their individual and collective professional and personal identities' (2009:142).

The literature regarding documented cases of teachers' attitudes to change differs depending on its context. It has been noted by many commentators in many areas, and by Fullan (2001b:6) in education, that 'behaviour changes before beliefs'. Consequently, it may be more logical to investigate what teachers do in reaction to the change before exploring to what extent they are convinced by it. With prescriptive policy dictating clear changes in the practice of teachers, Slavin explores a common problem with the methodology of policy change, that it fails to include 'an explicit theory of how human beings learn to do things differently' (1996:24). The change in behaviour described above occurs differently in different contexts. In general, English examples have focused on how teachers have been forced to abandon existing classroom pedagogy and have follow the mandated practices whilst American literature has focussed on teachers trying harder to fit tightly mandated practice into their existing classroom pedagogy.

A good example of this from the English literature about the pressure to conform to the prescriptive changes is given as an example below where a teacher is asked to explain how following a policy which she does agree with has affected her professional identity,

My first reaction was, 'I'm not going to play the game', but I am and they know I am, I don't respect myself for it; my own self respect goes down. Why aren't I making a stand? Why aren't I

saying, 'I know I can teach: say what you want to say', and so I lose my own self-respect. I know who I am; know why I teach, and I don't like it: I don't like them doing this, and that's sad, isn't it?' (Jeffrey and Woods, 1998:160 as quoted in Day and Smethem, 2009:149)

In both the English and American bodies of literature, teachers must 'take an active role in resisting or embracing reform' (Day & Smethem, 2009:152). There are many different possibilities, however, for this 'resisting' or 'embracing'. Much of the early literature about this derives from the idea that schools automatically opposed any change which implied that teachers were, at least in part, the root of the problem. Achinstein and Ogawa summarised this view as one that 'typically reduced teacher resistance to a psychological deficit in the "resistor", who is characterised as being unwilling to change and resisting policies and programs that attempt to improve education by controlling their instructional practices' (2006:32).

The literature from the USA places more emphasis upon teachers who resisted prescription. They demonstrated "good sense" (Gitlin & Margonis, 1995) and who should be praised for upholding their professional teaching principles. Some literature, such as Achinstein and Ogawa (2006), goes as far as to suggest that resistance is the correct moral path of the reflective teacher when faced with prescription. This value judgement of teachers' actions is based on authorial perceptions of what the role of the teacher should be as well as a heightened view of average teacher capacity in the USA. It also assumes that prescription is not compatible with high levels of achievement. However, the case of Singapore contests that view- it regularly scores very highly in international comparative studies in mathematics and owes much to the initial stages of development which were based on a very highly prescribed curriculum (Gopinathan, 2011).

My study must look at the deeper levels of teachers' response to change rather than just the actions they relay in the interview and how those actions may, at first, be perceived. There are many reasons for this including that a resisting teacher may not be a blockage in the profession but "may be right' and have valuable insight to offer the profession' (Day & Smethem, 2009:153). Equally, those who seem to embrace reform may only be demonstrating 'superficial change involving a mere 'bolting-on' to existing practices and orientations' (McNamara & Corbin, 2001:260-261).

One crucial approach is to link teachers' new behaviour both to their previous practice and to the teacher's underlying theory of education. Labelled by Goodson *et al.* as 'teacher nostalgia', this should not be written off as 'a maudlin emotional indulgence of little social or political consequence' (2006:43). For that reason, it may be better to allow the teacher to attempt innovations which retain the teacher in an active and reflective role, 'presenting the practitioner with a 'repertoire' of skills as against 'recipe' knowledge' (McNamara and Stronach, 2002). Even here misconceptions exist and there are the negative possibilities of concerned teachers becoming 'ontologically insecure: unsure whether we are doing enough, doing the right thing, doing as much as others, or as well as others' (Ball 2003:220).

Fullan states that whilst schools implement reforms as a unit, it is '*Individuals* who have to develop new meaning, and these individuals are insignificant parts of a gigantic loosely organized, complex, messy social system that contains myriad different subjective worlds' (2001:92, italics added). 'It is essential to understand how teachers experience and respond to educational change if reform and improvement efforts are to be more successful and sustainable' (Day & Smethem, 2009:149). This requires an active involvement rather than just a passive policy absorption over time, as guidelines to the NLNS state: teachers, 'need to be actively involved in the process of change... simply giving knowledge to teachers and schools will not encourage them to act upon it' (DfE, 1998:47). This requires a certain type of teacher in the system, 'teachers will, as always, be relied upon to be committed, skilful, resilient and open to change (Day & Smethem, 2009:152).

Johnson *et al.* (2004) explain the need for 'change-inclined teachers' in order for prescriptive changes to have any chance of success, whilst Fullan (2001:84) explains that the characteristics of such teachers are 'more self-actualised and have a greater sense of efficacy, which leads them to take action and persist in the effort required to bring about successful implementation.' Teachers will retain judgement, however, about which reforms they engage with as they 'remain open to *yet also selective* about the change initiatives they adopt' (Hargreaves, 2005:981, italics added) although he adds that 'weariness of many years of living with repetitive change syndrome' (2005:977) can lead to any inclination to change eventually entirely falling away.

Factors that affect this response

Teacher identity

‘Teacher identity stands at the core of the teaching profession. It provides a framework for teachers to construct their own ideas of ‘how to be’, ‘how to act’ and ‘how to understand’ their work and their place in society’ (Sachs 2003:135). The topic of teacher identity has been touched upon in studies which focus on one specific factor such as gender (Hubbard & Datnow, 2000), career stage (Huberman, 1989) and institutional/cultural politics (Kanpol, 1989). Though all these are contributing factors, very little research has been carried out on what precisely links how teachers perceive themselves holistically with how they respond to educational change. Through answering Research Questions 3 and 4 (regarding the importance of teacher’s self-perception in understanding their perceptions of change), I hope to make a contribution to this field in the literature.

Teachers’ identity is a complex matter which includes their personal experience of previous change. This has been given more exposure in the literature, especially with regards to teachers’ ‘policy fatigue’. Hess (1998) attributes this weariness to change to the constant turnover of educational innovations, or what he terms the ‘policy churn’. This is not a barrier for early-career teachers who, according to Hargreaves, have been ‘actively socialized into working with change— through their teacher preparation and their current conditions of employment’ (Hargreaves, 2005:973). The distinction here comes between ‘those who have experienced more autonomy of action in the past and those who are newly trained in the reformed, school-focussed initial (pre-service) teacher education programmes’ (Day and Smethem, 2009:148) which deal especially with current curriculum and pedagogical trends.

Career-stage also plays a part in determining teacher identity- although early-career teachers may ‘be more enthusiastic about and open to change than their older colleagues (partly because of having nothing to compare it with in the past), they ‘may be less competent and confident in implementing and even understanding it’ (Hargreaves, 2005:982). There can, however, be some middle ground, as Woods believes, some teachers have ‘found a way...of reconciling two apparently opposing discourses...through the cultivation of their own political awareness... [and] the refinement of their own philosophies... (Woods *et al.*, 2001:86).

Critique of Literature review

The majority of this literature is from England and USA and there is a tendency to assume that trends in those two countries can be generalised and adapted globally. It is my opinion that this is not the case for

many reasons, including the vastly different starting state and organisational capacities of developing countries' education systems. I predict it will therefore be necessary to dramatically adapt the knowledge gained through this literature review in order for it to have any bearing on South Africa's context. McKinsey, Hopkins and Hargreaves, amongst others, seem to believe in similar developmental trajectories of all education systems through the same states. Although there is an absence of information about how African systems can manage large scale reform, it seems very possible to me that education systems in the developing world may not be recognisably similar to the states which developed countries have previously gone through. This would mean that it may be even more unsuitable to borrow policy lessons learnt from developed countries than previously thought.

Much of the existing literature focuses on a level *between* the whole system and that of the individual teacher involved in the change, namely at the level of the school. It is my hypothesis that teachers within a school do not conform to one shared collective response and so defining reactions at a school level may be unwise. Therefore categorisation cannot exist on a level of looking at *institutional* willingness and readiness but needs to account for individual characteristics of teachers and their perceptions of change.

My research juxtaposes the contrasting realms of individual teacher response and large scale prescriptive change. The former, by definition, has the teacher as the unit of change whilst the latter has schools, districts or, preferably, the whole system as the aspect it is trying to transform. It is in bringing together the national-level change and the personal-level response that one can understand why policy implementation is such a struggle in South Africa.

Theoretical framework

As will be mentioned in Chapter 3 in more detail, there has been a large change to the methodology of this study. This derived from the immediate observation that any measure of *observed* change in classroom practice would yield insubstantial results due to widespread non-implementation. The focus has changed therefore, from actual implementation measurements, to analysing teacher discourse about prescriptive curriculum changes.

Though the methodology has significantly changed, the underlying theoretical framework persists. The two central factors in the theoretical framework are:

- a) The extent to which teachers interact with prescriptive curriculum reforms
- b) How teachers respond to prescriptive curriculum reforms

However, a central shift in the theoretical framework is that the method of judging both the level of interaction and response is now through analysis of teacher discourse rather than practical observations of classroom phenomena.

How does the theoretical framework inform the document analysis?

In order to add the aspect of document analysis into the theoretical framework, it may be necessary to add a third factor:

- c) Which mode does the curriculum reform intend to use in order to deliver reform?

This opens up the question of the authority upon which the reforms to make changes in the classroom. These may range from *attempts to mandate* to *attempts to persuade* to *attempts to suggest*. Policies are mandated by the government so that they *must* be followed whilst the DBE can try to persuade teachers of the benefits of certain changes in practice or even suggest change by supplying high quality resources aimed at moving teaching practice forward.

The focus of the document analysis attempts to ascertain the degree to which teachers are coerced to interact and respond to policy in pre-determined ways. Here the theoretical framework attempts to differentiate between reforms which:

- a) Are prescriptively mandated by the government
- b) Specify the outcomes of learner performance
- c) Codify methods of teaching and learning
- d) Require uniform, statutory resourcing

These put pressure on teachers to adopt policy in differing ways- 'top-down' government mandates make it obligatory that teachers follow certain reforms across the country whilst specifying outcomes gives latitude to teacher practice so long as the intended goals are achieved. C) and d) attempt to standardise classroom practice across the country into one model of teaching and learning in order to ensure learner has access to similar opportunities to learn thereby increasing equity.

Once more these factors may be layered within curriculum reform and combinations of factors may exist. This layering may occur over time- new policies may add additional aspects to pre-existing curriculum structures or they may be added together in a single reform. Equally, it may be more than the content of the policy which suggests the degree of prescription being asserted, factors may include: the tone of the curriculum document, the language used or the specification of certain mathematical methods. All these factors also influence the way in which teachers perceive the reform which mediates how they are likely to respond.

Research Question 2 below is an open ended data collection tool which will require coding and classification which can only be worked into an organised schema once the data has been collected. This is dealt with in greater detail in Chapter 3 and 4.

How does the theoretical framework influence the gathering of data of teacher response and the factors mediating this response?

These two factors are distinct but inter-related. As such, they are linked but often not in an entirely linear way, for example, teachers may fully engage with policy but choose only to employ some or none of what they have understood. Equally, a teacher may enact a policy without a full understanding of the precise goals of the policy.

As the method of determining this level of interaction and response is now through interpretation of the discourse of teachers about curriculum reform, it is necessary to probe the level of understanding of the programmes and try to link these perspectives upon reform to how they choose to enact them.

Reflective practitioners may form an informed assessment of the strengths and weaknesses of the policy with reference to similar previous policies, school-specific context factors, subject and pedagogical knowledge and professional judgment. This will become apparent through the interview process and will be one of the factors which inform Research Question 2 and 3 below. Teacher discourse will also add new aspects which mediate specific response to prescriptive curriculum reform which may not have been anticipated.

Research Question 4 requires categories of teacher response to be constructed. The scheme constructed in the theoretical framework contained in the Research Proposal assumes a level of teacher implementation not witnessed in this study and the whole categorisation needs to be reviewed. The data presented in Chapter 5 is the catalyst for a new framework upon which the new categories have been assembled.

Chapter 3: Research Design

Research Questions

Title	How do teachers respond to prescriptive curriculum changes? A study in teacher discourse about educational reform.
Research Question 1	Are South Africa's curriculum policies becoming more prescriptive?
Research Question 2	What trends emerge from teachers' discourse about their responses to these curriculum reforms?
Research Question 3	What factors mediate teachers' responses to prescriptive curriculum reform?
Research Question 4	What categories of teachers' response can be identified from this discourse?

The nature of my research questions necessitated two different research methods being used: the first was textual analysis of the curriculum policies and the second was semi-structured interviews of teachers. Though both fall within the qualitative paradigm each will give me data which is suited to hypothesis building rather than hypothesis testing.

Necessary changes to the methodology of the research proposal

Immediately upon first meeting the teachers in the schools selected, it became apparent that the response of these teachers towards prescriptive reform was generally not one of enactment but more often characterised by inaction or rejection of the policies in question. This forced my methodology to change between the research proposal and data collection phase of this study. My initial methodology had included lesson observations and inspecting children's books. It became apparent from my earliest school visits that lesson observations and digital images of learners' books would not be valid as little to no implementation had actually taken place. It is for this reason that this study focuses on teachers' discourse about change. These categories and trends are useful in further understanding how teachers frame their attitudes towards educational change. As the focus on interviews increased, I decided to

increase the numbers of interviews from the four originally planned to ten teachers and five principals. This allowed me a good sample of teachers' responses from which to build hypotheses.

Data Collection and Analysis

Qualitative Research

The main mode of data collection in this study will be qualitative research. My research questions focus on trends, factors and categories which make a qualitative approach the most logical approach. This requires an analysis of the implicit meaning and purpose behind curriculum documents as well as understanding teachers' discourse from the interview data collected. Consideration of interview responses alongside contextual factors must be taken into account in the light of any other additional information available. Though this could be done by quantitative methods, such as the analysis of specific word frequency, there is much greater richness and depth when one uses a qualitative approach.

The interviews used in this study involve teachers' discourse about their own behaviour. This is a realm where both the analysis of teachers' discourse is likely to be extremely complex because of interconnections with teachers' personal behaviour and beliefs. The responses from interviews need to be analysed alongside the position in which these individuals find themselves in a wider context. Through reflection upon the individual, their responses and their context, a 'theory becomes sets of meanings which yield insight and understanding into people's behaviour' (Cohen, Manion and Morrision, 2010:22).

To make it clear through which lens I will analyse educational policy, I will use De Clercq's (2010) article, where she distinguishes three ways of analysing policy: 'liberalist pluralist', 'political' and 'interpretive'. The first distinguishes between policy and policy implementation as distinct and separate processes. 'Political' policy studies require one to 'unravel the contextual and underlying forces and interest groups' (De Clercq, 2010:102) influencing the reform. This is in contrast to 'interpretive' policy studies that place implementation as part of the policy cycle where it is dynamic and constantly being fed back to policy makers for guidance and improvement. Brown et al. (2000:469) state, 'teachers' own experiences, values and purposes will all play a part as they process what they see, hear and are offered, and make sense of it in their own ways.' 'The key point is that policy is not simply received and

implemented within this arena rather it is subject to interpretation and then ‘recreated’ (Bowe & Ball 1992:2 as quoted in Brown et al., 2000:469).

My study’s methodology in creating categories of teachers’ response took on a similar format to Achinstein and Ogawa (2006) who looked at teachers’ responses to prescriptive change. They use interviews to draw out two teachers’ discourse about their attitudes and willingness to change. Research participants were studied in enough detail that it was possible to really create an impression of the factors that may motivate them to change and the reasons for their resistance to prescriptive policies. In this study, I will employ similar research methodology and, although I will interview more teachers in the hope of creating a spectrum of categories of response, the research aims to create vignettes of teachers which allow their response to be contextualised. However, unlike the Achinstein and Ogawa study, I will not select my teachers based on one particular category of response (in that case, teacher who resist prescriptive policy), as I believe this unfairly prioritises certain responses over others.

My approach in this study will be to take a hybrid approach of the ‘political’ and ‘interpretive’ paradigms. It must be ‘political’ because teachers’ experiences cannot be removed from their micro- (internal school politics) and macro-political (the implementation of initiatives coming from the state) settings. The necessity for ‘interpretive’ analysis derives from the reliance of a great deal of my data upon teachers’ own perceptions of themselves, their relationship with the profession and their impressions of the change.

Data Collection Methods for Textual Document Analysis

The document analysis explored the content of the curriculum policies for evidence of prescription. The analysis was structured in a way which made it easy to group similar trends into discrete groupings which could then be analysed together. Though researchers must dispassionately draw meaning and extrapolate purpose from documents, it is never possible to completely lay personal experience and opinions to one side. Despite this caveat, a qualitative approach does have the benefit of being able to look at superficial levels of content whilst also trying to establish the more complex interpretation of policy thus signposting the underlying model of change being advocated. For these reasons, in this case, a qualitative and interpretive approach is far more valuable than a quantitative one.

My aim in looking at policy documents is to discover how they intend to be enacted and whether this method of educational change can be described as prescriptive. In curriculum documents, there are always competing views on how best to achieve a particular goal which leads to some knowledge and methods being given priority. I did not look at whether the policies *work in practice*, instead, my ambition was to investigate whether the policies increasingly prioritised prescription.

Prior states that 'documents are useful in rendering more visible the phenomenon under study' (2003:87). The phenomenon under study was the level of prescriptiveness of the documents and I explored the extent and different ways the curriculum document may be described as such. As I was looking at trends within the policy, my interpretations of the policy characteristics were compared with one another according to a structured set of criteria. Therefore, the qualitative lens of a single researcher ensured that interpretations of policy, purpose and methodologies were as consistent as possible. There was a need for a structured set of criteria with which to interrogate the policies because failure to group findings around certain key issues would have led to an overly diffuse focus. With the narrow focus of gathering data to answer specific questions one can ensure that relevant trends in prescription are not obscured by less important matters.

Here it must be emphasised that I do not subscribe to the view of Jansen (2002) which claims that some education reforms in South Africa were never designed with the intention of successfully overcoming the problems which the policies themselves address. In Jansen's estimation, some policies are merely 'symbolic'. I will make the assumption behind it which is that the policy documents are intended to be successfully implemented and to improve standards in classrooms. Instead, he claims, its purpose was solely to legitimise those in power by giving lip-service to attending to the problems of the people. In this study, I assumed that this was not the case and that policy formulation (and implementation) is created with the intention of improving standards by addressing:

- a) How can the system improve upon the current low levels of achievement in primary school maths?
- b) How can the system improve upon the previous curriculum documents?

Thus cumulative lessons, learnt from policy to policy should be visible when analysing successive policies.

This represents a 'descriptive trend study' because I examined how the policy documents addressed the specific problems being faced and how this has changed over time. It is 'descriptive' because I described whether the key characteristics of the policies are prescriptive or not and it is a 'trend study' because I

looked at policies within primary education over a period of fifteen years. It is possible to look at them sequentially because they have often replaced (or supported) one another in the policy landscape. The specific policies which I focussed upon in my interviews (FfL and the DBE workbooks) run in parallel to the official primary mathematics curriculum policy (the RNCS) whose goals and methodology were also investigated.

Prior (2003:26) explains that in textual analysis, 'the content of the document may not be the most important feature of the document.' She later adds that, 'documents are multi-levelled and have to be interpreted at their many levels; they need to be contextualised.' This approach also assumes that clues about the aim of the policy are included within the policy document itself. I believe this to be the case with respect to prescription on two levels- firstly, whether the documents enforce their own use and, secondly, whether prescriptive features are present within the document itself. There are many ways in which prescription can be identified in the policy documents. A detailed theoretical structure for recognising the level of prescription is given below.

To investigate Research Question 1 regarding whether South Africa is moving towards a more prescriptive approach, one must first clearly classify whether the policies themselves are prescriptive. I used a document analysis with a focus on the prescriptive nature of both the current curriculum policies and their predecessors. This gave an insight into how the 'theory of educational change' of the government is changing and also traces the reasoning behind the current approach. I explored both the content and instructions for use given to teachers in order to assess whether each is strictly directive in its language and instructions.

To demonstrate the way in which content specificity has been modified over the years, I chose one topic and showed how it has been differently dealt with by the various policy documents. As it is a consistent area, this gave a good indication of how the approach to teaching and learning has changed. Any implications for pedagogy were examined and the amount of specification relative to previous policies ascertained.

The document analysis used the following criteria: purpose of the policy, instructions given for the policy's use, the content of the policy (including any assumptions) and the target group of the policy. The questions used to interrogate the policy are listed on page 29-30 below.

To complete the document analysis, I needed access to the policy documentation of each of the policies: C2005, RNCS, FfL, workbooks and CAPS. I also needed to explore the instructions given for their usage,

to analyse their approach to teachers and, to investigate the lessons learnt from each and the reports of the review committees for each policy which has ended. These documents are freely available in educational libraries and have been published on the internet.

Specific Criteria for Document Analysis

Is the reform mandated by the government?

Has the policy been prescribed in the sense of being signed into law? On this level a curriculum policy is prescriptive just by virtue of having been set down as the precise way in which the curriculum should be organised and/or executed. The policies discussed in this paper have all been signed into law, except the CAPS which will be signed into law in the Intermediate Phase in 2013. The internal instructions for their usage must also be assessed to determine the expected level of fidelity which is expected of teachers.

To what level of detail are the outcomes of learner performance specified?

Curriculum policies tend to set out what needs to be achieved by the learners and at which point. If done successfully, this helps teachers to plot the progress of the learners in their class at the appropriate speed and level of complexity. Whether these are broad and open to teacher interpretation or narrow and precise has great bearing on how prescriptive the policy content seems. The setting down of learner outcomes is necessary in any National Curriculum document but the level of specificity is an indicator of how policy-makers precisely want their curriculum goals to be achieved.

Is there standardised teaching content and recommended pedagogical practices?

Some policies delineate the level of learner outcomes and leave the manner in which they are to be taught to the discretion of individual teachers, others include it as additional guidance on good practice. Curriculum reform needs to detail what should be done differently in terms of outcomes. There is, however, a choice between leaving the content and pedagogy decisions to teachers or to setting them out for teachers to follow.

Are there statutory resources to be used alongside the daily learning?

Does the policy lay down resources designed to help teachers with daily learning? Is there any flexibility in the use of these resources? If they are present, are they to be used exclusively or as part of wider LTSM (Learning and Teaching Support Materials)?

The structure above gives four ways in which a curriculum policy can be prescriptive. In answering my first Research Question, I will look at all four of these aspects to analyse whether there has been any significant change in the mode of action of South Africa's curriculum policies over the past 15 years.

Data collection and analysis for the interview

Sampling of schools

As it is obviously impractical to interview all South African Intermediate Phase Mathematics teachers with regard to their responses to movements in curriculum policy, a sample of schools was taken.

Ideally, this sample would have been a randomised sample of all schools in South Africa. For practical and geographical reasons, however, the sample was limited to teachers from schools in the Johannesburg East district of Gauteng province that fit certain convenience criteria.

Again, it would have been optimal to draw teachers at random from all the primary schools within District 9 of Johannesburg East. However, given time constraints and the requesting/granting of permissions, I chose purposive, convenience sampling.

It was purposive because the schools were chosen in two groups of schools each with differing demographics. Of the five schools that were chosen, three are schools in the Alexandra township (all Quintile 2 schools) and two are ex-Model C schools in the Northern suburbs of Johannesburg (both Quintile 5 schools). The criterion for selecting these two demographics was that to allow for the possibility of differing school environments being related to differing teachers' attitudes to educational change.

Name of school	Bayabonga Primary	Ezakhe Primary	Sakhani Primary	Huttonlea Primary	Riverville Primary
Location	Township in northern Johannesburg	The same township in northern Johannesburg	The same township in northern Johannesburg	Affluent northern Johannesburg suburb	Affluent northern Johannesburg suburb
Quintile	2	2	2	5	5
Typical class sizes	50-65	45-55	30-40	35-40	25-30
School fees	None levied	None levied	None levied	R9 200 p.a.	R10 500 p.a.
2010 combined Gr3 and Gr6 maths ANA results	28%	26%	27%	39%	52%

Figure 3 - Features of the schools from which teachers were selected to participate (all names are pseudonyms)

It was convenience sampling because I teach in four out of the five schools in the sample, giving me access to eight teachers. The other two teachers were selected from other ex-Model C schools in the local area. There are some limitations to convenience sampling such as the fact that there is no indication that, just because these schools are convenient, they are representative of either schools in general or schools of that particular demographic. Convenience sampling makes no claims about the sample being representative of the system as a whole. Thus the ability to generalise is minimal from these schools. Sometimes the mere presence of a researcher can distort findings in schools, however, I hope that the advantages of carrying out research in settings where both the learners and staff were used to my presence have led to more authentic results. It is my belief that this went some way to compensating for the lack of generalisability that this sampling method brings. As the study only included ten teachers and five principals, any such generalisations would be unwise in any case.

Sampling of Teachers within each school

Additionally, in order to develop the appropriate in-depth knowledge of the teachers involved, it was not practical to have a large sample. In this type of study, a large sample covered superficially would not have been as beneficial as a smaller sample in which details could be collected in depth. I therefore decided to carry out this research in five schools and with ten teachers. To gather more information about the school's specific mathematical and classroom challenges, I also interviewed the principal or Head of Department (HOD) in each school to seek an additional opinion of the state of mathematical education. In one school, I was not able to interview the principal and instead was directed to interview the mathematics-teaching HOD. For the sake of convenience, however, I will refer to the sample as ten teachers and five principals. This allowed me a sufficient number of teachers in order to witness a variety of responses whilst not jeopardising the depth to which I could go into during the research.

I focused on the intermediate phase of each school (Grade 4,5 and 6), thus there were at least three maths teachers from these three grades in each of the five schools. This gives a target group of fifteen which was narrowed down to a final sample of ten teachers. To do this, I selected two maths teachers from each of the five schools, details of how they were chosen are included in Appendix D. The criterion for this was to select teachers that represented a range of individual backgrounds. As far as possible, I selected teachers to include early- and late-career teachers, teachers ranging from Grade 4 to Grade 6

and teachers of both genders. This sampling system produced ten teachers to work with. The selection of the principals to interview was straightforward apart from the one difficulty referred to above. I believe this is enough to draw out the general trends that are evident.

Interviews

My interviews produced data which required the interpretation of meaning from teachers' comments. Positivism and natural scientific approaches were unsuitable for these interpretive observations as they are drawn from personal interactions and subjective understandings of the participants in this study. As a result, I would place my studies in the interpretive paradigm,

The central endeavour in the context of the interpretive paradigm is to understand the subjective world of human experience. To retain the integrity of the phenomena being investigated, efforts are made to get inside the person and understand from within.

(Cohen, Mannion & Morrison, 2007:21)

Whilst I valued individual subjective perspectives, I always interrogated them in light of the external factors influencing them. Failure to do so would have resulted in a multitude of subjective ideas about policy, change and implementation which would have posed challenges when attempting to coherently bring them together. This has meant that my findings are subject- and context-specific but I believe the trends, whilst not generalisable, illuminate a gap in academic research in the field.

In my interviews, I dealt with the generation of themes, concepts and categories, for which I have chosen to adopt a qualitative approach. The reason for this is that the key analytical component is the link between policy and teachers' discourse about their response. This is determined by personal, contextual and political dimensions which all must be considered. As Cohen *et al.* (2007:46) state, 'there is an inescapable political dimension to educational research, both in the macro- and micro-political senses.' The experiences of teachers, their perspectives on and their interactions with those attempting to facilitate change require such an approach. Teachers' experience must be understood through a qualitative lens, including understanding their particular context within schools, their attitude towards their teaching style, workload considerations and capacity to take on board change.

There are many reasons that a one-on-one, semi-structured interview was chosen as a source of data collection in this research. The first is that, in a one-on-one interview, it was possible to ask teachers about their own individual experiences and opinions of these policy changes. The second is that the data is collected in the absence of other teachers or superiors, freeing participants to give honest answers rather than those they believe reflect the politics of the school. I did however expect participants to feel some pressure to give socially appropriate (or 'right') answers to these questions (see, for example, Oduro & Macbeath, 2003:443), believing that that is what I want to hear or the research needs. I hope that my well-directed yet sensitive questioning and existing relationships with some of the interviewees, allowed me to collect authentic data in this way.

An interview using a number of open-ended questions gave the respondent a chance to prioritise the salient features of the topic at hand and therefore led into discourses about the far-reaching implications of these. However the interview was semi-structured and so did not rely on the interviewee to discuss the topic in the matter they favour. A problem with overly open interviews is that participants have the chance to move attention away from or entirely omit crucial issues. A well-conducted interview allows for the probing of particular nuances of policy and its implementation which were vital in understanding the topic in general.

I interviewed the teachers to specifically find out about their personal viewpoints on curriculum change. To this end, I developed an interview protocol (see Appendix B). The questions were drawn up to reflect the features of the theoretical framework (located in Chapter 2), namely the interaction and engagement with policy. To do this it was necessary to establish each teachers' attitudes towards and experiences of previous curriculum reforms (Section A). The next section deals with teachers' interactions with the curriculum reforms and delves into some justification of whether that interaction was fruitful for their teaching. Section C reflects upon their experience of the specific changes and then broadens the questioning out into their attitudes towards personal and policy changes in general. The purpose of each interview was to obtain accurate data relevant to the individual teacher's opinions and experience. From the trends drawn from these fifteen interviews, a small sample of opinions and experiences was collated from which the generation of categories of teachers' response was possible.

My second research question required close inspection of the interview data, understanding of the teachers' position within the school and their frame of reference towards curriculum change in general.

This necessitated careful piecing together of evidence from the interview with contextual information. Therefore, the study of each teacher was not meant to represent or prove that teachers respond in certain ways rather simply as instances upon which categories of teacher response can be postulated or extrapolated.

By conducting detailed interviews with the teachers, I was able to understand the complex relationships, issues and patterns of teachers' responses to new policy initiatives. All teachers are unique in their approach to change, readiness to change and their capacity to change. It was therefore a data-rich process and there were many factors such as the specifics of school context that needed to be taken into account. Though the unit of observation was the teacher, it required descriptions and interpretations of the interaction between the school, the teacher and the educational policy. Bassey (1999:60) puts this most clearly when he writes, 'It is only of limited value for a researcher to conclude, 'if teachers do x then y may happen'. It is much better to go beyond this and try to discover why this may happen for this may contribute to a theoretical understanding which illuminates other happenings.'

The data collection methods used in each of these case studies provided a deep understanding of the responses of teachers to policy reforms. As the FfL programme and the provision of DBE workbooks are both very new initiatives (brought in within the past two years), the factual details, subjective opinions and modes of enactment were still very fresh in the minds of the teachers. I was able to ascertain whether communication of policy aims and implementation is consistent between schools or was exceptional in some cases. This allowed the building up of a clear picture of teachers' experience of change processes and to compare them with policy objectives. I then correlated teachers' experiences and opinions of the various reform strategies with specific policy features.

Coding of Interview Data

In each of the schools in the sample, I conducted a semi-structured interview, transcribed it and gave it back to the teacher to complete a member check. As this occurred for two teachers in each of five schools and five principals, the sample size was fifteen teachers in total. Therefore, the full set of interviews yielded a great deal of qualitative data. With interview data, I digitally recorded the interviews and then transcribed them word-for-word. It was necessary to sift through this mass of data for the strands that are particularly relevant to my study. This gave me a large amount of teachers' experiences and opinions which I will attempt to classify into coded groups of responses.

The mechanism of creating categories involves coding of teachers' interview comments. Once the data has been broken down, it is critical (Strauss and Corbin, 1990) to choose labels which 'conceptualise' and do not simply 'summarise' the data. This distinction centres around trying to look more deeply at the data and, in my study, to see motivations for actions or opinions rather than simply the actions or opinions themselves. The next action is to reassemble the data in a way that contributes to the purpose of this study. I used open coding, a method which does not seek to fit data into pre-existing categories but instead to generate categories based upon the evidence collected.

It was necessary to group data in blocks that reflect similar responses and look for explanatory contextual factors in information from the teachers' interview. These broad themes were then analysed using the theoretical framework detailed below. If there was not a good fit of the theoretical framework to the data collected, then these broad themes will form the basis for alterations or a reconstruction of a new theoretical framework for teachers' responses in a South African context.

Categorisation of teachers' responses

Lankshear and Knobel (2005:135) define categories as, 'similar and different sorts of things' and they emphasise the important process of gathering together similar occurrences into correctly generated categories. Assessment of distinctions between recorded data is equally vital as looking at the similarities when creating categories. Attention needs to be paid in this study to responses that appear to be similar but, in fact, result for very different reasons and from different types of teachers. High quality and demonstrably proven categories will lead to a classification that stands up to scrutiny and lead to valuable results,

the quality of the ... categories developed and employed by the authors of these documents will impact significantly on the relevance, validity, quality and trustworthiness of the data we 'take' from them. (Lankshear and Knobel, 2005:135)

Using illustrative quotations from the interview

Where necessary I present phrases from the interview as part of my findings. This illustrated through actual examples how one category of teacher actually responds to prescription. I was careful to make

sure that each quotation was not taken out of context and fitted the greater perspective of the interview.

Interpretation of interview data

As part of an interpretive paradigm, not all the information which I gathered was present in the transcripts of the interviews and some required a deeper level of understanding than could be gained from teachers' words alone. Teachers' responses to change depend on the teacher themselves and their relationship with the teaching profession and on their own sense of self-worth. To gain insight into this plane of existence, I constructed vignettes of each teacher based on their interview feedback as well as interpreting their responses in relation to similar responses given by other teachers.

Vignettes

The purpose of a vignette is to go beyond data collected within an interview by creating 'stories about individuals, situations and structures which can make reference to important points in the study of perceptions, beliefs and attitudes' (Hughes, 1998:381). In my case a vignette will seek to describe an individual teacher in relation to their work using indicators of their self-confidence, motivation and reason for teaching. As Renold (2002:3) mentions, 'When integrated within a multi-method approach (such as observation and interview) our understanding of these processes and the relationship between belief and action can be enhanced.' As it is not immediately obvious which information gives the clearest insight into deeper understanding of a teachers' responses, information will be amassed based on interview data and the teacher's circumstances (experience, career path, age, gender, self-confidence etc.). A summary of the data collected is given in Appendix F. However, when finalising a sample of vignettes for this study, I narrowed down the sample into five vignettes which each showed distinctive discourse about their response to prescriptive curriculum reform. This gives a spectrum of the responses in the schools in which the study was carried out yet also manages to go into enough detail to give insight into the personal choices, contexts and issues facing each teacher.

Cross-case analysis

It is likely that over the course of ten interviews with teachers and five interviews with principals trends will emerge that support one another. I will use cross-case analysis to determine the value and impact of these trends. Cross case analysis 'facilitates the comparison of commonalities and difference in the

events, activities, and processes that are the units of analyses [sic] in case studies' (Khan & VanWynsberghe, 2008:1). It will allow me, in certain circumstances, to build from the individual to the general and to facilitate the building of hypotheses based upon data collected in the interviews.

My theoretical framework would be my first tool of analysis of the interview data. The problem with this was that, based on UK and US literature, the initial theoretical framework had generated categories of response that did not match the responses given in the interviews conducted. Information was instead analysed and categories generated from the data which was actually collected. Here coding was important in gathering together information with direct relevance to each research question. After coding information, the assortment of responses was organised using matrices and tables to create greater order and identify similarities and differences. This ensured that data was condensed according to observed patterns rather than placed in unsuitable classifications.

The Validity of this Data

Winter (2000, as quoted in Cohen et al., 2007:133) defines validity of qualitative data as 'the honesty, depth, richness and scope of the data achieved, the participants approached, the extent of triangulation and the disinterestedness or objectivity of the researcher.' According to this definition I expected my data to display high validity as I anticipated great richness and depth from the teachers' accounts of their own experience. I took an honest and objective view in the way I conducted this research in order to uncover the clearest insight that such a study can provide.

If I define validity in a more traditional way; whether the data collection tools I used will actually measure what I claim they do, I used the following techniques to maximise validity. The two methods I used were to check the internal uniformity of answers for any contradictions and to cross-reference interviews with the answers given by each teacher's HOD or principal. The first measures teachers' consistency so that when revisiting a subject, they deal with it in a manner which corresponds to their previous discourse. The second is an external measure of whether their expression of their own experiences and opinions matches the ways in which their superiors perceive them. However, neither of these methods nor the combination of the two are fool-proof ways of judging the validity of this data.

The Reliability of this Data

Other methods I used in order to strengthen the reliability were to provide a detailed audit trail so that if a future researcher wanted to verify my findings, it would be as straightforward as possible. Though their findings would, more than likely, be different, my methodology could be followed explicitly from close inspection of this research report. I also used member checks to make sure that my interpretation of data closely fits the intended meaning of the respondent. This was done by providing interview transcripts to the teachers and giving them the opportunity to amend, add or delete information that more they believe more perfectly reflects their beliefs or practices.

Limitations

Criticisms are often made of relying upon interview information for qualitative research. The reason for this is that interviews are not easily cross-checked as a lot of the information occurs in one-off, non-repeatable, isolated incidents. It can therefore be 'selective, biased, personal and subjective' (Cohen *et al.*, 2007:256). It is likely that evidence collected in interviews as well as the conclusions drawn from them to be specific to the context and not generalisable to the rest of the country, this likelihood is unfortunately increased by choosing schools so close to one another and also all served by one particular district office, Johannesburg East.

Other limitations may derive from the presence of the interviewer or observers in the particular situation distorting the opinions or practice of the teacher and making it unreliable. It may be the case, that no matter how probing an interviewer gets, the respondent still answers with socially appropriate answers and so participants' true opinions are never glimpsed. Alternatively, such a tight focus on prescriptive issues may obscure other crucial factors that influence the uptake of policy in schools and classrooms. The opposite of this is also possible in this research type, that the data may become decontextualised in the generation of categories with important contextual factors will be placed in the background when in fact they should not be overlooked. It is therefore possible that responses be categorised together due to superficial similarities when the majority of the underpinning factors are very different.

Ethical considerations

This study has obtained clearance from the Human Research Ethics Committee (HREC) at the University of the Witwatersrand. In all necessary cases I gained the informed consent of participants. I notified them of their anonymity, that their participation was voluntary and could have been withdrawn if they became uncomfortable at any point. I informed them of the nature of my study is and how I was going about collected data and analysing results. The appropriate Gauteng Department of Education (GDE) Request Form was submitted to the GDE and institutional consent was obtained before beginning research in the five schools.

Chapter 4: Levels of Prescription within the Policies

Location within the field of study

The necessity for quick, successful change and the mounting international agreement on modes of change which can succeed make large scale reform an ideal solution upon which to base system-wide reform in South Africa. The reality of such a comprehensive reform is that, for it to be as successful as its proponents claim it has been in the past, there are many factors which need to be changed simultaneously. The focus of this study is on how curriculum reform can be a strand of this model of change. However, curriculum reform cannot be looked at in isolation and must be closely investigated alongside other necessary factors in the educational change- these include features such as improving organisational capacity, professional development of teachers and means of accurately monitoring and measuring progress. Though curriculum reform is only one strand of this on-going process it is one upon which South Africa has relied for improved results since 1997.

It is difficult to directly measure the impact of curriculum reforms because, as they only make up one part of the change process, other factors may have strong causal links to any improvement or decline in indicators of the system as a whole. This study is looking at whether the particular route of educational improvement which South Africa had chosen can be described as prescriptive. The label 'prescriptive' has not been chosen by chance, prescriptive curriculum policies form a major part of a particular model of large scale reform, the so-called 'second way' of Hargreaves (2009), one in which there is increased centralisation of the change process alongside a move towards the standardisation of practice. Therefore, whether South African curriculum reform can be described as being more and more prescriptive is more significant than just being an apt description of curriculum revisions.

Introduction

In this chapter, the level to which South African educational policies can be said to follow this 'second way' will be examined: Is South African primary mathematics moving towards a more prescriptive approach or not? Prescription is not just about the curriculum content itself and so structures both inside and outside the policy documentation will need to be analysed.

The chapter begins with a historical overview of curriculum changes in primary mathematics since 1997. These policies have been implemented, reviewed and adjusted in the intervening period and it is important to look at the extent to which the policy answered the specific educational requirements of the time. Clear understanding of this will give a fuller picture of the problems facing the education system at the time of implementation and which aspects were intended to address them. In addition to superseding one another, policies such as the FfL and workbooks have added additional layers to existing policies- whereas the RNCS replaced C2005, FfL and the workbooks have been introduced to supplement the RNCS. It is only when looking at the complete picture with all the layers of each phase that one can see to what degree the collection of policies is prescriptive.

The document analysis itself will be broken up into the specification of Assessment Standards (ASes), statutory resourcing, directions to teachers and the mandate of each policy. It is only with both of these factors fully detailed with supporting evidence that it is possible to assess whether South Africa is, in fact, moving towards increased levels of prescription.

Policy background

Though the FfL and workbooks are fairly recent policies, they need to be placed within their historical context and determine what trends are evident since the introduction of Curriculum 2005 (C2005) in 1998. At that stage, the government had hoped that its learner-centred approach would allow for the simultaneous movement of all learners to the next cognitive level, notwithstanding the large range of abilities in many classes. C2005 was an ambitious outcomes-based strategy which advocated using teachers' creativity to facilitate meaningful learning opportunities in the classroom. It intended to allow teachers to adapt their teaching styles to best fit the needs of their learners. The structure which it proposed was, therefore, intentionally loose. Though it set out 'critical outcomes' and 'specific outcomes', C2005 clearly states that these are not meant to be restrictive as it instead, 'emphasises progress according to individual potential. [And] It is based on developmentally appropriate practices.' The individual learner in each classroom was always meant to be the centre of C2005 which meant that teachers' professional judgement was critical in making the right decisions for each student.

Amongst mounting criticism from those, like Jansen (1999), who had predicted its shortcomings and with teachers becoming aware of its problems in practice, C2005 was revised to include additional directives on content being included. Botha (2002:367) noted that, 'South African education is slowly awakening to the fact that political ideals seldom match classroom realities.' Whilst the chief finding of

the review was that C2005 was 'over-designed but under-specified' (DoE, 2000). The revision of C2005 aimed to make up for this under-specification by ensuring, 'successive rounds of attempts to compensate for the under-specified content, sequence and progression'(DoE, 2000). Fleisch (2008:136) points out that lack of clear direction on what and how to teach led confused teachers to a situation in which, 'pure social and/or physical activity is valued for its own sake' at the expense of 'intellectual order, focus and discipline'.

The RNCS replaced the 'Statement of the National Curriculum for Grades R-9' which was approved in 1997 and was the curriculum statement that underpinned C2005 from 1997 to 2002. The process of introducing the Revised National Curriculum Statements took two years of consultation between 2000 and 2002 and the result was a policy with much clearer and more detailed guidelines. The RNCS (2002 but implemented in 2003) marked the beginning of a shift in focus towards tighter specification within each Learning Outcome. The RNCS included the addition of much more guidance of what content should be taught, when and what it should look like in practice. It had Assessment Standards in each of the five Learning Outcomes organised by grade and which went into more detail about what learners should be able to achieve. Though the RNCS made sweeping changes to C2005, it was, by no means, universally acclaimed and areas which attracted much criticism were resourcing, assessment and teacher support (DBE, 2009b:7-10).

The RNCS was itself reviewed in 2009 (DBE, 2009b:44) and the major findings was that 'by focusing on outcomes, inputs, content, or the means for achieving these outcomes are left open and unspecified.' Therefore, despite the efforts made to correct the under-specification of C2005 as part of the RNCS, this was not deemed sufficient and policy makers sought to further increase the amount of detail communicated to teachers. The detail to be communicated, however, was no longer solely the Assessment Standards of each Learning Outcomes but also the 'means to achieve' them. Another contributing contemporary factor were the poor results South Africa achieved in internal systemic evaluations (DoE, 2007) and external comparative educational studies, such as TIMSS (see Reddy, 2006:112) and SACMEQ (2005). This forced the Department of Education to expedite its plans for system-wide improvement and the FfL campaign was launched in 2008.

The FfL programme carried material that intended to clarify the goals of the RNCS by mapping topics and sequencing out in more detail. FfL takes the format of a lesson planning folder with daily lesson

plans for the entire academic year- each lesson plan includes what is to be taught, how to structure the lesson, what materials to use to facilitate learning and gives ideas on how to assess the learning once complete. The progression through the year is made up of milestones (details of the knowledge and skills a child should possess in each grade), comprehensive sequencing and integration of topics as well as detailed notes to the teacher to explain how to teach each topic. An example of a lesson plan from the FfL folder is analysed in the next section.

Another layer was added to this in 2011 with the introduction of two workbooks for every learner in mathematics in every year of the intermediate phase as outlined in a speech by the Minister of Education,

A crucial pillar in the department's determination to improve learner performance is the provision of learner workbooks. This project is a result of the injunction by The Presidency to provide resources to teachers and learners to improve learner performance in literacy and numeracy. (Speech by the Minister of Basic Education, Angie Motshekga, 6 July 2010)

The DBE workbooks contain a double worksheet per lesson to be used at the rate of four lessons per week for eight weeks of each term. This is spread over two volumes of the workbook in each grade. This gives 32 lessons for each term and 128 lessons with worksheets over the course of the year. The 2011 academic year has 198 school days and the content is aimed providing for four out of the five mathematics lessons per week.

These RNCS are in the process of being recodified in the Curriculum and Assessment Policy Statements (CAPS) which are scheduled to be implemented in 2013 in the Intermediate Phase. The aim of the CAPS was to add a greater degree of coherence as it replaces three documents in each subject of each phase: the previous Revised National Curriculum Statements, learning programme guidelines and subject assessment guidelines.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Curriculum Policy	Curriculum 2005						RNCS									CAPS
Lesson Planning resources														FfL		
Additional resources															Work-books	

Figure 4 - A timeline of primary mathematical policy trajectory

Are South Africa's curriculum policies becoming more prescriptive?

It is necessary to show whether these new initiatives form part of an on-going trend in South African primary education moving towards a more tightly prescribed curriculum. In order to do this, I will analyse each Intermediate Phase mathematics policy from C2005 (launched in 1997) to the most recent CAPS and see what part the FfL and workbooks are intended to play. I will also analyse the parliamentary reviews of C2005 and the RNCS and see what lessons were learnt and how this contributed to subsequent policy decisions.

A curriculum can be prescriptive in many ways; in order to answer Research Question 1 in a complete way, all of these elements must be addressed. All of the four subsections below are ways in which a policy can be classified as prescriptive. In determining the level of prescription of each policy, I will identify which features are present in each policy and whether it is appropriate to use this as evidence of prescription in that particular curriculum reform.

The documents analysed below are: the C2005 launch document (DoE, 1997), the report of the review committee on C2005 (DoE, 2000), the RNCS in Mathematics (DoE, 2002a), the FfL launch document (DoE, 2008), the review of the review committee on the RNCS (DBE, 2009b), two flyers released by the government to explain the DBE workbooks (DoE, 2010b & 2010c), the final draft of the CAPS

Intermediate Phase Mathematics document (DBE, 2011b) and the FfL lesson plans and DBE workbooks themselves (DBE, all undated).

The mandate of each policy

All the policies (except CAPS) above have been signed into policy and are all therefore nationally mandated policy. In this section, however, I will examine the scope of the policy as well as the instructions given within the policies about how they should be used by teachers.

- Curriculum 2005 was declared national policy in 1998 and implementation started in 1998.
- The Revised National Curriculum Statement was declared policy in 2002 and introduced in 2003.
- The Foundations for Learning Campaign was declared policy in 2008 and implemented from 2010.
- The Department of Basic Education Rainbow Workbooks were introduced and distributed for the start of the 2011 academic year.
- CAPS is yet to be declared official national policy

C2005 focused on teacher autonomy and professional judgement. It replaced a content-based curriculum with an outcomes-based one. The great deal of unevenness in pre-existing classroom practice made the nationwide introduction of a single vision for education a very complex process. This required much media coverage to try to explain its features and needed teachers to attend specific training. The changes were relatively warmly welcomed upon its inception in 1998 and training was given for periods of typically 3 to 5 days. This policy was given a high priority and teachers were obliged to follow it. Although its commission was successful, the policy was poorly understood and -

As a result of varying levels of understanding combined with difficulties of implementation in overcrowded classrooms, insufficient training, learning support materials and support, overload, and lack of clear guidelines for planning and assessment, there is little transfer of learning into the classroom (Report of the Review Committee on Curriculum 2005, 2000).

This necessitated the introduction of another layer of policy; the RNCS which followed provided a more detailed structure upon which teachers could base their progress through the year. In this system there are more visible signposts of the Learning Outcomes and Assessment Standards. Schools were now instructed that they must ensure that these Assessment Standards were achieved and assessed.

However, though the reforms were mandated nationally, it is not possible to judge with what frequency their commission was heeded due to the limitations of the school inspectorate system (De Grauwe, 2008:14).

The FfL and the introduction of DBE workbooks have a different method of adoption- they are no longer simply statutory guidelines for what the shape of learning should look like in each grade. They are instead resources designed to be used in the classroom- one by the teacher and the other by learners.

The FfL campaign stated at its launch that it was a 'national response' to low levels in literacy and numeracy that would issue 'clear directives on the Department of Education's expectations of schools and teachers.' These 'clear directives' were the combination of the publication of the FfL campaign through the Government Gazette and the lesson planning folder itself, delivered to schools during the 2010 academic year. Though these 'clear objectives' included much greater detail on the teaching of mathematics, it clearly states that its intention is not to prescribe,

These Lesson Plans are intended to assist teachers to pace their teaching, give them guidance when planning their assessment tasks and provide suggestions to enrich teaching practice. They are not intended to be prescriptive and teachers are not expected to abandon good practice in order to blindly follow the plans. (DoE, 1998:6)

Teachers were still left with the choice of whether to use these resources, leaving the weak language of these instructions in contrast with the national mandate of this policy. The lesson plans are only intended to 'assist' teachers and careful emphasis is made not to dictate practice to teachers. This is reinforced by the insistence that 'teachers are not expected to abandon good practice in order to blindly follow the plans'. However, 'good practice' is a subjective assessment and nowhere is it made clear who should and who should not follow the FfL.

Other instructions contained within the planning file echo the same manner in which policy makers foresee these resources being used. The lesson plans are, 'rich in practical ideas drawn from best practice and as such *can* enrich implementation in the classroom' (FfL lesson planning folder, DBE, undated:7, italics added). The language used is that these resources 'can' facilitate improvements in teaching and learning in class. It does not use stronger language such as that they 'will' or that they

‘should’. The clear inference from these two quotations is that although the FfL is national policy, the resources are available on an optional basis. Teachers can opt out if they choose.

This forms a disparity with its status as a national policy. Elsewhere in the FfL campaign the language is stronger- it states ‘Every teacher in the Foundation and Intermediate Phase *will* also teach Numeracy (Mathematics) for at least 1 hour every day,’ and, ‘Every teacher *must* have sufficient resources to ensure the effective teaching and learning of Literacy and Numeracy’ (DoE, 2008:6, italics added). The positive language and use of the imperative mood here contrast with the weakness of the language relating to the lesson plans. However, as both of the above were enacted by the Minister of Education on 13th March 2008, it begs the question of which parts need to be followed and which parts can be judiciously ignored.

The workbooks follow the same pattern; their aim (DBE, 2010b:2) is to ‘help teachers to manage their teaching time and monitor the progress and performance of their learners.’ Their role is also to complement other resources, such as textbooks, and those provided by the Department of Education, ‘Though they are very useful in lesson planning, they are not a substitute for the teacher’s own lesson planning. The Foundations for Learning material and textbooks still have an important role to play’ (DBE, 2010b:2&1). They are clearly not intended to be the sole resource used in class but are meant to form part of the stock of resources available to all teachers.

The language here of meaning to ‘help’ and being ‘useful’ is weak and means that, again, teachers following the instructions for the workbooks use may well, in good faith, decide not to use the workbooks at all. This seems to be in contradiction with the role that President Zuma envisaged when he promised one to every learner (Zuma, 2010) as part of his commitment to primary school improvement. For the workbooks just to be an optional extra does seem to be wasting valuable resources when one considers that R524m was spent on the production and distribution of these resources in the year 2010-2011. One might expect such resources, especially as they were both framed as being policy responses to South Africa’s poor performance in standardised mathematical tests, to be rigorously recommended or even robustly enforced across the board. In actual fact, this is not the case and teachers are equally free to adopt or ignore them.

The aim of CAPS is to increase coherence and simplicity in a teacher’s life. As the policy itself explains, ‘A single comprehensive Curriculum and Assessment Policy document was developed for each subject to

replace the old Subject Statements, Learning Programme Guidelines and Subject Assessment Guidelines in Grades R – 12’ (2011b:3). CAPS has yet to be gazetted or officially declared policy. With so many different policies in place at the same time, a central systematising document may well make teachers’ lives easier.

Assessment Standard specification

The structure of curriculum in the C2005 policy documents set out Assessment Standards with the desire that teachers be given wide scope to choose their own teaching practice to satisfy these summative demands. An indication of its flexibility was that it gave detail on outcomes only per phase and not for each individual grade. For example, Mathematics (at that stage called Mathematical Literacy, Mathematics and Mathematical Sciences, MLMMS) in the intermediate stage gave 10 specific outcomes and broke each of these down into ‘assessment criteria’ and ‘range statements’. The assessment criteria were ‘the observable processes and products of learning’ whilst the range statements ‘indicate the scope, depth, level of complexity and parameters of the achievement’ (1997). The autonomy given to teachers about how they wanted to achieve these outcomes was large, ‘the range statements provide direction but allows [sic] for multiple learning strategies, for flexibility in the choice of specific content and process and for a variety of assessment methods.’

The RNCS for Grade 0-9 (2002b) changed assessment criteria to Assessment Standards (ASes), these ASes were designed to ‘describe the level of knowledge and skills expected ... *for each grade level*’ (DoE, italics added, 2000), giving a ‘minimum level, depth and breadth of what is to be learnt’ (DoE, 2002b:18). In the RNCS launch document (DoE, 2002b:17) it makes it clear that it will be more detailed than its predecessor, ‘It is important that the curriculum sets out progressively more complex, deeper and broader expectations of learners.’

The FfL (2008) fleshes out the Los (Learning Outcomes) and ASes, as the FfL documentation states (DBE, 2010a:1), ‘These documents were developed to help teachers to put the [R]NCS into practice in the classroom.’

The FfL programme itself details daily lesson plans, week-by-week progression targets, broken-down lesson structure and activities for teachers to use. The lesson plans themselves give much detail on

content, activities, timings, pedagogy which will all be analysed in the following section. According to the FfL assessment framework (DBE, 2010a:2), 'When planning the daily teaching and learning activities the milestones give guidance on what skills should be taught and what learners should be practicing at a particular time so that the skills can be developed incrementally.' By setting out what 'learners should be practicing' and the timeframe for them to do it, moves it to the next level of outcome specification. It crosses the boundary of specifying Assessment Standards which are to be reached by any route possible and embarks upon stipulating the details of teaching and learning.

The content of the workbooks is a different category to that of C2005, RNCS, FfL and CAPS. It is not meant to help teachers with the planning of teaching in their lessons, nor does it set out LOs or ASes. Instead, it proposes resources to be used to aid teaching methods and reinforce the learning going on. It is intended to assist teachers with 'organised work in the form of worksheets for every child in mathematics' (DBE, 2010c). The content of the workbooks is organized week-by-week according to 'the latest Curriculum and Assessment Policy Statement (CAPS) of 2011. However, as will be mentioned below, CAPS will only be implemented in the intermediate phase in 2013.

It does, however, have consequences for how teaching takes place in the class as although policy may emphasise a plurality of possible methods of achieving an Assessment Standard, when one gives examples linked to practice exercises, it must feature some methods at the expense of others. In fact, in the case of the FfL and the workbooks, the numerous methods chosen by the policy makers are suggested throughout. As the Assessment Standard comes from the RNCS, the lesson to be taught from the FfL and method to do so are proposed through the workbook, thus it gives the furthest possible indication of what learners work should look like.

The CAPS delineates content to be covered and a timeline for doing so. It therefore combines the content of the RNCS with the work schedules of FfL. Its guidance on lesson planning is limited compared to FfL, rather than recommending detailed lesson plans it gives an indication of the level of difficulty in each grade and sensible mathematical methods. It is 'intended to guide the teacher on the content to be covered. Therefore, these notes do not cover the whole content' (2011b:18). The CAPS gives what it calls 'content outline' which are examples of what the Learning Objectives should look like in practice for teachers. The Statement itself that the aim of these examples is to 'guide the teacher on the content to be covered', meaning that, when compared to the RNCS, the CAPS has a further increased level of

specification which goes beyond just outcomes but begins to suggest methods for achieving those outcomes. An example of one 'content outline' will be analysed later in this chapter.

CAPS also, for the first time, gives a breakdown of how much time should be spent on each Learning Outcome (LOs become 'Content Areas' in CAPS), for example in Grade 6, 30% should be on 'Numbers, operations and relationships', 20% on 'Patterns, functions and algebra', 25% on 'Space and shape', 10% on 'Measurement' and 15% on 'Data Handling'. It also claims to have aligned its ASes, for the first time, with the breakdown of the end-of-year assessments,

firstly the weighting gives guidance on the amount of time needed to adequately address the content within each content area; *secondly* the weighting gives guidance on the spread of content in the examination (especially end of the year summative assessment). (DBE, 2011b:10)

Recommended pedagogies and standardised teaching content

By virtue of setting out lesson plans, FfL also differs in scope significantly from the RNCS and C2005. Lesson plans require, by their very nature, for content to be set out in discrete divisions and for the next day's lesson to build upon previous learning. Therefore the level of prescription is likely to enter that of specific content prescription with examples, methodologies and sequences present in the lesson plans. This takes the prescription further away from the autonomy experienced by teachers in C2005 and closer to standardised practice.

Equally, by laying down suggestions of *what* should be taught in any detail, there will always be implicit recommendations of *how* it should be taught as well. This will be shown in more detail in the case of multiplication of integers below.

Statutory resources

Given FfL's mandate, the lesson planning resources are statutory for use in the Intermediate Phase. This is slightly different to C2005 and RNCS by its very nature, as neither contained teaching resources but simply outcomes and an indications of summative learner capacities. Therefore, as there is now a collated set of lesson plans to take a teacher through from Grade 4-6 in the intermediate phase, this symbolises a move towards additional prescription for teachers. The contradiction in the use of these FfL files is described in the above section on their mandate but, as it was signed into law by the Minister

of Education in March 2008, it should represent a statutory resource for all primary schools in South Africa.

The workbooks add another layer to the content prescription as they describe for the first time what the *learner* should be doing, whilst the other documents above had affected *teachers'* practice. Merely the provision of the workbook as a single text which the whole country's schools are following suggests a degree of prescription and standardisation. The instructions make very clear that the workbooks do not replace textbooks but instead add to the resources at the teachers' disposal. The process of standardisation, it seems, means that at least part of this choice over Learning and Teaching Support Materials (LTSM) has been stipulated. The workbooks give teachers recourse to very visually attractive resources to use. However, the situation is very similar to that of the FfL as the instructions do not make the workbooks compulsory.

The case of multiplication of integers

In order to illustrate the progressive inclusion of far more detailed content as well as tightly controlled guidance, I will take the example of written methods of multiplication of integers in Grade 6 mathematics. I have looked at the policy documents in detail from 1997's C2005 through the RNCS, FfL, the workbooks and finally to CAPS which will be implemented in the intermediate phase in 2013. As a key skill to be learnt in primary school, the topic is covered in all policies but the level at which it is detailed and the amount of specification demonstrates the trajectory of increased prescription.

C2005 only gave outcomes for each phase of learning in primary education. As such, its guidance on the multiplication of integers for the intermediate phase read as follows:

Specific Outcome 1: Demonstrate understanding about ways of working with numbers	
ASSESSMENT CRITERIA	RANGE STATEMENT
4. Performance of basic operations	4.1 Add, subtract, multiply and divide positive whole numbers

Figure 5 - Multiplication of integers as dealt with by C2005 (1997b)

The guidance above is designed to give autonomy to teachers so as to allow them to use their expertise and experience in devising suitable teaching approaches. There is no elaboration of what degree of complexity should be achieved in each grade or which methods could be used.

Following criticism, the RNCS set out in much more detail some of these expectations in the hope of helping teachers achieve them. The statement changed 'Assessment Criteria' into 'Assessment Standards' which took on the information previously given by the range statements. Each Grade has its own Assessment Standards in the RNCS and the same topic was transformed into:

Learning Outcome 1: Numbers, Operations and Relationships

Grade 6 Assessment Standards-

- Estimates and calculates by selecting and using operations appropriate to solving problems that involve:
 - multiplication of at least whole 4-digit by 3-digit numbers;
 - multiple operations on whole numbers with or without brackets.
- Uses a range of techniques to perform written and mental calculations with whole numbers including:
 - adding, subtracting and multiplying in columns;

Figure 6 - Multiplication of integers as dealt with by the RNCS (2002a)

These instructions give much more guidance on what should be achieved, to what level of complexity and with which methods. It also places the multiplication of integers into a problem-solving context and adds that estimation is an important method to check results. Such instruction leaves teachers with a much clearer picture of what learners should be able to do at the end of the grade and gives them multiple methods of going about it. It is noticeable that, though the document mentions multiplication in columns, it does not prescribe exactly the method to be used as the choice of using the compact or expanded method is still up to the teachers.

As mentioned above, the FfL documents were meant to 'to help teachers to put the [R]NCS into practice in the classroom' (DBE, 2010a:1). Therefore they contain no content which is not given in the above Assessment Standards, they instead add a great deal more exemplification of how it should be done. They give additional background to the goal towards which such skills will lead, such as,

We need to give emphasis in Grade 6 to multiplication and division of bigger numbers and help learners to be able to use the properties of numbers to do related calculations. (FfL lesson plans, undated:8)

Unlike C2005 but building on the suggestions of the RNCS, it promotes specific algorithms of completing written multiplication of integers. It is, however, careful not to prescribe one method but gives a degree of choice to learners whilst suggesting an algorithm which teachers *could* use effectively. The lesson plan below in Figure 7 exemplifies FfL's approach to written multiplication of whole numbers.

Two methods of multiplying numbers are given, along with a word-for-word script to explain the second method. The guidance here is a sharp contrast to the open-endedness of C2005 and gives a model lesson on how a teacher may go about teaching a written algorithm for multiplication. Compared to the previous policies in place, the FfL lesson plans take the degree of detailed guidance to another level by giving teachers direct instructions about how to teach in the classroom.

Features that bear comment in the below exemplar lesson plan are its format: a section entitled, 'notes for the teacher' and subsequently the detailed descriptions (along with timings) of a four-part lesson. The 'notes to the teacher' section is of interest in this lesson because it attempts to combine the twin goals of teaching efficient methods of multiplication whilst not prioritising any one method. The contradiction of this joint endeavour is that the note ends with, 'the sooner the learners can multiply using this shorter method, the better.' This set of instructions is unclear and could leave teachers confused about whether to prescribe one method or not. The question arises: is it beyond the capacity of the majority of 12-year-olds to identify their own favourite multiplication algorithm and stick with it despite the rest of the class being simultaneously taught another method? If so, this points to an inappropriate level of direction given to teachers.

The notes also give the teacher phrases to use in class. Examples are, 'multiplication is repeated adding' and 'multiplication is commutative'. It is pertinent to question why these statements have been put in the 'notes to the teacher' section and do not form part of the scripted lesson plan. The implication is that teachers need to be reminded that these statements are valid and relevant. Further focus on the resource requirements and the use of imperative language will be given in the two sections below.

Method of multiplication to be taught

WEEK 3 : Day 1

Notes to the teacher:

- Learners have been multiplying 3-digit by 2-digit numbers. The focus on today's lesson is multiplying 4-digit by 1-digit numbers. No method must be forced on the learners at this stage. In this lesson the column method will be introduced as it is a requirement for Assessment Task 2. The sooner the learners can multiply using this shorter method, the better.
- Multiplication is repeated adding.
- Multiplication is commutative. $6 \times 3 = 3 \times 6$. This is helpful to learners who perhaps know for example 6×3 (three times table) better than 3×6 (6 times table).
- Any number multiplied by 0 is 0.

Resources: Chalkboard, textbooks, worksheets.

DAILY ACTIVITIES

Oral and Mental Activity (10 minutes)

- Do some practice of the 7 and 8 times tables as these are generally the tables that cause most difficulty. You can start by different learners or groups of learners reciting the times tables, but then do random drill. For example, you can use "Clock Multiplication." (See Addendum for instructions)

Concept Development (20 minutes)

- Give the learners a problem such as the following to solve in their groups: *I have 523 boxes of eggs. There are six eggs in each box. How many eggs do I have altogether?*
- Let different learners (or groups of learners) show their methods. Some might use the following column method:

5	2	3 x	
		6	
	1	8	(6x3)
	1	2	0
3	0	0	0
			(6x500)

3 000+120+18=3 138 eggs altogether.

- Using this method as a starting point, show the learners the traditional column method, explaining as you go.

Explanation to the learners:

Start with the units. $6 \times 3 = 18$. 18 is 1 ten and 8 units. Carry 1 ten to the tens column and write the 8 in the units column.

Multiply 6 by 2 (digit value) then add the 1 = 13. You cannot write the whole 13 in one column, so write down the 3 and carry the 1 to the hundreds column.

Multiply 6 by the digit value 5 then add the 1 you carried over. $6 \times 5 + 1 = 31$. As there are no more digits to be multiplied, write down the entire 31 but in two columns.

- Point out to the learners that this method is quicker once they have mastered it. Do one more example (3-digit by 1-digit) with the learners, asking them questions as to what to do next, so that they are actively involved. Choose a number with a zero in the tens place, e.g. 304×7
- Give the learners, in groups or pairs, another problem involving 3-digit by 1-digit multiplication to try to solve using the method you have just shown them. Go around and check. If they are not able to use this method, do not force them. After they have had enough time, check their answers, and go through the method again.
- Give the learners a 4-digit by 1-digit multiplication problem to work out together in their groups. After enough time, discuss their methods. Some of the learners will hopefully be able to use the "new" method.

Problem Solving (15 minutes)

- Find problems in textbooks or make a worksheet entailing multiplication of 4-digit by 3-digit numbers. The learners can work alone to solve the problems. Do not be prescriptive about the method they use, but encourage them to try the column method. Work with small groups of learners to help them refine their multiplication methods.

Consolidation (15 minutes)

- Give the learners 5 to 10 multiplication exercises to do. They can finish these for homework.

ASSESSMENT	Informal: Observe the learners as they work to see if they are refining their multiplication methods.
-------------------	--

List of resources required

Timings of each part of the lesson

Step-by-step concept development

Scripted way of explaining method to learners

Direct instructions of how to teach topic

Group work suggested

Plurality of possible methods reinforced

Figure 7 - Annotated exemplar of an FfL Lesson from the planning file (DoE, undated:40-41)

The workbooks provide additional practice of these methods. Interestingly, they advocate using and understanding two algorithms simultaneously and ask for both throughout the Grade 6 workbook. Confusingly, neither of these two algorithms is the same as the second one above in the FfL example. The workbooks give examples (rather than explanations) to learners on how to complete the algorithms. The selection of one method over another means that the use of the workbooks must be linked to certain teaching practice. As is evident, it is unclear where the guidance is to teach these methods before reinforcing them using the workbook, especially as the CAPS has not yet formally been released. Another question arising from the below example is: are the methods chosen suitable, efficient and easy to teach?

3. Use both methods to solve the sums.

Examples:

Example 1:

$$\begin{aligned} &256 \times 342 \\ &= (200 + 50 + 6) \times (300 + 40 + 2) \\ &= (200 \times 300) + (200 \times 40) + (200 \times 2) + (50 \times 300) + (50 \times 40) + (50 \times 2) + (6 \times 300) + (6 \times 40) + (6 \times 2) \\ &= 60\,000 + 8\,000 + 400 + 15\,000 + 2\,000 + 100 + 1\,800 + 240 + 12 \\ &= 60\,000 + 8\,000 + 400 + 10\,000 + 5\,000 + 2\,000 + 100 + 1\,000 + 800 + 200 + 40 + 10 + 2 \\ &= 70\,000 + 16\,000 + 1\,500 + 50 + 2 \\ &= 70\,000 + 10\,000 + 6\,000 + 1\,000 + 500 + 50 + 2 \\ &= 80\,000 + 7\,000 + 500 + 50 + 2 \\ &87\,552 \end{aligned}$$

Example 2:

	2 5 6	
x	3 4 2	
	1 2	(6 x 2)
	2 4 0	(6 x 40)
	1 8 0 0	(6 x 300)
	1 0 0	(50 x 2)
	2 0 0 0	(50 x 40)
	1 5 0 0 0	(50 x 300)
	4 0 0	(200 x 2)
	8 0 0 0	(200 x 40)
	6 0 0 0 0	(200 x 300)
	8 7 5 5 2	

a. $374 \times 282 =$

b. $465 \times 234 =$

As you can see below, CAPS maintains the same aims as the RNCS but changes some terminology:

Content Area 1: Numbers, Operations and Relationships
Grade 6 Specific Content-

6.1.1.8. Multiplication of at least whole 4-digit by 3-digit numbers

6.1.1.10. Using a range of techniques to perform written and mental calculations with whole numbers including:

- adding, subtracting and multiplying in columns
- using a calculator

Figure 9 - Multiplication of integers as dealt with by CAPS (2011b)

Unlike the RNCS, which relied on FfL to exemplify practice, CAPS does this itself in the same document. It gives examples to accompany the above specific content. Again there is a focus on the possibility of the same multiplication calculations being done in many different ways. It is unclear whether it means that all are equally suitable, that *all* should be taught or if *one* should be chosen by the teacher and taught to the whole class. The specific methods it gives for Grade 6 multiplication suggest one algorithm in common with FfL and two other entirely new algorithms, using compensation and the distributive property. It is evident from below that its instructions are far less detailed than those given by the FfL lesson plans.

Multiplying at least 4-digit whole numbers by 3-digit whole numbers

- Multiply 4-digit whole numbers by 3-digit whole numbers.
Example:
Calculate: $4\,362 \times 108$
 $4\,362 \times 108 = 4\,362 \times 12 \times 9 = 52\,344 \times 9 = 471\,096$ ----- $\rightarrow$ (use the factors of 108)
or
 $4\,362 \times 108 = 4\,362 \times (100 + 8)$ ----- $\rightarrow$ (use the distributive property)
 $= 436\,200 + 4\,362 \times 8$
 $= 436\,200 + 34\,896$
 $= 471\,096$
or
 $4\,362 \times 12 \times 108 + 12 = 52\,344 \times 9 = 471\,096$ ----- $\rightarrow$ (use compensation)
or
 Use the vertical column method

$$\begin{array}{r} 4\,362 \\ \times 108 \\ \hline 34\,896 \\ 436\,200 \\ \hline 471\,096 \end{array}$$

----- $\rightarrow$ $8 \times 4\,362$

----- $\rightarrow$ $100 \times 4\,362$

----- $\rightarrow$ $108 \times 4\,362$
- Use a range of strategies to check solutions and judge reasonableness of solutions.
- Use estimation to round off answers.

Example:
Estimate the value of 793×184
 $793 \times 184 \approx 800 \times 184 \approx 147\,200$ to the nearest 100

Figure 10 - Notes on teaching the multiplication of integers from CAPS (2011b:47)

The clear indication in the case of multiplication of integers is that the specification of Assessment Standards has certainly increased from C2005 to the RNCS to CAPS. The distance between the purposefully vague outcomes of C2005 and the preciseness of the CAPS is very large. An intermediate

phase in this trajectory was the FfL which has the greatest level of Learning Outcome specification, much of which is incorporated into CAPS. Noticeably, the CAPS Assessment Standards are all demonstrated whilst being conveyed. This is presumably an attempt to make sure that teachers come to understand what is required of learning at the appropriate age-specific level.

Additionally, FfL contains attempts to standardise teaching practice in the classroom, its lesson plans give sufficient detail for teachers to follow it as almost verbatim practical guidance. This is not the aim of the FfL but is nonetheless available to teachers who, it must be added here before reading Chapter 5, have received no training whatsoever on using the FfL lesson planning resources. The pedagogy of the FfL is implicit throughout the lesson plans and relies on fast-paced, interactive lessons which use a large proportion of group work. In my opinion, it is unlikely that one could follow the FfL whilst relying on anything but the pedagogy implied and suggested. Any alternative approach would be likely to reduce the overall coherence of the learning and need great flexibility to suitably replace the set-out exercises.

Both the FfL and the workbooks provide statutory classroom resourcing but both emphasise teacher choice in whether to utilise or ignore these curriculum resources. Neither are intended, according to their briefs, to be isolated instruments to improve mathematical standards, instead they are expected to form part of a larger change process which aims to simultaneously improve teaching and learning in the Intermediate Phase.

Other content relating to prescription

As alluded to above, some of the features of FfL contribute additional layers of prescription in the classroom.

Lesson structure

Below is FfL's suggested structure of each mathematics lesson in the intermediate phase.

Mental Work - Use this time to develop learners' mental skills where they practise using their number facts	10 minutes
Review and correct homework from the previous day	10 minutes
Teacher introduces the concept of the day's lesson on the board	20 minutes
Problem solving - Interactive group or pair work should follow where learners engage with a problem or challenging investigation where they have to apply what they've learnt in the earlier part of the lesson.	15 minutes
Homework tasks are given out and explained by the teacher	5 minutes

Figure 11 - The breakdown of FfL mathematics lessons (2008:19)

It is noticeable that a highly complex lesson structure is advocated, the level of which has never been proposed previously to teachers in South Africa and involves combining many short activities into a one hour lesson. This lesson breakdown is followed in the FfL lesson plans but suitable examples, activities and homeworks are often left to the teacher to find. There is only 35 minutes allocated to the new learning for each lesson, an amount of time far less than teachers would previously be used to spending on new learning in each lesson. Completing new learning under such time constraints is not straightforward and there is no justification as to why this structure has been adopted. This is again in marked contrast with C2005 which allowed a great deal more freedom to the teachers concerning how to go about achieving the required learning.

Language of the FfL documents

Notes to the teacher specify with a huge amount of precision about how the lesson should be taught.

The tone of instruction also comes across as being more authoritative. Below are the notes to a Grade 6 teacher:

Use of 'We would like...' begs the question to whom this 'we' refers	Definition of concept to help teacher	Prioritisation of some learning
Week 1: Day 2 Notes to the teacher: - Revise the concept of place value (that the same digit has a different value if it appears in a different place in a number). We would like learners to know that place value is about the position of the digits in numbers determine what size they represent. This is the important understanding of place value. Learners will apply their knowledge of place value when doing calculations. - This activity is designed to revise the work done in the previous year, before introducing new concepts. - Learners must be divided into groups of no more than six. To make grouping easier, ask them to form groups with those sitting around them. - Encourage learners to apply the techniques learnt thus far to solve the problems and to discuss solutions before writing it down. - You must move around the groups, engage with the learners, but try not to lead the discussion. - At the start of every day, 10 minutes must be allocated to quick mental activities and reviewing of homework.		
Discursive learning methods suggested	Use of imperative and categorical imperative verbs	Learner- centred focus and interaction between teacher and learner is suggested

The use of imperatives such as 'revise' and categorical imperatives such as 'you must' give the impression of teachers being told precisely what to do. The role of teachers and the activity of learners are clearly envisaged in the lesson plan with even their interaction being defined. There is evidence of a

Figure 12 - Annotated instructions given to teacher in FfL in Grade 6 (undated: 18)

softer
approach in

some of the other verbs chosen, such as 'encourage', 'discuss', and 'ask' but the overall focus still seems to be that of overly-standardising teaching practice to the detriment of creativity and teacher discretion. A surprising inclusion is the use of, 'We would like...' which begs the question of where the voice behind these lesson plans comes from and who decides upon which approaches are prioritised.

The lesson notes also contain implicit pedagogical approaches, including emphasising fast-paced lessons, building on previous knowledge, the importance of group work and learner-centredness. This is the final layer of prescription that the FfL goes in to: after prescribing content, age-specific levels of learning, progression and lesson timings, it adds highly detailed directives on how the lesson could be taught as well.

Other features of the tone of these instructions are the unnecessary definition of the topic at hand- the notes inform the teacher what the term 'place value' means in the first line. The important thing to note is that the definition is included for the teacher, not the learners. This suggests a concern about the level of competency of the teachers reading these lesson plans. The pedagogical content knowledge of the teachers is also overlooked with instructions which tell teachers to 'divide learners into groups of no more than six' when, if teachers were trusted to choose their own basic pedagogy, the suggestion of group work would be sufficient. Though this is only one example of the lesson notes; it adequately represents the tone of the FfL lesson plans throughout the rest of the year in each of the three grades.

Level of resourcing required

As with C2005, the strain on teachers to provide adequate resources to teach according to the FfL lesson plans will mean that some schools would be able to do so whilst others would not. Below is an example of the resources needed for one week's work in Grade 4:

Resources:

- 1 – 100 chart
- Flard Cards
- Containers or counting bags, with various items to be counted. These may be counters, beans, stones, seeds etc. you will need at least 10 bags or containers with items to be counted. You will need to decide what you wish the learners to count in as you prepare the containers to ensure that you have the correct number of seeds, etc. In each container. learners will count in 2s, 5s and 10s.
- Cards explaining the counting to be done. E.g. a) Arrange the beans on groups of two. How many groups of two have you made? How many beans are there altogether? B) Arrange the seeds in groups of five. How many groups of five have you made? How many seeds are there altogether? Make cards that instruct learners to count in 2s, 5s and 10s.

Figure 13 - Resources need for one week of Foundation for Learning in Grade 4 (undated: 18)

The level of resourcing here is likely to be highly problematic with classes of above 40 and, even with average-sized classes, this represents a huge additional weekly workload for each teacher. It requires at least four different resources to be available to the learners, none of which are distributed along with the FfL lesson planning folder. This adds yet another layer of prescription as it is detailing how lessons should be taught and *with which resources*. It also makes lesson plans troublesome to follow if you do not have the prescribed resources. This is likely to have the result of increasing the achievement gap between the resource-rich and resource-poor schools as it is privileging these activities only to those schools which can provide the necessary resources. In a system attempting to move towards equitable education provision, any factors likely to accelerate some advantaged school away from their disadvantaged counterparts would certainly be counter-productive. The inappropriateness of the extent of resourcing required for FfL is demonstrated by the list given by the DoE in April 2008 (DoE, 2008:20-21) which is included in Appendix C.

Interspersing of content

Another feature of FfL (and one which breaks with previous curriculum documents) is that subject matter is widely interspersed in order to constantly reinforce learning. No longer is one topic given a week (or two weeks) but often different topics are covered within the space of one week. An example of this is from the Grade 6 FfL programme in the weekly overview below. Topics as diverse as fractions, input-output function machines and geometric patterns occur sequentially day-by day in this example:

Mental Strategies: Mental strategies are done with the whole class every day. The time should be used to develop skills as well as build up number sense.					
	Day 1	Day 2	Day 3	Day 4	Day 5
Content Focus	Equivalent fractions	Fractions	Determine output values for given input values	Geometric patterns	Problem solving: word problems
Resources:	Chalkboard, textbook Diagram sheet	Chalkboard, textbook	Chalkboard, worksheet	Chalkboard, textbook	Chalkboard, textbook

Figure 14 - Weekly Foundations for Learning Plan showing the movement between learning objectives in Grade 6 (undated:57)

This is a good example of the prescription being poorly designed which makes it harder to implement. The movement between contrasting topics requires teachers and learners to fully comprehend and recall learning at each stage of the year. If there are gaps or misunderstandings of policy then it will not be possible to build upon the previous learning and complete the learning programme in the time given. One will also notice in the above example that these topics are not necessarily closely linked and so require teachers to be incredibly efficient in recapping and building upon previous knowledge. This difficulty is magnified if one considers that teachers only have 35 minutes to introduce, explain, demonstrate and set examples of the new learning.

With such varied topics constantly being woven in and out of the schedule and no central database of all the lessons on one particular topic, it is hard to see how teachers are supposed to do anything less than conform to the programme in its entirety. Mathematics requires carefully sequenced learning that is constantly building upon past skills and competencies, the FFL folder provides one such sequence but in order to complete the curriculum, I would suggest that it needs to be followed as closely as possible.

Summary of findings

The mandate of the policies

In one sense this is a simple aspect of the prescriptiveness of the curriculum policies to analyse because the mandate of a policy is binary: either it is or it is not mandatory. Accordingly, as all are mandated (except for CAPS which will become mandated policy in 2013 in the Intermediate Phase), this would seem to suggest that all policies are on the same footing. This is superficially the case but policies can dilute their mandate through weak instructions for their own use *inside the policy document itself*. Both

the FfL and DBE workbooks fall into this category. The lack of vigour in this language has been demonstrated above and leads to the unsatisfactory position of it being possible for teachers to simply opt out of well-meaning government policy.

Specificity of the Assessment Standards

Though much has changed in terms of the methods of curriculum reform in South Africa over the past fifteen years, the curriculum policies remain remarkably similar in format. The curriculum policy documents, as opposed to the curriculum support documents of FfL and the DBE workbooks, continue to split mathematical knowledge and skills into the same five Learning Outcomes and delineate Assessment Standards which learners should achieve on within each of these. The major changes, as well as the terminology used in each policy, is the level of specification of these Assessment Standards- whilst C2005 had 50 one-line ASes in the Intermediate phase, the RNCS had 47 ASes in Grade 6 often with multiple parts and the CAPS has 64 ASes each complete with methodological explanations.

C2005 was vilified for not providing enough guidance for teachers which lead policy makers to include in the RNCS greater specificity. The DBE's own reviews suggest that C2005 'emphasised the general to the detriment of the specific' (DBE, 2009:12). For example, the RNCS, moved one particular Assessment Standard in Grade 6 from, 'multiplying whole numbers' in C2005 to 'multiplication of at least whole 4-digit by 3-digit numbers' using column multiplication. However, far from the new RNCS satisfying the need for *more* specificity, the review of the RNCS (DBE, 2009b:27) suggested that, 'Where appropriate teachers should be given guidance and support in the documents on how to teach specific content / concepts and skills.'

With the additional stimulus of poor results in international comparative assessments, the DBE moved towards even tighter scripting for weaker teachers by bringing out the FfL programme. This put in place even tighter guidance on the Assessment Standards of the RNCS by timetabling daily, weekly and termly programmes of when these ASes should be taught and assessed. For the first time, teachers were being guided not only on the specifics of what their teaching should facilitate in each learner but also *when* it should be done for this to be effective.

The future CAPS will amalgamate the RNCS and FfL into one document. Though there are no lesson plans incorporated into CAPS, instead there is 'content outline' on each Assessment Standard which provides standardised methods of teaching each AS successfully. When judging the amount of

specification, it is useful to view the level of specificity in CAPS compared to the C2005 of 1998. This has been done above when looking at the multiplication of integers and one can clearly see that the amount of specification has increased in each transition. This is summarised in the diagram below:

Policy	Level of detail
C2005	4.1 Add, subtract, multiply and divide positive whole numbers
RNCS	- Estimates and calculates by selecting and using operations appropriate to solving problems that involve: - multiplication of at least whole 4-digit by 3-digit numbers; - multiple operations on whole numbers with or without brackets. - Uses a range of techniques to perform written and mental calculations with whole numbers including: - adding, subtracting and multiplying in columns;
CAPS	6.1.1.8. Multiplication of at least whole 4-digit by 3-digit numbers 6.1.1.10. Using a range of techniques to perform written and mental calculations with whole numbers including: - adding, subtracting and multiplying in columns <i>Multiplying at least 4-digit whole numbers by 3-digit whole numbers</i> - Multiply 4-digit whole numbers by 3-digit whole numbers. Example: Calculate : $4\,362 \times 108$ $4\,362 \times 108 = 4\,362 \times 12 \times 9 = 52\,344 \times 9 = 471\,096$ - - - - $\rightarrow$ (use the factors of 108) or $4\,362 \times 108 = 4\,362 \times (100 + 8)$ - - - - $\rightarrow$ (use the distributive property) $= 436\,200 + 4\,362 \times 8$ $= 436\,200 + 34\,896$ $= 471\,096$ or $4\,362 \times 12 \times 108 \div 12 = 52\,344 \times 9 = 471\,096$ - - - - $\rightarrow$ (use compensation) or Use the vertical column method $\begin{array}{r} 4\,362 \\ \times 108 \\ \hline 34\,896 \\ 436\,200 \\ \hline 471\,096 \end{array}$ - - - - - $\rightarrow 8 \times 4\,362$ - - - - - $\rightarrow 100 \times 4\,362$ - - - - - $\rightarrow 108 \times 4\,362$ - Use a range of strategies to check solutions and judge reasonableness of solutions. - Use estimation to round off answers. Example: Estimate the value of 793×184 $793 \times 184 \approx 800 \times 184 \approx 147\,200$ to the nearest 100

Figure 15 - The level of prescription of Assessment Standards in successive policy documents

Standardised practice and recommended pedagogies

There is a stage in the progression of these successive curriculum reforms where policy makers felt it was no longer sufficient to merely specify what should be learnt and that it was necessary to set out methods and pedagogies had become necessary as well. This point occurred between the RNCS and the CAPS, when international comparative tests showed the weak state of South African mathematics, stimulating the FfL campaign. Consequently, the FfL and CAPS can be seen as providing clear teaching methods for practitioners who are unable to formulate their own learning programme and utilise suitable techniques. This increases the level of procedural prescription, a feature that has no precedent in the former policies.

There are some problems with such an approach in a country with the level of variance in educational standards such as in South Africa. As a set of curriculum documents, the FfL has the disadvantage of only being suitable to some schools due to the level of the work it contains and the resources which they assume are available. Additional concerns arise over the alignment of the three resources (RNCS, FfL and the workbooks) being used in unison. For example, the workbooks give specific weekly and daily exercises to be completed but these do not tally with the weekly and daily lesson plans of FfL. The instructions delivered with the books mention that this structure in fact corresponds to 'latest Curriculum and Assessment Policy Statement (CAPS) of 2011'(2011b:2). This has the potential to be cause confusion because by the time CAPS is implemented in intermediate phase, the workbooks will be in their third year.

Statutory resourcing

Both the FfL and DBE workbooks are statutory resources to be used in the classroom. The workbooks fit into the overall picture by providing the last aspect which the FfL does not set out: the actual resources to be completed by each learner in the classroom. In C2005, these choices were entirely at the discretion of the teacher. FfL added lesson plans to specific Assessment Standards of the RNCS and now the workbooks, although they are not the only resource to be used, form the actual procedures to be completed by learners. This combination certainly demonstrates an increase in the amount of statutory resources laid out for teachers. This is shown in diagram below:

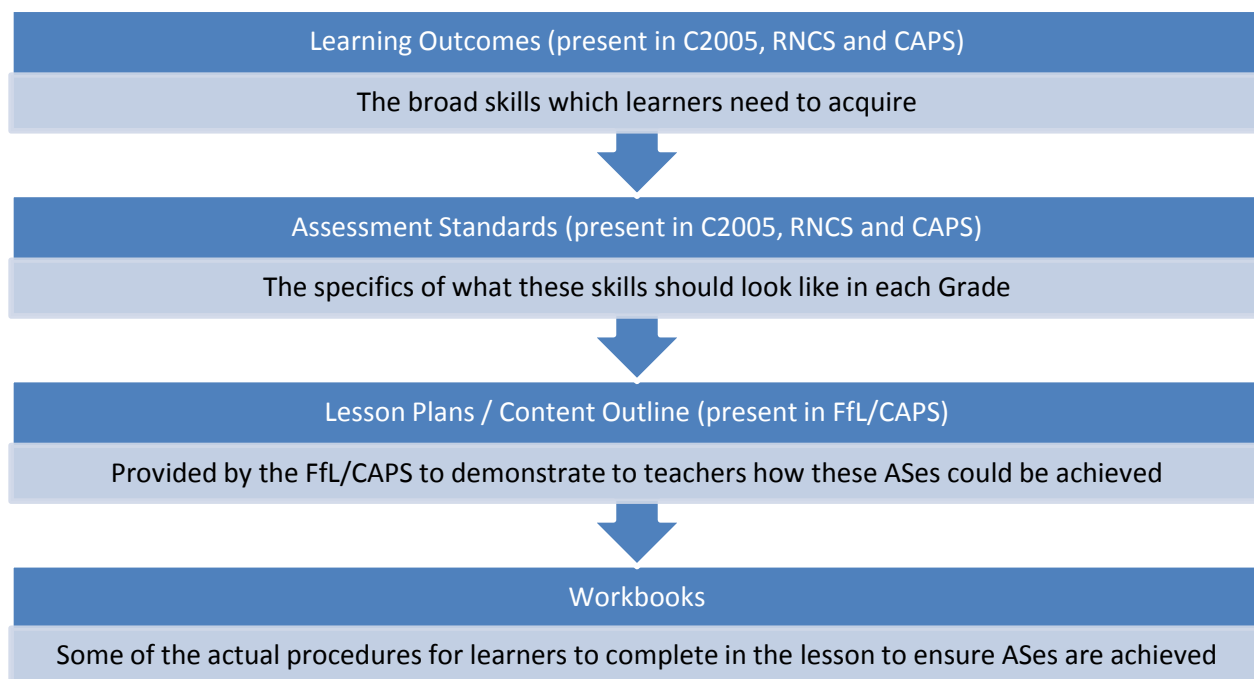


Figure 16 - How the current combination of curriculum resources fit together

The document analysis has also revealed some crucial design weaknesses in the way that the curriculum reforms are structured. Whilst this does not affect the level of prescription, it makes the prescription that is present inappropriate for use by teachers in practice. Four critical design weaknesses are:

- The language of the tightly guided lesson plans directs teachers too precisely about what to do rather than entrust them with guiding strategies;
- The lesson structure gives teachers only 35 minutes on new learning per lesson;
- The resource list (fully detailed in Appendix C) is so long that only the best resourced schools could follow the policy as intended;
- The mixing together of topics may lead to constant reinforcement of knowledge if done correctly but is more likely to cause confusion amongst both teachers and learners.

Moreover there is a significant lack of a coherent strategy between the policy documents themselves. For example, it is not appropriate to specify content in such detail and then inform teachers that they can use the lesson plans in a piecemeal manner. The benefit of having such prescription is that teachers do not have to make decisions about progression between levels of complexity and between topics. It undermines this additional freedom to advocate to teachers to use some of the resources whilst also making challenging decisions on how they may fit together.

Conclusion

Alongside the RNCS and the workbooks, the FfL forms a combination of curriculum documents which is certainly more prescriptive than the C2005 was in 1998. I will term the amalgamation of these three policies which are, at the time of writing, all currently mandated policies, as ‘the current curriculum combination’. It would appear from looking at the *documents themselves* that there is a clear trend emerging from the data in the previous section that South Africa is indeed moving towards a more prescriptive, centrally-driven approach to education. The trajectory of curriculum policies becomes more prescriptive over the course of the last fifteen years in three of the four different modes:

1. Increasingly specified Assessment Standards,
2. Greater attempts to standardise pedagogical practice and content
3. Introduction and proliferation of statutory resources

However, the fourth mode of a policy becoming prescriptive is the key one here and the mandate of the most recent and highly specified policies, the FfL and the workbooks, fails to make these initiatives compulsory. This leaves teachers with the ambiguity of what I will call ‘unprescribed prescription’- as the level of prescription goes up, there is no simultaneous increase in either pressure or incentive to use these resources.

This provides a striking paradox: though the level of instructional prescription increases dramatically over time, there is actually a decrease in compulsion to use these additional guidelines. Whilst C2005 and the RNCS were nationally mandated and the expectation was that all teachers should follow them, the FfL and workbooks do not even demand that level of adherence. This gives the unsatisfactory consequence of high-quality materials having been distributed but never integrated in any meaningful way into the classrooms where they are most needed. The DBE is following the lead of other countries in providing teachers with high quality resources that reflect good classroom practice but it balks at the idea of forcing any teachers to follow them, irrespective of their teaching capacities.

It is my opinion that FfL is itself a highly detailed instructional regime for teaching intermediate phase mathematics. Given Tobias and Duffy’s (2009:64) definition of an instructional regime: ‘the coherent arrangement of constituent resources of schooling such as matter, incentives, and teacher and student

actions in order to reach specified goals.’ The FfL documents, in my opinion, meet these criteria and certainly contribute to an increase in standardised practice and more frequent recommendation of specific pedagogies to achieve this. Moreover, given the level of detail within the current curriculum combination, the type of teacher it is aimed at seems to be one in need of support with both content knowledge and pedagogy. However, these policies also run into difficulties with the level of prescription within these documents which is, at times, inappropriately designed. Factors such as the language used in FfL, the lesson breakdown, the list of resources and the interspersing of topics are simply not practicable in many South African classrooms.

As witnessed by the poor results in South Africa, the poor state of mathematical teaching practice and the pressing need for reform, I would presume that teachers altering (at least some of) their current practice in order to improve by following these plans is exactly the result for which the DBE should be aiming. The reason why they shy away from the prescription of these lesson plans to teachers in under-performing schools is not clear. Perhaps the movement away from C2005’s latitude on teacher choice has not yet been eroded to the diametrically opposite position of enforced prescription.

This documents analysis gives an indication that the model of curriculum reform favoured by the government has radically changed over the past fifteen years. The most striking aspect of this is the change in the locus of educational change, moving from being entrusted in the hands of teachers to residing more and more with the national Department of Basic Education. C2005 placed learner-centredness and teacher autonomy as the most privileged positions in their curriculum reform: teachers were empowered to decide upon their own methods of facilitating a thriving learning environment in each classroom. The tools to do this were teachers’ professional judgement and understanding of context-specific factors. More recently, the pendulum has swung to the other extreme with centralised policy-makers using their judgement to decide upon the best methods of ensuring quality teaching and learning. This has decreased levels of learner-centredness and placed the emphasis on teachers adapting curriculum for optimal use in their classrooms. The ‘voice’ of prescription from the centre is noticeable implicitly and explicitly in the FfL lesson plans, as well as in both the methodological decisions of the DBE workbooks and in the ‘content outline’ of CAPS.

Chapter 5: Teacher discourse about prescriptive educational reform

Location within the field of study

The first research question's focus on whether South Africa was moving towards a greater level of prescription was indicative of the model of educational change that the DoE favoured, Hargreaves' 'second way' of educational change. The features of this model of change are the centralisation of the change process and the standardisation of practice, both of which have consequences for the general responses of teachers. The literature review suggested that teachers fell into two broad categories when faced with prescriptive reform, that of 'resisting' or 'embracing'. As mentioned then, there are many different ways through which these two perspectives can manifest, with American literature focussing on 'principled objectors' to prescriptive large scale reform whilst English literature looked at reluctant embracers who took on prescriptive reform out of necessity rather than choice. Both suggest a degree of unwillingness in the response of teachers to 'second way' reform.

Some contemporary features of the South African model of reform, such as highly specified curriculum content, can be seen as being commensurate with the Hargreaves' 'second way'. This calls into question whether this has been the abiding change knowledge in South Africa over the past fifteen years. I would suggest that South Africa has had to retreat from a model, like that of C2005, which placed educational change in the hands of empowered teachers to one where the state controls reform. These features are more characteristic of Hargreaves' 'first way' in which the state, 'offered innovation but without any consistency or cohesion' (2008:30). The latest model of change in South Africa appears to withdraw at least some of the autonomy and teacher choice of C2005 and favour more rigid and specified structures of the RNCS and CAPS. This chapter will look at whether there is resistance to prescriptive change prevalent in the South African system and what system-wide factors make prescriptive change in developing countries analogous or dissimilar to that described in the literature from England and USA.

The major feature of South Africa's model of change is that curriculum reform will have some bearing on improving classroom practice in mathematics. The link here is not straightforward and relies on factors implicit in the implementation phase as well as the material in the curriculum document. Though the analysis of the last chapter only referred to the content of the curriculum documents, the teachers will discuss the change model in its entirety. This will additionally include the communication, training, monitoring and support of the implementation phase. It will therefore form a more complete and comprehensive of the DBE's model of educational change.

Introduction

In the previous chapter some of the problems associated with South Africa's mode of curriculum reform were highlighted. This chapter will attempt to follow the logical progression of how teachers have come to understand, talk about and explain their implementation of these policies. The focus will be on teacher discourse as collected in interviews in a manner that allows certain critical aspects to be drawn out, compared and described.

As documented in the Research Design of chapter 3, ten teachers were selected and interviewed. These teachers came from five different schools and all had been exposed to the combination of RNCS, FfL and the DBE workbooks over the course of their careers. This study does not deal with the extent of implementation of these policies but a brief glance at Appendix E demonstrates that the latter two policies, at least, were largely ignored. Based on the last chapter's findings, the question arises- why was it that, as policies became more specified, directive and resourced, uptake of the policy was so poor in the classroom? This section will look at teachers' experience of the policies in question but also view each teacher in the light of their context and professional identity.

Some of this uneven implementation can be attributed to the four factors described in the previous chapter, poor cohesion of topics within a week, overly elaborate and ambitious lesson timings, an impractical level of resourcing and a general lack of coherence between policy documents. These factors, drawn out from their policy document context in the last chapter, are corroborated by references in the teachers' discourse when asked about the policies in question. My second research question examines the way teachers are able to interact with curriculum reform and how the four factors listed above clearly have had a detrimental effect. Therefore, there are at least some aspects of teachers' overall discourse about curriculum reform which are deeply rooted in the failures of the documents themselves.

However, despite the uneven implementation, there is a large amount of variation apparent in teachers' discourse about change in this chapter which points to factors beyond the policy content itself. Five teachers' viewpoints will be explored in great detail to determine what major elements determined teachers' individual responses. These were chosen as being good representations of the variety of viewpoints demonstrated by interviewees. Teachers' explanation of their actual response as well as an analysis of the background contributions towards this choice are investigated for each of the five teachers documented individually. Here quotations are used alongside an interpretation of the subject's meaning and reasoning to build up a vignette of each teacher.

However, in some cases, looking at one teacher's discourse in the light of information gathered from the other teachers is also illustrative of where similarities and differences derive from. Here I will use cross-case analysis to explore the impact of important factors which lie beyond the level emanating from the content of teachers' responses to interview questions. I will contextualise each teacher's discourse within their professional history and specific work environment. This sheds light upon why the variation in responses is reported by teachers and brings into sharper contrast the reasons why teachers may respond in unique ways. In this study, there are instances where teachers react in superficially similar ways but such cross-case analysis makes it possible to differentiate responses reliant upon one set of circumstances and opinions from ones which are based on diametrically opposed justification.

One important thing to understand is that the interviews can elicit "socially appropriate" answers (see Foddy, 1994:76-77), meaning the participants reply with what they think the interviewer wants to hear or what they think reflects best upon them. Thus, the data may not reflect objectively the opinion of teachers but, instead, reflects the opinions that they choose to relay. The data I have obtained is useful in that it describes the ways teachers have reflected upon their past experiences and it gives insight into the frames of reference they use to assess new reforms.

The combination of single- and cross-case analysis allows me to generate categories of teacher response to prescriptive curriculum reform. This is a useful construction as it will locate the variety of responses in relation to one another and demonstrate which factors are held in common and which are unique. The classification allows the study to extrapolate some of the critical issues within the study into relatively discrete categories which are more readily dealt with than individuals when considering the implications of teacher discourse upon future policy making.

Vignettes of selected teachers

Brief vignettes of all teachers interviewed in this study are contained in Appendix F. Please note that the identity of all teachers and schools in this study have been changed to pseudonyms.

Mr Hendriks

Mr Hendriks is an experienced, late-career Grade 6 teacher who is very settled at Huttonlea Primary. He has been in the same school setting for a large proportion of his career and feels at ease with the school environment and his status as a senior teacher. At Huttonlea, he has witnessed the change of the school from being a predominantly white community school to a predominantly black school with most learners being transported to school from far away. He makes reference in his interview to his belief that 'standards' are dropping and he describes how he finds it hard to maintain the same 'high standards' he has always set his learners. He has experienced multiple reforms of the curriculum and has not found great benefit in them. In the classroom, he has a combination of pedagogy, content and resources with which he is extremely comfortable. Given his presentation of his practice as successful, he sees no reason to change it. His principal, Mr McCalman, makes it clear in the interview that he has total confidence in Mr Hendriks and this allows him to independently make his own curriculum and pedagogic decisions. Mr Hendriks is a strong disciplinarian and expresses passionate views about education throughout his interview.

When asked about how about FfL and the workbooks, he responded that he preferred to use his own methods,

I have been teaching mathematics for about twenty years and I think, at least by now, I know what's going on. I think I also know by now, if I start here, with [for example] area here then I must finish with this. Then I've covered everything I need to cover.

The quotation demonstrates it is specifically his *experience* of the subject that allows him to feel comfortable with both sequencing and coverage. Starting the syllabus wherever he wants, he is confident enough to devise his own progression through all the necessary topics in the grade. He did not mention in the extended interview any particular high levels of training or qualification but, instead, repeated that his experience sets him apart from the majority of teachers and allows him to pursue Grade 6 learning outcomes in a way unhindered by curriculum policy changes. Though an understanding of what Learning Outcomes need to be achieved have been given in more and more detail in the RNCS and the FfL, Mr. Hendriks always gives the impression that his familiarity with Grade 6 standards predates the introduction of even C2005 in 1998. For Mr. Hendriks, this hard-earned experience is invaluable and he is not willing to jettison it whenever new policies come along.

Though he recognises mathematics as a general area of weakness amongst learners, he expresses uncertainty about new initiatives, based upon bad experience in the past, which leaves him cynical

about the efficacy of what is to come. If he is not sure about whether or not a policy is likely to bring good results, he will more than likely ignore it and continue his current practice. Amongst other things, his reasoning for maintaining the status quo was his disappointment with some of the previous curriculum reforms, which he sees as one failed attempt after another,

You know that the previous system is not working out how it's supposed to be but you also don't know what's going to happen in the future. Is it going to be an even bigger stuff up than it was? Or is it going to be an improvement. So you don't know what you're getting.

In addition, Mr Hendriks was sceptical about the source of these policies, 'I don't think those people who are thinking up those policies have been in the classroom. I've don't think they've *ever* been in the classroom.' Moreover, he is not willing to accept the opinion and methods of anyone other than those who have been teachers and who have recent experience of the challenges inside the classroom. For him, teaching is not a simple profession and cannot be mastered by those without extensive experience. He views policy reform as unwanted and unnecessary interference in his classroom with true expertise deriving from classroom experience not accessible to university academics or bureaucrats. This gives a significant indication of how his strong professional identity (based on his years of experience) is strongly coupled to his unwillingness to acquiesce to the policies of those he perceives do not have sufficient recent experience in the classroom. This quotation also emphasises the specific knowledge and skills he has gained which is particularly relevant to his own school and which cannot be matched by policies that, by their nature, have to encompass widely differing classroom circumstances.

A later comment gave the impression that he was not *totally* averse to change but that he had severe doubts in the way that the government was trying to go about improvements in primary education. 'You can't say, "I know everything," but I think I know enough to be able to tell other people, "Listen, I don't think this is the right way of doing things".' He added that he felt confident enough to criticise reform to colleagues, his principal and district officials as he was able to justify following the methods that have served him well in the past. The source of improvement for him is not curriculum reform but instead the gaining and sharing of experience. He makes it clear that he will resist even state-mandated curriculum reform if necessary if it goes against his professional judgement.

Mr Sibeko

Mr. Sibeko, the Grade 5 teacher from Sakheni Primary, is in his fifties and has been teaching for over twenty five years. He freely admits to not being a mathematics specialist and, indeed, confides that he would be happier teaching another subject. Mr Sibeko knows that he has been forced into the area due to a lack of expertise amongst other teachers at the school. Sakheni Primary has recently been classified as underperforming by the Gauteng Department of Education (GDE) with an average ANA score of 27% in mathematics. Mr Sibeko's lack of confidence in his own mathematical knowledge means that he is reluctant to teach new topics or to try novel teaching techniques. Although he has many years in the profession and lived through both the transition to C2005 and the RNCS in his classroom, he would much rather continue with the methods to which he has become accustomed rather than take risks by experimenting. Unfamiliarity with the methods of OBE and the specification of Learning Outcomes in the RNCS have left him confused and, with class-sizes averaging 35-45 learners, he finds keeping the learners on task as challenging as the teaching of the curriculum. Mr. Sibeko was asked by his principal, Mr. Dube, to ensure his qualifications were appropriate to teach and he duly did so. However, Mr. Dube expressed annoyance in his interview when he relayed that Mr. Sibeko had chosen to study another area of interest rather than a qualification directly related to teaching mathematics.

Mr. Sibeko was remarkably frank about his weak subject content knowledge in his interview, 'I am not that much good in division.' He continues that he would like additional support to teach the concepts which he finds challenging. Despite these shortcomings, his desire to improve as a teacher is still present as one can see when he says,

Normally come January I will be prepared and I will say to myself , I am going to follow the FfL, [and] for two to three weeks, in general, I can. But along the way, to be honest, I will lose it or maybe it is because some of the lessons I will find too problematic.

Mr Sibeko's desire to succeed in mathematics drives him to attempt afresh at the start of every academic year to iron out his weaknesses by using the new resources and policy documentation but this renewed determination is usually short-lived. The contexts of 'lose it' and 'problematic' here signal that the pace and complexity of the lesson plans were too much for him to keep up with. Two insights follow, firstly, that some of the challenges he faces are clearly caused by his poor mathematical knowledge and,

secondly, that he feels that once he has fallen behind there is little chance of being able to catch up with the pace of the resources.

His interaction with the DBE workbooks is particularly illuminating here, 'I just went through them, they are actually quite user friendly, quite colourful and kids can work on their own but I don't use them every day to be honest with you.' In fact, he mentions later that he has only used them extremely rarely. When talking about the FfL resources, he mentions, 'bits and pieces of lessons and examples which are user friendly and which you can apply in the class, which you can follow and if followed correctly will yield good results.' Though he attaches value to both the FfL and the DBE workbooks in the two quotations above- he thinks they are user-friendly and will be useful as a tool for learning- he freely admits that he does not use them. Like Mr. Hendriks, he openly acknowledges his failure to comply with state-mandated resources. For him, the quality of the resource is adequate but it is the lack of support in how they are to be used which determines his choice not to use them. This puts him in a different category from all the other four teachers here, all of whom point to inadequacies in the quality of the resources as part of the reason for them to be disregarded.

Mr Sibeko is aware that there is a lack of monitoring of classroom practice at both the school and the district level and is happy about this situation. He observed, 'I like it here at school, monitoring is not too much'. This suggests that he is quite happy with an unchallenging status quo where, although standards are not high, his individual practice is not being put under scrutiny. This statement is worrying considering the average score in 2011's ANAs at Sakheni was 27%. He believes that the district is not monitoring because it will only become aware of more areas which it will need to address and it does not have the capacity to do so, 'And monitoring not in the context of ridiculing a person, not in terms of degrading a person, nor in terms of being judgmental but in terms of building.' A revealing quotation reveals the theory of educational change which he possesses, 'You don't monitor without support. You will support and [so] you will put a person at the level when you think, 'Yes, now I can go and check and monitor him.' My impression is that he accepts that he is one of the ones who need exactly this level of monitoring and support as without it he is aware that he will be unable to do himself and his learners justice in the classroom.

He views the GDE as having a different agenda to his as a teacher- they do not help with the actual teaching inside the classroom but are preoccupied with paperwork, leaving him sceptical about whether that support is likely to come,

They don't solve the problem inside the class, they just give you papers [learning programmes and assessment schedules]. And I think the district is quite satisfied with just seeing the teachers' files ... The teacher in practice is more difficult.

His acceptance of his need to be supported, is however, at odds with the admission that, although he knows that training would be beneficial, he does not always attend the relevant training, 'I would say there was training but [for] FfL, I don't want to lie to you, we didn't one time go.' This points to a level of internal inconsistency and, without a longitudinal study, it is impossible to say whether his willingness to undergo further training would be followed up or whether it is just rhetoric.

Ms Kibane

Ms Kibane, a Grade 4 teacher from Ezakhe Primary, is a middle-aged teacher with 15 years' experience. Her mathematics background is sound and she has taught at different levels in a variety of primary schools. Unlike Mr Sibeko above, she is well-informed about policy changes, lamenting what she perceives as the decline in standards over her time in the job. This contributes to a rather pessimistic outlook upon the profession and the value of her day-to-day practice in the classroom. Ms Kibane mentions that she often tries new ideas but has not often found practices which make a significant difference. Her answers demonstrate a particular concern for the low levels of support shown by the district office as well as frustration at the low level of English of the learners that she receives at the start of each year. Her school has been classified by the GDE as underperforming and ANA results reveal that her average Grade 4 result in 2011 was 16%. Ms Kibane is confident and eloquent, commanding great respect amongst her peers in the staffroom. The principal, Ms Nkosi, shares Ms Kibane's cynical outlook on the state of mathematics in the school but makes it quite clear that she will never lay the blame for low standards upon the teachers.

Ms Kibane understands the specifics of the FfL policy as is shown by her highlighting the constant

switching between topics as problematic,

What I hate about these files is they won't stick to one LO for two weeks. Today they are expected to be doing division, the following day is multiplication. Where on earth can a child do that? Especially in Grade 4.

She is adamant that the intermingling of content in the FfL folder make it impractical and unsuitable for use in a Grade 4 classroom. This sounds like an opinion based on her own experience but when followed up on this, she reveals that she has not used the policy for more than a few isolated days. For her, it is the content and methodology of the policies that leads her to ignore it. Ms Kibane feels that the content is poorly arranged and she uses her experience to judge that the fast-paced lessons and heavy resource requirements will not be suitable for her class of close to 50 learners.

This lack of confidence does not just cover FfL but extends to the workbooks and policy in general, as she makes clear, 'I worry about changes because those changes, I know they won't bring any support. I would welcome changes if that change was accompanied by support.' This claim is impossible to validate but it does demonstrate, at least in the way she sees herself in relation to reform, that she is not resistant to change *per se* but is simply waiting for appropriate change for her context. She adds a pragmatic opinion later on that she does not think that such support is forthcoming, holding the view, in common with Mr Hendriks above, that those people who could specify the necessary support do not know what actually goes on in classrooms, 'what I have noticed is, they don't come down to grass roots level and find out what the problems are. They just decide, as the government, the programme they want to introduce now.'

The link is made here between policies that do not fit their target audience and her viewpoint that policy makers are too far removed from the classroom. Her opinion suggests that she will continue to wait until policy is enacted which includes what she perceives to be suitable and effective support structures, 'Teaching is not constant, it is always changing. So I would welcome changes if those changes are accompanied by training, support and follow-up.' Ms Kibane too has a theory of educational change which builds on that of Mr Sibeko; no change will succeed unless it is accompanied by 'training, support and follow-up'. Unlike Mr Sibeko though, her rhetoric goes as far as to say that if the support were in place then she would actively welcome appropriate changes, claiming that she, 'has no problem being

monitored because if I am not monitored, how will I know if I have done justice to what I am supposed to do?' This gives an indication that Ms Kibane believes she would happily consent to both goals of monitoring: to ensure correct implementation as well as to promote quality learning.

Mr Naidoo

Mr Naidoo is a mid-career teacher in his forties at Huttonlea Primary. He has taught at a wide variety of schools during his career and reflects on how some curriculum policies have been more effective in some contexts than in others. He is not a mathematics specialist but is confident in his interview that he is more than capable of handling the complexities of Grade 4 mathematics. At the start of the year, his Grade 4s scored an average of 26% in their ANAs which has led Huttonlea to be labelled by the GDE as a school specifically in need of improvement in mathematics. Mr. Naidoo is not concerned about the low numeracy levels of the learners which he has received and is confident of turning them around by focussing for the majority of the year on the basic operations. Huttonlea is an Ex-Model C school which has class sizes of 35-40 learners and he notes that, although other classes have had problems with discipline, he does not face such issues. Though Mr Naidoo is confident of improving the Grade 4's mathematics ANA results, his principal, Mr McCalman, was very concerned and, in August, had already put plans in place to improve them in February 2012.

Mr. Naidoo feels that the level and quantity of prescription from the government is too great,

That's our biggest problem- the department wants us to do everything in the order they've given you- a set text ... [where] too many things are thrown into one pot- you don't have a chance to taste a bit of this and you have another taste coming along.

He feels that frequent changes would be too much for his learners and he repeats throughout the interview that he is not prepared to countenance such an approach and is going to stick to the basics of the four operations, 'To be a good maths teacher you have to say, 'to hell with this,' and go back to basics.' This beliefs frames his open admission, 'that file [the FfL lesson planning file] sits in my cupboard. If you find it somewhere, it'll be covered in a layer of dust. There's dust on it.'

Two statements from Mr. Naidoo indicate his mathematical capacity, 'I'm not a trained maths teacher but I have got a passion for maths, I wouldn't do maths at school if I wasn't OK with it,' and, 'if I were a maths person, I would know all the answers'. He thinks that the policy makers themselves are purely mathematical people and do not understand the complexities of classroom teaching, he caricatures policy makers as, 'Mr So-and-So up there, who is a professor and no one should tell him what to do.' Therefore, the perceived source of the curriculum reform is a problem and Mr Naidoo feels that he has not been consulted and does not want to follow the prescribed changes or mandated policies, 'they [the policy makers] haven't realised that they have chosen a path, no one wants actually to follow this path and that is why there is organised chaos.'

Mr Naidoo realises teachers are not a homogenous group and that some teachers will need more support to achieve the objectives set by the DoE and that the policy is a possible instrument to facilitate this. For him, FfL and the workbooks were primarily directed at new teachers and those in underperforming schools. The policies are designed to remedy a situation where 'new teachers [are] coming into school situations teaching the OBE method, they have forgotten the basics, teaching content.' The level of detail leads him to believe that, as he says, the policy is designed to bring back large amounts of content to guide teachers on exactly what should be taught in contrast with the teacher choice characteristic of OBE. This shows a degree of confusion here as newly trained teachers are not currently being trained in OBE practices.

Mr. Naidoo went on to further add that policy formulation should be directed at the areas of greatest need, stating that policy making should not 'give something because you think it is right, give something because you know the people down here [gesticulates low level with his hand] require that.' This view demonstrates that he does not believe that the policy is meant for him but is instead for teachers with the greatest need. This is consistent with the language used in the FfL folder which assumes a low level of mathematical knowledge when addressing teachers. This perception is further emphasised by Mr Naidoo's later statement, 'That's why it comes back down to qualified teachers, if you know your maths and you know how it is done, you can still play around with it. I mean most of us, don't follow the rules.' For him, experience and mathematical expertise exempt some teachers from the remit of prescriptive reform.

The two paragraphs here show that Mr. Naidoo is caught between the two contrasting ideas: that curriculum reform is both too complex and too simple. He believes that policy making mathematicians set out policy that is too complicated for 'normal' teachers who do not have any leeway to argue and are forced to comply. On the other hand, he mentions that he believes the resources are actually designed for the lowest ability teachers and schools which would suggest they are at a basic level. This emphasises that Mr Naidoo feels under no obligation to follow the reforms and instead can alter his reasoning as to why he does not comply between two contradictory positions to suit the discussion.

Other teachers also gave glimpses of subscribing to this belief, Ms. Talwar from Riverville Primary, believed that FfL was for teachers with poor training or mathematical knowledge, stating 'I think it is more for the teachers who did not get the proper formal training so ... there is a book [the FfL file] for you now that you can follow and teach yourself and then go and teach it to others.' Ms. Rashid, also from Riverville Primary, added that it was 'more for the beginner teachers, those who have just started because they are new to all this. We are seasoned teachers, as long as we decide, these are the resources I want to use [then we will use them].'

Ms Talwar

The last category is exemplified by Ms. Talwar, a middle-aged but early career teacher from Riverville Primary. She has only two years of experience as a mathematics teacher but possesses a strong mathematical background. She strives very hard to provide the best resources for her learners and sets them very high expectations in all areas. Her relatively few years of teaching mathematics means that she is crafting a repertoire of pedagogies which work in specific cases. Ms Talwar has class sizes of 25-30 learners in her ex-Model C school and feels comfortable regularly experimenting with different teaching techniques. She is currently completing her teaching qualifications and is specialising in mathematics education at university on a part-time basis. She has already become subject coordinator in mathematics at Riverville Primary and regularly consults Mr Logan, her current principal and a former mathematics teacher himself, about best practice in the subject.

In the case of FfL, Ms Talwar is the only teacher of the five listed above to have given it an extended chance to succeed. She explains how her teaching is constantly evolving, saying

I put a lot back [referring to her continuing studies] into what I do at the moment to see whether it works. Because I try different things, every time I change my teaching strategy ... so that I can find out what is best for me and for the learners.

She is inclined towards change and employs new techniques willingly and, in this case, without enforcement or persuasion (as the FfL did not provide any). However, as she refuses to compromise on standards, Ms Talwar will abandon practices that do not work and, instead, quickly return to those that have served her well in the past.

Ms Talwar repeats during the interview that she is much happier with forms of change which have been explained to her rather than just simply handed over to her. She expands,

I just can't accept this change if you don't explain it; if I don't know what it is really about. I've got to see whether it is really beneficial for both teaching and learning and, if it is, then, yes, I will welcome it.

This reveals another indication of a teacher's own theory of educational change: Ms Talwar believes that if a reform provides visible improvement for both teachers and learners then she will persevere with it. As well as working, teachers such as Ms Talwar want to know what the underlying theory is behind its effectiveness. She does not want a input-output explanation of 'do this and these results will follow', she wants to be involved in evaluating the policy on every available level.

Ms Talwar mentions that she did attempt to follow FfL saying 'I did try it, yes. I think the idea of jumping from one concept to the other, kind of doesn't [work]. I lost hope with it' and that 'I would feel very stressed out and I didn't know whether I was doing the right thing and that's when I said, "I need more structure" and went back to Education Station [her previous source of teaching resources]'. Even in a well-resourced school with small classes, the movement between topics was too much to manage and caused her to abandon FfL. More surprisingly, she sought a programme which had *more* structure than the FfL lesson plans, despite structure being one of the characteristics that FfL has in abundance. Perhaps, here she is referring to the familiar structures of her previous practice.

Ms Talwar mentions that the degree of prescription in the documents does not impress her either, 'you are prescribing and telling me, "That's it. This is it and that's the only way." So it is like anybody can come and do it.' This last statement reveals that Ms Talwar dislikes the tone of the FfL lesson plans and demonstrates her unhappiness with resources that undervalue the level of proficiency of some teachers. She does not welcome being talked down to by policy makers, with some of the language of the FfL seemingly directed at teachers of the lowest possible level of competency. She later registers her distaste with the manner in which it tells teachers what to do and its lack of flexibility. Both of these factors are mentioned in Chapter 4's analysis of the policy documents.

Teacher	Brief description of the teacher	Discourse about their response to prescriptive policy
Mr Hendriks Huttonlea Primary	Highly experienced teacher with deeply entrenched ideas about how to teach maths effectively. Has overseen many changes to the school during his tenure and is trying to maintain his high standards.	Mr. Hendriks does not believe that curriculum change is necessary as mathematics education is relatively static. He is accustomed to using his own methods and will not change these unless compelled to do so.
Mr Sibeko Sakheni Primary	Experienced teacher with poor mathematical knowledge who has nonetheless been forced to teach maths. He makes it clear that he would rather be teaching other subjects or receiving more support.	Mr Sibeko looks at whether he is obliged to follow the policy rather than what the policy is about. He knows when policies can safely be disregarded due to insufficient monitoring. Policy fatigue and lack of follow-up on previous policies influence this choice.
Ms Kibane Ezakhe Primary	Ms Kibane is a mid-career teacher who is frustrated with the low abilities of her learners. Large classes and language issues form high barriers to learning for her pupils. She is a leader in the staffroom and other teachers highly value her opinion.	She has enough knowledge of the policy to pick out its faults, some of which she has experienced first-hand. She makes decisions, with some reference to the policy, about the costs and benefits in terms of whether they will receive sanctions if they do not do it and the benefits in terms of how it will impact upon teachers (not how it will impact learners).
Mr Naidoo Huttonlea Primary	Mr Naidoo is a confident late-career teacher who prefers to follow his own methods than any prescribed curriculum. He has witnessed many changes and prefers to stick to ways that prioritise the basics.	Mr Naidoo does not think that policy makers have any idea what is going on in classrooms and so views curriculum reform with caution. His specific reason for them rejecting the policy is that it is not for them, it is instead only intended for other teachers who actually need it.
Ms Talwar Riverville Primary	Ms Talwar is an early career teacher with great enthusiasm and mathematical knowledge. She is unsure of which teaching techniques work best but is reflective on her own practice & enjoys trying out new ideas.	She understands some of the critical thinking behind the policy change and will try to implement it in her classrooms. However, she is unwilling to change their whole teaching and assessment frameworks unless they are convinced there will be definite benefits for herself and the learners.

Figure 17 – Factors affecting teachers' responses and contributing to teachers' self-conception

Cross-case analysis

The aim of my cross case analysis is to understand the discourse of teachers in relation to other teachers. This will allow me to compare the experience and reasoning that underpins such discourse. Given that all the teachers experienced the same policy trajectory and, as they were all in the same district of the same province, had policy delivered in the same way, the variety of their actual response must be based upon something more personal or school-context based. This section will first explore teachers' identity which leads them to prejudge curriculum policy independently of its quality; secondly, look at difficulties experienced which were inherent in the policy documents and implementation strategy and; thirdly, move on to examine the teachers' own ideas about the change process in general.

Themes emerging from teachers' response to change

Teachers' professional identities

It has been evident in the preceding sections that there are certain factors which mediate at the levels between a teacher and a curriculum change. Many of these can have a great influence on how teachers respond to policy. The professional identity of a teacher relies on many unique factors and determines the way that teachers see their role in the classroom and their effectiveness within this role. Thus a teachers' self-perception may be altered by taking on board prescriptive change and the manner in which they see their professional identity changing is precisely one of the aspects that this study aims to pinpoint. The impact of teacher identity is not something that can be shown in the form of quotations, it is an interpretive construct which attempts to analyse why, given a teachers' specific personal circumstances, a teacher explains their response to prescription in a particular way.

As seen above, with two experienced teachers' differing attitudes towards change in general, it is not possibly to group teachers together based simply on similar age or experience brackets. Instead, the way that the teacher perceives themselves and their own teaching practice is vital. One may have expected teachers who perceive themselves as competent practitioners to be less likely to switch their practice whilst teachers who are conscious of their own shortcomings are more likely to willingly take on new initiatives. This has not been shown to be the case in the data collected in this study.

Mr Hendriks demonstrated a strong and secure sense of professional identity to the extent that he felt that additional external guidelines were not necessary in his case. His sense of professional identity was

built upon his high levels of experience at Huttonlea where, despite demographic changes, he felt comfortable to continue to teach as he had always done. This strong identity was backed up by a principal who shares his view, Mr McCalman mentioned, 'teachers that have been teaching for a while and are well qualified, they obviously don't need all this.' There is, therefore, no legitimate challenge to Mr Hendriks' view that he knows best and consequently all curriculum reforms can be ignored. Teachers similar to Mr Hendriks have either grown accustomed to disregarding curriculum mandates or have become extremely weary of government-directed curriculum reforms. In either case, they prefer to view themselves as islands of successful practice which are divorced from prescribed curriculum conventions.

Ms. Talwar also has a strong professional identity but one that also contrasts with Mr Hendriks' views. Instead of being based on the length of her experience (she only has two years' experience teaching mathematics), it is based on her continuing studies in the subject (she is completing her teaching studies with a focus on mathematics) and her personal goal of being a continually self-improving teacher. She is at ease with herself professionally; prides herself upon keeping abreast of changes in the field and uses her teaching as an opportunity to test out these new ideas. For Ms Talwar, being on the cutting edge of the subject adds to her feeling of her own value in the classroom. Unlike the other teachers, her professional identity means she is usually willing to 'give it a go'. There is a paradox here in that some groups of teachers feel that high quality practice exempts them from making changes whereas other teachers attribute their high quality practice to refining their practice through constant change.

On the other end of the spectrum, Mr Sibeko has a low sense of professional identity and one which is even more limited when he considers his strengths as a mathematics teacher. This is partly due to his low mathematical competency and is reinforced by low levels of achievement in his classes as measured by standardised examinations such as the ANA. This causes the same reaction to FfL and the workbooks as Mr Hendriks but for a very different reason: Mr Sibeko is under-confident of being able to implement them correctly and is unwilling to try unless he sees sufficient support in place. His mathematical uncertainty undermines his propensity to change and instead makes him fearful of failure. For Mr Sibeko curriculum documents are a source of confusion, both pedagogically and in terms of the methods instructed, he would instead prefer to continue to teach in the manner he is used to. Unlike Mr Hendriks, Mr Sibeko is aware of the shortcomings of his practice but feels unable to make the change. Mr Sibeko is indicative of a group of teachers who have been under-trained in the teaching of mathematics but who find themselves in a situation where they are not confident enough to choose a method by which to improve.

Fear of failure is also an impediment to change in Ms Kibane's professional identity. She accepts her current practice as adequate and the needs of her class as acute. With the addition of negative experience of previous reforms, she is not willing to risk the unsteady balance of learning she has achieved with her class on any but the most comprehensive of changes. Ms Kibane's professional identity dictates that she needs constant support through the change process to ensure that she does not move too far from the prescribed practices. Unlike Ms Talwar above, she is nervous about making any dramatic changes to her practice as, for her, the detrimental capabilities outweigh the positive possibilities of the change.

It is not, therefore, as straightforward as saying that weak teachers need reform more and so are more open to prescriptive changes which promise to improve results. Nor is it correct to say that experienced teachers will ignore prescriptive reform and stick to the practices they have developed over time. The reality is more complicated and cannot be constructed from looking at a composite profile of background factors. It is for this reason that so much value has been placed upon making detailed sketches of each teacher before detailing their responses from their interviews. This is necessary to signpost, to some extent, the deeper teacher identity that exists behind their discourse.

Teacher	Aspects of professional identity (key aspects in bold)	Explanation/interpretation of their response to curriculum reform
Mr Hendriks Huttonlea Primary	High mathematical competency Many years in the profession Unwilling to try new things Does not seek external support	Mr Hendriks is confident in his own teaching ability and does not need others to set it all out for him. He believes that it is his high levels of experience that empower him to independently plot his own course in mathematics without recourse to curriculum reforms.
Mr Sibeko Sakheni Primary	Low mathematical competency Many years in the profession Unwilling to try new things Seeks external support	Mr Sibeko struggles with content and classroom management and has lowered expectations of himself and his learners as a result. His low confidence in his own mathematical ability makes him reluctant to try out new initiatives for fear of failure.
Ms Kibane Ezakhe Primary	High mathematical competency Some years in the profession Seeks external support Willing to try new things if she agrees with them	Ms Kibane is not confident in her ability to accurately interpret policy and so wants close support from outside in order to know that she is on the right track at each stage of the implementation. She fears causing standards of mathematics dropping further in her class and has decided it is better not to risk trying new initiatives unless she is sure that that support will be forthcoming.
Mr Naidoo Huttonlea Primary	Low mathematical competency Many years in the profession Unwilling to try new things	Mr Naidoo is cautious about new changes, believing that many are intended for other schools and classrooms. He feels his class are fine (although results suggest otherwise) and prefers to teach

	Does not seek external support	the basic four operations and not follow curriculum policies.
Ms Talwar Riverville Primary	High mathematical competency Relatively new to the profession Willing to try new things Would like policy explanations	Ms Talwar is keen to try new teaching techniques in the knowledge that her hard work and mathematics skills will allow suitable reform to succeed. She is reflective enough to determine if it is not working and will revert to previous methods in that case.

Figure 18 - Aspects of teachers' professional identities which influence their response to curriculum reform

Teachers' explanations of their enactment of change

Ideological and pragmatic considerations

Whilst the professional identity of teachers is a significant factor in understanding discourse about change in the cases of very confident and under-confident teachers, a majority of teachers fall between these two extremes. Teachers with robust professional identities are able to judge policy in general from an ideological point of view- for example, believing that centrally-driven reform is bound to fail as it cannot provide guidance at all levels of an unequal education system. However, teachers with intermediate levels of professional identity are more selectively open or resistant to change based upon pragmatic concerns, such as are included in the policy documents and implementation schedules themselves. For these teachers, their response relies upon experiences of previous reform and the quality of the specific initiative.

In this section, policy-related themes that were gathered repeatedly by all ten participants are explored. The first and most obvious one, given the focus of my questioning (see Appendix B), was their opinions about the quality of the FfL and workbook reforms. Teachers were also critical of the structure of the FfL weekly plans which move rapidly between learning areas, claiming that it made it hard to follow. Ms Tooane from Bayabonga Primary explains that 'before they are confident they are changing to another thing,' whilst Ms Talwar adds, 'it is very hard because it takes a long time for one concept to sink in, or one part of one concept to sink in, and now you want to jump onto the next one the next day when the other one is just floating in the air.'

In terms of implementation, Mr Hendriks from Huttonlea spoke about the lack of initial communication about the aims and methods of these reforms,

The next thing the books arrived here at school, they were offloaded and then that's it. They didn't say, 'you must use those books or you mustn't use them', they were just offloaded here.

Ms Rashid, from Riverville, adds the same about the FfL file,

with the FfL, they just handed the files to us. In fact they didn't even do that [they were delivered]. And we didn't have any proper training saying, 'this is what you have to do with the files. These are the resources you are meant to be getting.

All of the other four schools detailed similar experiences of the introduction of the FfL and workbooks and all mentioned that they were delivered midway through the academic year rather than at the start (the FfL in mid-2010 and the workbooks in mid-2011).

The lack of training was also a common problem, Mr Legodi from Ezakhe Primary explains, 'For FfL, personally, I never have trained on how to use it.' None of the teachers stated that they had had any formal training for either the FfL or the use of the workbooks. Ms Tooane from Bayabonga Primary makes this perfectly clear, 'They just delivered the file and there was no training before.'

The teachers were also unanimous in bemoaning the lack of support after policy is introduced, both with FfL and the workbooks and with previous policies, Ms Banda from Sakheni Primary notes, the 'department [GDE] does not do follow up.' Ms Rashid from Riverville Primary puts this into context, 'we get no feedback and, as a result of not receiving any feedback, we don't know if we are on the right track.' Some teachers, such as Mr Hendriks did not want district level support in their classroom but this was a minority viewpoint, instead, the majority said that they would welcome it regularly if it was useful to their practice. Ms Kibane from Ezakhe Primary goes as far as to say, 'I don't mind seeing them on a weekly basis, it will be just to see if I'm still on track and if I am not on track, where am I going wrong.'

Another cause of concern regards the fit of the content of the policy to the teachers' actual classroom context. Mr Zungu from Bayabonga maintains that the policy is 'one-size-fits-all' and cannot work in his classes of 65 learners in the same way as in less crowded classes,

I am standing here with 65 learners and we must be at the same level and the same pace [as those in less crowded classrooms]. So it becomes a problem.

This causes concern when teachers are requested to adapt the policy to their classroom setting as this may be a much larger job than policy-makers presume given class sizes, discipline issues, effective pedagogies that work in practice and levels of mathematics.

All of these themes lead me to conclude that it is not just the method of prescription which plays a large part in teachers' response to change but also the quality of that prescription. This response is summed up by the one teacher, Ms Talwar, who did try to fully implement the FfL lesson planning folder and felt let her down but the quality and fitness for purpose,

It sounded very exciting with everything that was said to me but have a look at the content and the speed that it was going at. No.

Another factor that was commonly mentioned was teachers' perceptions of the policy makers in charge of steering the curriculum reform process. Many teachers were of the opinion that policy makers were too far divorced from the locus of implementation. Mr Naidoo mentions, 'the thing is that they [policy-makers] don't know what the challenges of teachers are,' and Ms Kibane explains that 'they don't come down to grass roots level and find out what the problems are.' This mirrors the quotation from Sarason (1982:36), 'any attempt to change a curriculum independent of changing some characteristic institutional feature runs the risk of partial or complete failure'. Mr Naidoo asserted that unless the policy makers were to seek more contact with grass-root teaching and school structures, especially in relation to challenging schools, then policies would continue to be rolled out with little or no chance of success in the country's classroom.

The majority of teachers revealed that they believed there was a need for change in the system and categorised themselves as open to change in some form. When asked whether they welcome or worry about change in general, the responses established a spectrum of responses which was interesting to track. For example, the highly experienced Mr Mthunzi from Bayabonga replied,

Yes I do welcome the changes, just like the wise man. The wise man always changes his mind otherwise, if you don't change your mind, you are a stereotype.

On the other hand, the similarly highly experienced Mr Hendriks stated that he believed change in mathematics was futile,

I am still teaching the same way I was teaching 18 years ago, because there's actually no other way of teaching maths.

These formed opposing ends of the spectrum with the middle ground made up of teachers who were willing to change if the right policy was enacted and its methods were likely to work in their classrooms. This ideal policy which teachers were waiting for does not reveal a lot about teachers' views on change apart from that very few, only one teacher interviewed, were willing to totally distance themselves from change of any sort. What is noteworthy is that no teacher, despite the focus on prescription in the interview, mentioned that prescriptive policy was a mode of change to which they were not receptive.

Teachers' own preferred models of change

It was clear from conducting the interviews that teachers largely understood/knew what models of educational change worked and which did not in practice. Teachers went into surprising detail about what should be done differently if reform is to be more successful. Some teachers mentioned that they would welcome tight prescription in their teaching, Mr Legodi has a simple linear model, 'I will welcome [new resources] as long as we get training on those resources. They must just give us the resources and say how to go about using them.' Mr Mthunzi believes such prescription and training 'helps us to know where and how to start a new lesson... You must know exactly what you are going to do this morning, or this afternoon ... which means, it needs a lesson plan done.'

Ms Rashid is clear that reform can only work if this training puts teachers in a fully informed position, 'you can welcome the changes provided that ... it's substantiated.' She reacts negatively to being kept in the dark and wants to be kept up to date, adding, 'teachers are not puppets, you cannot just throw things at them and expect them to just take it and digest it.'

The process of training should not be a one-off input to initiate a policy but should continue throughout implementation, according to Ms Kibane, 'these government officials coming to school. I want them to come to school, and [I'll] tell them my challenges if I have any in the class and ask for advice: what do I do if I have problem 1, 2 and 3? How do I go about solving this problem?' While Mr Hendriks, who believes that experience in the classroom teaching mathematics is of the utmost value, suggests that

experienced teachers take over the training of other teachers, 'Let's take some of the more difficult sections of maths and see if you can convince the teachers to teach the teachers.'

Although the training is a critical issue, Mr Naidoo adds that coherence and comprehensiveness of the policy is also extremely important, 'when you implement it, make sure you implement it with all the things it needs.' If this cannot be done, policy makers should assess, 'Are we going to be ready?' If we're not going to be ready, let's not have to be ready: wait.'

It can be seen that the combined change knowledge of the teachers interviewed forms an informed and solid basis which policy makers and facilitators would do well to consult, although different teachers emphasised different focuses and models by which change should take place. The combination of factors listed above is that training should be comprehensive and contain details not just of the content of the policy but the thinking behind the policy. Those doing the training should then be readily available for advice and reassurance in the implementation phase. Finally, the policy should be held back unless the system is ready to do it properly with teachers ready for it and all the pieces of the reform ready to be implemented simultaneously.

Teacher	Key aspects of the change process which need to work in practice
Mr Hendriks Huttonlea Primary	Gaining experience through teaching is the best way for teachers to teach more effectively. Speed up this process by getting experienced teachers involved in professional development.
Mr Sibeko Sakheni Primary	Curriculum reform must be extremely clearly explained and easy to follow. After the policy launch, effective training, monitoring and support should be provided to all teachers to let them know what is required of them.
Ms Kibane Ezakhe Primary	The quality of curriculum reform must be good enough and practicable in the classroom. (As with Mr Sibeko) After the policy launch, effective training, monitoring and support should be provided to all teachers to let them know what is required of them.
Mr Naidoo Huttonlea Primary	Teachers should be involved in the consultation process of policy formulation. Procedures in Intermediate Phase mathematics should focus on basic skills and make sure these are cemented in place before moving on.
Ms Talwar Riverville Primary	Reforms should be launched with the inclusion of how they are going to tackle classroom-based challenges and justification of why this route has been chosen. She believes that policy change will work best when clear results can be demonstrated soon after policy implementation.

Figure 19 - Key aspects of teachers' models of educational change

Categories of teacher response

'Inflexible objectors'

Mr Hendriks views centrally-driven policy reform as being, at best, a curiosity and, at worst, an inconvenience interfering with his established mode of teaching. His identity is founded upon his experience and the stockpiling of successful practices over his career which, due to its context-appropriateness at Huttonlea, is unrivalled. This leads him to a totally independent position which neither needs nor seeks outside influence in his teaching career. Though Mr Hendriks mentions that he thinks that his practice could possibly be improved ('You can't say, "I know everything," '), one gets the impression that this would require a very specific, persuasive and evidence-based approach for him to be interested in shifting his practice. Far more likely is that reform will be rejected upon the basis that there is little need for change and any change which is required derives from the declining quality of learners' mathematics rather than a particular knowledge or pedagogical weakness

This category of teachers is labelled 'inflexible objectors' in this study. Such views were also encountered in other interviews and this category of teachers' approach to change is closely coupled to their status within the school and previous experiences of reform. For example, teachers who supported these views often experienced long careers at one school and were consequently given great freedom to continue with whatever methods they have always used. In this way, their confidence in their practice is sanctioned from higher levels and if neither advocates change, then reform is very unlikely to occur. This level of self-assuredness only flourishes in specific conditions, including a history of success at the school, a highly-experienced teacher and one who is confident enough to defend why their practice is notably different to that prescribed by curriculum policies.

'Inflexible objectors' are the first category and pose the largest problems for policy makers. The difficulty is threefold here including:

- 1) They do not think the content of the reform will add anything to their teaching
- 2) They do not have confidence in those who are prescribing the reform
- 3) They do not believe the methodology of the reform is correct.

These are all significant barriers to be overcome by policy makers if these people are to follow national policies faithfully. As the label 'inflexible' suggests, this category is one which is extremely difficult to

shift. There would need to be highly directed and forceful compulsion or persuasion required to break them from these engrained independent attitudes.

'Passive rejectors'

Mr Sibeko's discourse can be characterised as signalling that he is caught in a downwards spiral: he seems quite de-motivated and pessimistic about the impact of his teaching on the learners and this leads to less enthusiasm to give teaching his best and, in turn, to worse results and further decreased motivation. Due to his own lack of enthusiasm for change, he often does not know exactly what each policy entails; is confused about what his practice is meant to look like and favours continuing on his own path unless he is specifically decoupled from it.

Mr. Sibeko was 'change-weary' and is not enthused by either tinkering to existing practice or the total overhauling of it. He chooses the path of least resistance and represents a category of 'passive rejectors' who need a strong push to change their practice. This may come from an upgrading of their qualifications, comprehensive training, clear communication of goals or frequent, highly organised follow-up sessions. This combination is the one advocated by Elmore (2002) in the literature review: clear instruction on what must be done in class, directed 'coaching' of how to teach particular lessons immediately prior to the lesson and the development of accountability structures through monitoring that is fed back into classroom practice.

Unless this happens in the South African system, these teachers will continue to drift through the curriculum (and their own careers) without ever delivering high-quality education. Monitoring here is critical as experienced teachers can be adept at giving the impression that practice is changing whilst some superficial alterations hide the fact that everything significant remains the same. Re-motivating these teachers is also a vital step as teachers must understand that there is a great deal of hard work necessary in adapting curriculum documents to suit their learners and that the hard work is worthwhile.

It was mentioned above that Mr Sibeko's interaction with resources marked him apart from the other categories. He does not detect problems with the resources but he feels he has been given no incentive to use them and insignificant guidance about *how* to use them. He cites the lack of training and monitoring as the determining factors where he finds his teaching but it is not possible to tell whether he would accept or reject the support if it were offered to him. However, one thing is clear, his practice

will not change unless there is a significantly more forceful and robust direction to the change than the one he is currently experiencing.

'Active rejectors'

The 'active rejectors' are often mid-career teachers who have previously tried hard to implement changes in policy but have found that they were left confused and unsupported. They perceive similarities between the old policies and the new ones and so are cautious about setting themselves off down a path that may not have been fully thought through. This is reinforced when they consider that often the same contextual factors within their school still exist now as they did then. Furthermore, the likely levels of support from above, whether it be in-school or from the district, have not improved. In short, in their opinion the policy is destined to fail before it has begun due to problems they have with the specifics and methodology of a policy. In their judgement, it is better not to expend the energy of trying to make it work, hence their label 'active rejectors'.

Ms. Kibane lacks the professional confidence of Mr Hendriks and so is concerned that embarking on a course which may leave her confused and unsupported. Her reasoning for this is based on her experience of the failures of similar, previous reforms (she mentions that 'OBE was obviously a failure') which turned out to be inappropriate for her classroom. Ms Kibane's knowledge of her class and of previous initiatives' failures allows her to prejudge the policy. Though she is mathematically confident, she worries about misinterpreting new policy and this, in her mind, legitimises her not taking notice of new reform directives.

This group is cynical about reform and interrogates any changes to find faults which they can use to justify their decision to reject the policy rather than to find opportunities for improvement in their classroom practice. However, the external forces needed to convert this group into a more willing and open-minded set of teachers is to appeal to the factors that they use to judge the value of a policy. This needs a policy that is able to differentiate itself to suit the needs and desires of different groups of teachers in widely diverse circumstances. This could be done through the policy document itself or by the skilful mediation of policy by those in charge of implementation.

Mr Naidoo forms a sub-category of 'active rejectors' who disregard reform in the same way as Ms Kibane but for a different reason- that they do not believe they need it and they think it is meant for someone else. Teachers can be correct or incorrect about their need for change. Those already displaying excellent

practice will continue to produce excellent results but the more worrying scenario is when, like in Mr Naidoo's case, results are not being achieved; standards are low and yet the DBE's interventions are still being turned away. Here it is not at all helpful that the FfL's instructions are so weakly worded and this causes a supposedly mandatory national policy not to alter the practice of those who need it most.

Mr Naidoo understands the processes and goals of new reform and recognises the aims of the policy makers behind these initiatives but perceives it as intended for 'others', whether it be early-career teachers, teachers in underprivileged schools, teachers in resource-poor schools, teachers in rural areas or teachers with poor mathematical content knowledge. The noticeable thing is that even inexperienced teachers and those in underperforming schools were able to convince themselves that these policies were so specific as to be intended for 'other' teachers. The category of 'other' seems to turn into any category of supposedly weak teachers except for the one in which teachers find themselves.

Both causes of this opinion fall within the remit of this study- either a teacher's identity shapes their tendency to think they are above prescriptive change or the policy is written in such a prescriptive way that some teachers cannot help but assume it is not directed at them. Both are examples of ways in which teachers' senses of self-worth can affect their willingness to change. In this case, teachers convince themselves that national policy is beneath them and use that as a justification for keeping the status quo.

In South Africa, there is a huge variation between the highest and lowest performing government school. Consequently, there is an incorrect assumption that it is just the lowest achieving schools and worst teachers that can benefit from prescription. This is a critical aspect that needs to be communicated to teachers: prescription is adaptable to all learners in all teaching environments if it is of sufficient quality. The policies in this study do not allow that point of view to flourish as they are flawed examples of prescription but in countries such as Singapore and Finland prescription is commonplace and results are remarkably high.

'Potentially compliant'

Ms Talwar personifies a category whose response is more positive. These are the people most likely to take a policy and make it work in a way that reflects its purpose. I have termed her as, 'potentially compliant' as she is willing to try new ideas and reflect upon all the teaching that they perform. For Ms

Talwar, the quality of the reform is vital as nothing gets assimilated unless its value is clear and its method efficient. As she trials her own ideas on a regular basis, she is more open-minded to change, as witnessed by her having tried FfL despite the lack of top-down pressure to do so. This trial does not, however, guarantee that she is likely to unquestioningly exchange what she has spent many hours building up in order to replace it with new prescriptive policies- the reform must be of high quality. Ms Talwar's approach is additionally characterised by the hard work she is willing to expend in trying to make something work, often evaluated in terms of how it will benefit the learner rather than focussing on the personal costs

The 'potentially compliant' tend to be early- to mid-career teachers for whom teaching still includes the moral purpose of giving all learners the best education possible. This group are open to change even when it comes prescriptively from above. They are highly critical adopters of reform who quickly perceive strengths and weaknesses and are able to adapt ideas to fit their classes. This is the profile that prescription works best for, not the lowest ability teachers or the most underperforming school. Prescription can provide an excellent infrastructure of teaching techniques and resources onto which a suitably adapted approach can be grafted for specific classes.

There are, however, problems associated with asking teachers who are already well-skilled implementers of the mathematics curriculum to prescriptively change their practice, including de-skilling them and making them unnecessarily reliant on one method of teaching. The challenge for policy makers is to convince these teachers of the relative advantage of an initiative over their pre-existing practice whilst preserving their ability to innovate within the curriculum. Such persuasion is necessary because, as Ms Talwar mentions, reflective teachers do not change their habits on a whim but need to know the theory and goals behind it.

Category of teachers' response	Name of the teacher in this category	How they approach prescriptive policy
Inflexible objectors	Mr Hendriks Huttonlea Primary	Nothing changes with any policy change as, in their opinion, the government does not understand issues in the classroom and only the teacher knows what works best with their class.
Passive rejectors	Mr Sibeko Sakheni Primary	These teachers know the policy should affect them but refuse change unless they are compelled to change through downwards pressure and accountability. Policy fatigue and lack of previous follow-up on similar policies influences this choice.

Active rejectors	Ms Kibane Ezakhe Primary	Teachers make a decision, with some reference to the policy, about the cost/benefit analysis. They look for what may not work in the policy instead as a reason to jettison it rather than try it out to determine its benefits.
	Mr Naidoo Huttonlea Primary	Their specific reason for them rejecting the policy is that it is not for them, it is instead only intended for other teachers who actually need it.
Potentially compliant	Ms Talwar Riverville Primary	Teachers understand the purpose and value but are unwilling to change their whole teaching and assessment frameworks unless they are convinced there will be definite benefits for them and the learners.

Figure 20 - Categorisation of teachers' responses and their characteristics

Summary of findings

This discourse must be analysed to identify the framework through which teachers consider major curriculum reforms and link themes which have emerged within their discourse. One of the recurring themes was that curriculum reform, in the forms it was experienced by the teachers, was not effective in changing classroom practice. Teachers freely admitted this and gave a plethora of reasons to justify their inaction- some of which were borne out by curriculum document analysis, some of which were based on misconceptions of policy content and its intentions.

Teachers were almost universally united (Mr Hendriks aside) in their belief that change was necessary in Intermediate Phase mathematics. Most teachers pointed to the causes of these declining standards being poor basics being drilled in earlier years (which some linked to teachers misunderstanding C2005's OBE approach), learner apathy and lack of parental involvement. It was noticeable that there was only a tenuous link between teachers acknowledging the need to change and teachers describing the ways in which they had followed through and made changes. In some cases, the same teachers who explained that they did not know how to effect successful changes mentioned that they had not taken a look at the new resources provided by the DBE. This lack of alignment points to poor communication of the part of the DBE and a lack of initiative on behalf of some teachers.

One of the most startling trends discovered in my interviews was the willingness of teachers to ignore state-mandated curriculum policy with impunity in order to pursue their own practice. This is possible as the model of educational change that is actually at work is one in which curriculum policy forms an isolated attempt to change practice in classrooms. As seen in the previous chapter, teachers are not compelled to use the more prescriptive policies (FfL and the workbooks). In addition, as raised by many teachers, the follow up on these policies is either minimal or non-existent, leaving teachers to decide for

themselves whether to make any effort at following new initiatives. Given that teachers are often described as being resistant to change and content with the status quo (for example, Sarason, 1982:34), it is no wonder that such a poorly executed reform gains little or no traction with teachers.

Whereas some teachers did not even inspect curriculum reforms due to deep-seated reservations about their validity and use, the majority of teachers gave one of two reasons (or both) for their inaction: either the teacher lacked confidence in the competency of the policy makers or they lacked confidence in its quality. This has far-reaching consequences for models of change in South Africa because compliance will not be achieved without great struggle. Teachers felt that policy makers had not consulted teachers sufficiently and were out of date in their understanding of what goes on within contemporary classrooms. This often stemmed from their experience of a great deal changing in the teaching profession over the past few years. The other group had become so unimpressed with the shortcomings of state-driven reform that they ceased to be affected by it any longer.

The interviews were also pervaded by two major influences: the effect of teacher identity upon teachers' discourse and teachers' own change knowledge regarding what works well in practice (and what does not). As may have been expected, it was impossible to separate teachers from their own professional history and experiences of reform which meant that each interview was contingent on that particular teachers' situation. This does not mean that universal implementation of a single strategy is impossible, but instead that it requires careful mediation by skilled personnel in order for it to be accepted. The ideal scenario here is of successful models of change becoming incorporated in the way teachers see their profession and, through their success, contribute to the further building up of this professional identity.

Conclusion

It should not be surprising that teachers responded to the same curriculum policies in such varying ways as South Africa has such a wide range of learner capacities (see Figure 1). The teachers in the interview had a broad range of years in the profession of experience, in some cases very disparate mathematical teaching qualifications and very different levels of learners' mathematics aptitudes. This demonstrated the many difficulties associated with rolling out one curriculum policy to all South African primary schools simultaneously. This is brought into even sharper contrast when one looks at the introduction of single resources for all learners. Here the DBE workbooks form a good example, in Riverville Primary they were deemed useful for remediation of underperforming learners whilst at Bayabonga Primary

they were used as extension activities for the higher ability learners. Starting from such unequal positions, there should be no surprise that teachers have a wide spectrum of views about curriculum reforms.

As noted in the previous section, the need for change was not reflected in teachers putting in place initiatives to achieve this change. In my opinion, one of the reasons for this is that change is a personal and emotional process and, as noted in the literature review by Slavin (1996:24), these policy implementation strategies do not include 'an explicit theory of how human beings learn to do things differently.' Categories of teacher response are helpful here because it is impractical to attempt to tailor implementation strategies on an individual basis. Instead, with categories grouping together those teachers with superficially similar responses to change, this allows discrete groups to be considered when devising a suitable theory of implementation.

Due to the variances within the South African education system and the importance of teacher identity on their response to curriculum policy, I believe that flexible mediation of curriculum policy is necessary. This needs to be done by highly-trained personnel and to take account of the variation in teacher identity within the profession. Different stimuli to change are required by different groups of teachers. Teachers who have gaps in their mathematical or pedagogical content knowledge need curriculum policy to deliver to them exact instructions of what they were supposed to be teaching, clear instructions on how to do it and all necessary resources. On the other hand, teachers confident in their current practice need to be convinced of the relative advantage of the new practice and, if at all possible, shown evidence or assured that it is going to work.

Given that South Africa is beginning to gather more high-quality data about school performance, this may soon be possible. The introduction of school-wide and teacher-specific accountability linked to the mathematics ANAs has forced some teachers to recognise the need for improvement. This is the beginning of a transition towards some of Hargreaves' 'third way' features such as clear accountability structures and better quality data being produced on a regular basis. This may be the stimulus that South African teacher require in order to get them to adequately engage with curriculum policies in future.

This flexible approach certainly cannot be done based on the above categorisation of teachers alone. The data set here is far too small and further research in South Africa would be needed to ascertain the following:

- 1) The validity of this classification of teachers, including what are the crucial features that associate a teacher with one category and not another, and whether further categories are present in other contexts.
- 2) What the relative prevalence of each of these categories is. This would be helpful in identifying nation-wide trends in teachers' attitudes towards change and their frameworks in taking it on board.
- 3) How this knowledge can best be used. Whether there are certain ways of mediating policy which are appropriate for some groups of teachers and not for others.

Far from unquestioningly attempting reforms which they did not understand, most teachers were able to assess strengths and weaknesses of the model of change being implemented by the DBE. In some cases, teachers' belief in the unsuitability of the reform lead to total disregard, in other case it lead to large modifications being made to suit teachers' ways of changing and the context of their classrooms. Though teachers may not have been able to suggest complete models of change, their knowledge of what was likely to find success is an invaluable and under-utilised commodity in the educational change feedback loop.

This accumulated change knowledge is a positive finding as it suggests that when teachers are fully engaged with high quality forms of educational change they will be able to adapt aspects of the reform to make it more suitable. It was evident in the interviews that teachers currently were waiting for perfect forms of educational change to arrive at their doorsteps. One of the first things necessary in order to make South African teachers more likely to be able to implement reforms is to instil an understanding that no policy is able to do this nationwide and that all policies must undergo 'mutual adaptation' in order to be successful. Berman and McLoughlin's theory of mutual adaptation (1975:10) involved a simultaneous move of schools to take on characteristics of the reform whilst teachers adapted the reform to suit the school.

Chapter 6: Conclusion

The findings from this study that impact on my research questions have been detailed in the previous two chapters. The document analysis has yielded a complex position on the extent to which South Africa is progressing towards more prescriptive approaches whilst the data analysed from interviews have specified how teachers perceive and respond to change in reality.

Looking at the extent to which South African primary mathematics policies are becoming more prescriptive, my findings for my first research question have been fourfold:

1. On first glance it appears the policy documents are moving towards more prescription.
2. One closer inspection, it is the specification of outcomes, content, pedagogy and resourcing which have increased and not the concomitant levels of enforcement.
3. Some of the content prescription is inappropriate for some South African contexts
4. The overall level of coherence between policies is inadequate.

This forms the paradoxical position which I have called ‘unprescribed prescription.’ My conclusion is therefore that South Africa is moving towards a more prescriptive model of educational change but not as quickly as would initially be perceived. Instead of it being a step-by-step progression from teacher autonomy to centralised prescription through successive policies the sequence is not straightforward because prescriptive policies (or parts thereof) have not been enforced. That the FfL and workbooks remain merely optional guidelines for teachers means that, though prescription is available, it is not yet the primary model of change in the South African educational system.

South Africa’s current model of educational change

Models of educational change such as the ‘second way’ of Hargreaves and the ‘command and control’ model of Barber emphasise centralised policy prescription and standardisation of educational practices. Therefore, the study of whether the curriculum policies are moving towards prescription has implications for the model of change which the South African education system is employing to improve mathematics results in the Intermediate Phase. Though I have concluded that South African curriculum policies are not as prescriptive as may at first be thought, I do believe that this is the model which policy makers within the DBE intend to use to raise standards in South African schools.

The move from C2005 to CAPS has been more significant than merely the increased levels of specification of the curriculum; it marks a change in the locus responsible for educational change as well. Whilst C2005 entrusted teachers to make decisions on how to most successfully facilitate learning using their professional judgement, the empowerment of teachers to make these decisions has been ebbing away ever since. The reason for this is that, increasingly, policy makers are responsible for the decisions on teaching and learning in the classroom. The manner of doing this is the statutory and faithful implementation of prescriptive curriculum policies. The 'centralised voice' of policy makers is present in timetabling of Assessment Standards in the FfL/CAPS, decisions over content and methodology in the DBE workbooks and directly through instructions on how to teach each topic within the FfL lesson plans.

My reasoning behind this hypothesis is that: firstly, clear shifts have been made in this direction in the past fifteen years and, secondly, support structures for this model of change are currently being set up in South Africa. 'Second way' change often relies on improvement in educational standards through introducing high-stakes standardized testing for all learners, collecting high quality learner attainment data from these tests, setting challenging attainment targets, and prescribing content and methods which will improve standards in these tests. All of these have been put in place in South Africa over the past ten years: ANAs have been made compulsory in all grades annually and their results are now published and underperforming schools identified, in 2008 the FfL (DoE, 2008:4) introduced the national target, 'All primary schools will be expected to increase average learner performance in Literacy/Language and Numeracy/Mathematics to no less than 50% ... in the 4 years of the campaign' and highly detailed lesson plans were distributed as part of the FfL. All of these factors are part of the complexities of the 'second way' of educational change.

Where this 'second way' has worked in other setting around the world, however, it has required some very unpopular choices to be made by the state including: 'naming and shaming' under-performing schools, prescriptive curriculum content, more frequent inspections of schools, political targets and timetables for delivering improved results, sanctions for under-performing schools and highly focused teacher training on how to use these prescriptive policies (Hargreaves & Shirley, 2008:26). The reality of the South African system is that only the content of policy has actually changed. Some of the other pieces of the puzzle are falling into place, such as using the ANAs to identify underperforming schools and the Minister of Education setting national targets. Other aspects, such as sanctions for

uncooperative schools and regular, comprehensive curriculum coaching are still some way off. This leads to a lack of coherence in the system which makes comprehensive system-wide reform unattainable within the structures currently in place.

Teachers' responses and the factors upon which these are determined

My second research question deals with how teachers perceive prescriptive curriculum reforms. Traditional studies have seemed to categorise teachers into two categories: weak-willed, reluctant adherents of prescriptive policy or upstanding, principled objectors. The American body of literature studies how teachers do not believe that prescription is an appropriate model of change and vehemently advocate more autonomous roles. Although this study has some evidence that some teachers in a South African context do find prescription offensive and patronising, this is a very small minority and the study has uncovered many other factors that teachers use to explain their inaction concerning new prescriptive policies. These include the quality, methodology and communication of policy.

The second category, that of weak-willed, reluctant adherents of prescription, is more prevalent in English studies of teachers responses to policy change. The defining characteristics of this response are strictly-enforced top-down policy impositions with sanctions for uncooperative schools. These factors are simply not present in the South African educational system as the state is less centralised and powerful and the national inspectorate does not have the same teeth. Consequently, the policies rolled out in South Africa lack urgency or enforcement and do not produce such an imperative and uniform response in teachers.

Therefore any South African study about educational change needs its own paradigm of teachers' response. It is evident that two important factors mediate teachers' response to prescriptive curriculum change. The first is a teacher's professional identity and the second is a teacher's own ideas about successful change practices. The interaction of these two factors has great bearing on whether teachers are able to reconcile the reform in their own minds as a feasible change of direction.

Professional identity depends on many factors but is hinged upon a teacher's experience and self-confidence as a mathematician which in turn impacts upon their willingness to change. This is a complex interaction; Mr Hendriks is an example of a highly confident and experienced teacher who shows no inclination to change whatsoever whilst Ms Talwar was also highly confident but inexperienced and

views change as both constant and necessary. To an extent the difference between these groups was their differing opinions about how the mathematics system would change for the better, Mr Hendriks worried that change would be totally comprehensive and feared the damage it could do to his pre-existing techniques, whilst Ms Talwar was happy to learn lessons from unsuccessful initiatives as well as from successful ones.

Teachers' identity, though grounded in their school context, was not defined by it and, as would be expected based on the uniqueness of individuals, teachers often adopted different approaches to their colleagues. Additionally, based on different experience of previous reforms, their in-built theory of successful education change also varied. The factors that teachers disclosed as being most important to their response to the reform were the quality, methodology, justification and communication of policy. Teachers, such as Ms Kibane for example, were able to identify features of policies (such as the rapid movement between topics) that were inappropriate before launching into the implementation stage. Mr Sibeko was able to look beyond the policy document to predict a lack of external support for the policy's implementation whilst Ms Talwar, who actually tried the FfL out in practice, could identify specific classroom-level implementation issues. None of these teachers expressed the specific sentiment that prescription was impinging on their professional autonomy and their level of response was both more sophisticated and more pragmatic than that.

Far from hardened objectors, four out of five of the teachers insisted that they were willing to follow prescriptive reform if it were done proficiently. Mr Sibeko knew he would need support, Ms Kibane believed she would require training, support and follow-up, Mr Nair needed a policy that addressed issues pertinent to his classroom and Ms Talwar needed to be persuaded of the value and method of a reform. This is in contrast with the idea that thoughtful teachers, by definition, demand the space to independently choose and prosecute their own individual teaching. Teachers are willing to give prescription a chance if they perceive it will benefit themselves and the learners. This study provides insight into how teachers judge and explain policy in order to make these decisions.

Mediating curriculum reform to a variety of teacher identities using categories of teacher response

The Minister of Basic Education recently suggested that the use of prescription is likely to continue in the foreseeable future, 'Based on the ANA results, we believe this focus on a more scripted approach is correct' (Motshekga, 2011). So where does this leave policy makers in getting teachers to successfully take on board prescriptive reform? If one of the aims of prescription is to instil a basic level of

standardisation within teaching, how can a system reach even that foundation if teachers interpret and respond to policy in such varied manners? The answer lies in flexible mediation of the policy, something which was certainly not the case when the FfL and the workbooks were introduced. Flexible mediation requires categorisation of teachers, such as that done in the previous chapter, and a policy that can speak to and accommodate these different groups of teachers:

1. Teachers confident in their current practice need to be convinced of the relative advantage of the new practice and, if possible, shown evidence of its likely success. We have seen that teachers become attached to their own methods of instruction and, if they are to make significant moves away from their tried-and-tested approaches, they want assurances that this will lead to improvement. These teachers need regular two-way dialogue with those who understand the purposes and methods of the policy if they are not to swiftly return to their previous teaching practice. These teachers are secure enough to welcome classroom monitoring in order to gain positive reinforcement and constructive criticism.
2. Teachers who have gaps in their mathematical or pedagogical content knowledge need policy to deliver them exact instructions of what they were supposed to be teaching and with clear instructions on how to do it. Mr Sibeko, aware of his shortcoming in mathematics, was a teacher who expressed his desire for such a policy. This type of prescription needs to be sold as a scripted instructional regime complete with all necessary resources. However, even scripted resources need facilitators to explain their salient features, teachers to adapt them and sufficient preparation ahead of lessons.

It is often assumed that prescriptive educational reform must work by only one model for all teachers, that of the second listed above. The consequence of this is that all teachers are treated in the same manner. In the face of such a 'one-size-fits-all' approach some will rebel against what they perceive as being talked down to and undervalued by policy makers. This study shows that not all teachers feel that prescription suffocates their creativity and that some would welcome prescription if it was packaged in terms of the first model above. In my research, for example, four out of the five teachers depicted in detail above would actively embrace the guidance, collaboration and support structures that properly designed prescriptive reform would bring.

Relevance to developing countries

There are two major problems with using South Africa as an example of comprehensive system reform in the developing world:

- a) The model of educational change to which South Africa's reform most closely corresponds relies upon additional structures (on-going professional support and heightened accountability) which South Africa has not yet got fully in place.
- b) One of the major reasons that South Africa's prescriptive educational reforms are not working is because the *quality* of the prescription is the limiting factor.

With respect to developing countries, poor-quality prescription can have an uneven effect on an already uneven educational system. Teachers with smaller class sizes and better resources were the ones most likely to benefit from the changes and so prescription in these settings has the ability to empower the more fortunate at expense of those faced with more challenging conditions.

It also demonstrated the fundamental flaw of centrally-driven prescriptive reform in weak states; although the DBE has ideas for improving its standards in education, it has no way to implement these ideas. In contrast, the provinces and districts who do have some of the capacity to implement FfL and the workbooks in South Africa have chosen to place their focus elsewhere. This theory, formulated in more developed countries, assumes that the state is strong enough to push through reforms and that organisational structures exist through which to mediate these initiatives. It can be seen in the South African context that these features should not be taken for granted and even the introduction of highly regimented and prescriptive teaching materials has been problematic.

The tendency in the literature is to equate educational systems in the developing world with underperforming ones in more developed countries, 'the scripted materials and strong support structures can benefit ... poorly paid and trained teachers in less developed countries, and other teachers whose knowledge, skills and overall expertise are weak or underdeveloped' (Hargreaves, 2003:141). South Africa is currently struggling to achieve the first step of a multi-stage, system-wide change strategy but the first step, using prescription to reach a standardised foundation from which more advanced improvements can be made, is proving unexpectedly problematic. Educational change theorists assume that this first step is unpopular but necessary. Nowhere do they consider or suggest what a system must do if nationally mandated initiatives are being lost in the policy landscape and so

the opportunities to raise standards are repeatedly being wasted. The current model presumes that the state has organisational structures in place which can deliver and enforce educational policies from the level of policy makers to the locus of change. However, in weaker educational systems, teachers openly resist educational reform whilst organisational structures may not be sufficiently advanced to enforce the change. I would suggest that the contribution that studies in South Africa can make to global change knowledge is to introduce a preceding stage in the current model of educational change.

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Appendix A: Example of basics education in the government's change process

THE PROCESS	THE EXAMPLE – BASIC EDUCATION
Politically agreed outcomes	
1 The starting point is the MTSF produced by the Planning Process. It will be a five year plan arising from Vision 2025 and other issue-specific policy research.	For the 2009-2010 period we will utilize the MTSF as approved by Cabinet on 19 July 2009. This is the mandate and responsibility of the current administration.
2 The MTSF is converted into 25-30 main OUTCOME indicators, approved by Cabinet. They are a simple and clear way of expressing the Mandate of Government.	One of the OUTCOMES will be to "IMPROVE THE QUALITY OF BASIC EDUCATION" This refers specifically to Grades R to 9, similar measures for the rest of the system.
Outcome measures	
3 We define and agree the most valuable OUTPUT measures that will indicate if we are achieving the outcome. The Presidency will focus on these measures	Improve the pass rate for Grade 3 literacy and numeracy to 65%; Grade 6 maths and literacy to 75%; and grade 9 maths and English to 80% over the five year term. This must be measured in an annual independently moderated test for all students in those grades.
Key activities	
4 The Key ACTIVITIES that will be required to achieve the outputs will be listed: only those without which the output will not be met are listed.	Teachers in class on time teaching 7 hours a day. National workbooks distributed to 80 % of the schools. Curriculum coverage must be 100% of the workbooks and be measured once a year in every school.
Inputs	
5 The Essential INPUTS are identified: only those that form part of the delivery chain for the outputs.	For grades 1,2,3 two workbooks (english, numeracy) uniformly distributed to 80% of schools by national dept. For grades 4,5,6,7 workbooks in five core areas uniformly distributed to 80% of schools by national dept. For grade 10,11,12 seven core textbooks. Independently moderated tests for grades 3, 6 and 9.
Delivery and Performance Agreements	
6 This Delivery Chain is developed into a detailed DELIVERY AGREEMENT at a forum of the key delivery institutions at all levels of Government and any external partners.	The council of education ministers, HEDCom, sample of districts, principals, teachers, and support institutions negotiate a Delivery Agreement specifying what each party will deliver, by when, with what resources.
Delivery and Performance Agreements	
7 The identified OUTCOME, OUTPUTS, ACTIVITIES and INPUTS form the core of the Performance Agreement between the President and the Minister and Sector.	The President confirms the Delivery requirements in a letter to the Council of Education ministers and asks for a report on progress every six months.

Figure 21 - Model proposed by the Office of the President (2009a:7) to improve basic education

Appendix B: Interview Schedule

The below 9 questions will form the basis for the eight semi-structured interviews carried out as part of this study. They may be adapted in cases of misunderstanding or a lack of clarity. Changes may be necessary after the piloting of this interview schedule.

SECTION A: BACKGROUND ON TEACHING EXPERIENCE

1. What are the high points and challenges of teaching mathematics in [insert name of school]?
2. Do you feel sufficiently trained and qualified to teach Maths effectively? What has been the greatest help in improving your teaching since you began?
3. There have been recent changes in the teaching of mathematics at primary school level (introduction of Foundations for Learning programme, Annual National Assessments and delivery DBE workbooks), what have your experiences of training, communication and resource distribution been?

SECTION B: BELIEFS AND VALUES TOWARDS PRESCRIPTIVE CURRICULUM POLICIES AND THEIR IMPACT

4. Having taught for [insert number of years], what are your recollections of the introduction of previous educational reforms such as Curriculum 2005 and the Revised National Curriculum Statements?
5. How have you come to understand the recent introduction and use of the Foundations for Learning and the introduction of DBE workbooks?
6. In what way have curriculum documents benefited your teaching? How could they be improved?

SECTION C: CHANGES TO PERSONAL TEACHING PRACTICE

7. Do you find the major changes we talked about earlier [C2005, RNCS, FfL and DBE workbooks] affect your actual teaching practice in the classroom? If so, how?
8. Do you think you welcome or worry about such changes?
9. What has been good and what challenges, if any, have there been with the introduction of these major changes?

Appendix C: Resource list suggested for Foundations for Learning

<i>For the Walls</i>	<i>Stationery</i>	<i>Printed Stationery</i>
Charts/ illustrating the following concepts with examples: Multiplication Tables Addition/ Subtraction/ Division/ Multiplication Fractions Measurement: - Capacity/ Volume (l; ml) - Mass (g; kg) - Length (cm; km) - Distance (km) - Time (minutes; hours; days; week; months; years) Geometric Shapes Angles Area and Perimeter Number line Graphs	A4 paper A3 paper Scissors Glue Pins String Rubber bands Coloured pens Crayons Cello tape Coloured paper Rulers Prestick	Large paper money for demonstration by the teacher Squared paper – squares of different sizes printed on A4 for the children and A3 for the teacher Squared paper (large) for the teacher for demonstration A large calendar for the teacher to demonstrate Dotty paper – squared and triangular, large and small Copies of different geometric nets

Hard Apparatus

3 D and 2D shapes of different sizes for investigations and for using as templates to draw around

Metre rule

Tape measure

Large dice

Wooden or plastic cubes for building blocks

Measuring jugs, spoons and cups

Kitchen scale

Containers for capacity

Trundle wheel

Thermometers

Large compass

Large protractor

Large clock of demonstration

Large digital clock for demonstration

Appendix D: Selection methods of those to be interviewed

Selection of principals to interview

I selected principals to interview and in all but one case, I was able to conduct a semi-structured interview with them.

School	Interview	Position	Reason
Bayabonga Primary	Tooane	(HOD)	Principal suggested that as HOD was teaching mathematics in the school, I would gain more from an interview with her.
Ezakhe Primary	Nkosi	Principal	As study intended
Sakheni Primary	Dube	Principal	As study intended
Huttonlea Primary	McCalman	Principal	As study intended
Riverville Primary	Logan	Principal	As study intended

Selection of teachers to interview

School	Interview	Grade	Gender	Level of experience	Selected (and name) or not selected
Bayabonga Primary	Teacher A	4	F	High	Ms Tooane (as HOD)
	Teacher B	5	M	Low	Mr Zungu
	Teacher C	6	M	High	Mr Mthunzi
Ezakhe Primary	Teacher A	4	F	Medium	Ms Kibane
	Teacher B	5	n/a	n/a	Maternity leave
	Teacher C	6	M	Low	Mr Legodi
Sakheni Primary	Teacher A	4	F	Medium	Ms Banda
	Teacher B	5	M	High	Mr Sibeko
	Teacher C	6	M	High	Not selected
Huttonlea Primary	Teacher A	4	M	High	Mr Nair
	Teacher B	5	M	Medium	Not selected
	Teacher C	6	M	High	Mr Hendriks

Riverville Primary	Teacher A	4	F	Medium	Ms Rashid
	Teacher B	5	F	Low	Not selected
	Teacher C	6	F	Low	Ms Talwar

Grade	Number of possible teachers	Number of teachers selected
4	5	5 (including HOD)
5	4	2
6	5	4
Total	14	11

Figure 22 - The genders of the selected teachers

Gender	Number of possible teachers	Number of teachers selected
M	8	6
F	6	5
Total	14	11

Figure 23 - The experience of the selected teachers

Level of experience	Number of possible teachers	Number of teachers selected
Low	4	3
Medium	3	3
High	7	5
Total	14	11

Figure 24 - Figure 23 - The numbers of years of experience of the selected teachers

As you will see from the constraints and selections above:

- I managed to select teachers from a range of grades with Grade 4 as the most frequent and Grade 5 as the least frequent. The number of Grade 5 teachers interviewed was made harder by one teacher being on leave and her replacement not feeling comfortable enough to take part.
- My selections accommodated a roughly equal spread of the two genders, something which was made harder by 8 of the 14 possible teachers being male.
- The proportion of very experienced teachers is high but this reflects the fact that half the possible teachers were in this category. An effort was made to select a large proportion of the less experienced teachers and 6 out of the 7 were interviewed.

Appendix E: The extent to which teachers have implemented the policy

Though this is not my focus in this study, placing this information here gives an indication of the broad levels of implementation which teachers had enacted. All the data from the following interviews need to be viewed in light of this general trend and, without explaining it here, the next section may seem negative.

Teachers in the interviews revealed that their use of both the FfL and the workbooks was either modest, minimal or not at all. There were no teachers who were regularly using either policy wither daily or weekly in the classroom. A summary of how much they have applied each policy and what their specific barrier was to further implementation is given in the table below:

School	Teacher	Use of FfL	Use of workbooks	Main barrier to implementation
Bayabonga Primary	Mthunzi	None	None	Policy was not enforced
	Zungu	None	None	Lack of support, monitoring and follow-up
	Tooane (HOD also taught)	Modest	Only given out to more able learners	Open minded but otherwise occupied
Ezakhe Primary	Legodi	None	For homework	Policy was not enforced
	Kibane	None	Occasional	Lack of support, monitoring and follow-up
Sakheni Primary	Banda	None (using Singapore Maths)	For early finishers	Other policy enforced instead
	Sibeko	Modest	Occasionally for more challenging topics	Lack of support, monitoring and follow-up
Huttonlea Primary	Naidoo	None	None	Believes policy is not directed at him
	Hendriks	None	For revision	Not willing to change previous practice
Riverville Primary	Rashid	Minimal	Occasionally	Policy goals and methods were not explained
	Talwar	Modest (tried but gave up)	For remedial	Policy goals and methods were not explained

Figure 25 - Interviewed teachers actual enactment of Foundations for Learning and the workbooks

Some information from the interviews needs to be summarised here to explain the low levels of implementation. None of the teachers interviewed had had any formal training on how to use the FfL lesson planning file or how to use the DBE workbooks. The FfL files arrived midway (the dates given vary and were not precise in any case) through the academic year 2010 and were only considered for implementation in most schools at the start of 2011. The first workbooks arrived after the start of the 2011 academic year and three out of the five schools complained that they never had enough for one per learner. A typical explanation from a teacher about how they became aware of the FfL campaign was from Mr Hendriks, a Grade 6 teacher at Huttonlea Primary who stated,

It [the FfL campaign] was not communicated at all. The next thing the books arrive here at school, they were offloaded and that was it. They didn't say, 'You must use those books or you mustn't use them,' they were just offloaded here ... in May and the first term was already gone.

So if you consider that the FfL and workbooks, as shown in the previous section, do not give a great deal of instruction within the documentation themselves and add that to the fact that no training and minimal communication was given to schools, you reach a situation where teachers have not been sufficiently informed about the two policies. The above table is therefore neither surprising nor can be too heavily attributed to teachers' unwillingness to change given the limited guidance they were given.

Other reasons given for not being able to fully implement the FfL or workbook reforms derived not directly from the disorganised launch of the two policies but was framed by the teachers' experience of previous curriculum policies and their implementations. Teachers pointed out that such policies could not work unless they are facilitated by ongoing training, monitoring and support. Given that there was no formal training to start, some of the teachers reasoned that this level of support was unlikely to change during the implementation process and therefore they should not expend unnecessary effort trying to make a policy work on their own.

Other teachers were more open to the policy change and one teacher had given FfL a try but had given up on it when she became unsure about the constant interchanging of Learning Outcomes, Ms Talwar, a grade 6 teacher from Riverville Primary said, 'it was too much juggling [the rapid moving between LOs] and I couldn't cope with that.'

The workbooks are even more illuminating as although they were being used more frequently by more of the teachers. Their exact usage, though, illustrates the lack of clarity on what they were intended to provide. Whilst Ms Tooane and Ms Banda use them for the higher ability learners who finish tasks early

in class, Mr Legodi uses workbooks for homework tasks to reinforce what they have done in class, Mr Sibeko uses them only when he encounters harder topics for which he does not have sufficient other resources, Mr Hendriks is keeping them all for end of the year revision and Ms Talwar and Ms Rashid are using them for remediation of lower ability learners in the class. This is a very clear example of uneven policy implementation- though teachers are making an effort to try to put these documents into practice, they are not doing so in a uniform way. I will return to this phenomenon in my conclusion.

From this list, one can see that teachers are attempting to make sense of the workbooks and keen for them not to go to waste in 2011. However, none of the teachers were aligning them with their learning and using them daily with the whole class. That teachers are making use of the workbooks at all is to their credit given the meagre amount of direction they were given as they were distributed.

Appendix F: Summarised vignettes of the teachers selected in this study

School and pseudonym	Principal/ HOD	Principal/HOD description	Teacher	Teacher description
Bayabonga Primary Inner city Alex school with experienced staff. Very crowded plot , small classrooms and large classes (50-65). No fees levied.	Tooane (HOD)	Quiet HOD, also a Gr 4 teacher, very experienced with high levels of understanding of policy in school and nationally	Mthunzi	Highly experienced teacher with low levels of maths competency but willingness to learn. Focus on numerical aspects. Needs help with administrative and assessment requirements of new initiatives.
			Zungu	Young, relatively inexperienced but very self-confident teacher. Weak on pedagogical and content knowledge. Sees classroom overcrowding as an insurmountable barrier.
Ezakhe Primary Inner city Alex school with inexperienced staff. Very crowded plot , small classrooms and large classes (45-55). No fees levied.	Nkosi	Long standing, very experienced principal. Looks at learners holistically. Makes it clear she will never blame the teachers for poor results.	Legodi	Weak on pedagogical and content knowledge. Confused by layers of policy over the years and being brought in after C2005 training occurred. Feels isolated in the classroom.
			Kibane	Mid-career teacher with excellent work ethic and high classroom teaching and maths competency. Forthright about her opinions and frustrated by constraints of large classes and weak basic maths of her Grade 4s.
Sakheni Primary School in Alex's Far East Bank. Set in good-sized plot with gardens and experienced staff. Class size 35-45. No fees levied.	Dube	Very new and young principal with a maths background. Not afraid to alter existing structures in order to improve results.	Banda	Mid/Late career teacher. Not confident of content knowledge and so happy to have been forced to move from FfL to Singapore mathematics where there is a larger amount of training.
			Sibeko	Highly intelligent teacher with weak mathematical background. Knows curriculum reform well. He is looking for simplicity in the reaching requirements set of him.

Huttonlea Primary Ex-model C school in affluent area with good facilities and class sizes 35-40. Experienced staff. Low staff turnover . School fees- R9 200 p.a.	McCalman	Teacher who admits that he's too far removed from what goes on in classrooms. Knows that poor SATs results have put a lot of pressure on the school.	Naidoo	Very opinionated mid-career teacher without a background in maths. He is happy to do things his own way and justify this approach to management and district officials. Results show that his class is underperforming.
			Hendriks	Experienced teacher who has kept his teaching practice intact through all the years of changes and will continue to uphold his standards despite more curriculum changes.
Riverville Primary Ex-Model C school with good facilities, Class sizes 25-30. Inexperienced staff with high staff turnover. School fees- R10 500 p.a.	Logan	Very experienced principal with current experience of teaching maths. Believes in the value of the new policies but backs his own teachers' informed judgments.	Rashid	Experienced and organised teacher. Frustrated with lack of basics coming through to her in the learners. Definitely growing change weary.
			Talwar	Very enthusiastic and motivated teacher with minimal experience. High levels of planning and organisation mean she has successful practices already in place.

Figure 26- Brief descriptions of the schools and teachers involved in the interviews