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Master of Education (MEd)

Research Report

University of the Witwatersrand

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TITLE

Exploring the impact of the Flipped Learning Model (FLM) on educators' teaching practices at a private school in Johannesburg.

Johannesburg, 2016

DECLARATION

I declare that this Masters (MEd) research report is my own. I submit this research report for the degree of Master of Education at the University of Witwatersrand, Johannesburg. This research report has not been submitted before for any other examination or degree at any other University, nor has it been prepared under the aegis of any other body, organisation or person outside of the University of the Witwatersrand.



Joseph Gerassi

15th day of March 2016

Abstract

This study investigates the impact of the Flipped Learning Model (FLM) on the teaching practices of four educators in a private school in Johannesburg. It investigates the pedagogic processes and experiences of these educators' respective attempts to shift from their standard educator-centered methodologies to the FLM's highly collaborative and blended methodology. In so doing, the study exposes the educators' resistance to the primary assumptions of constructivist epistemologically informed pedagogies. It also demonstrates the extent to which epistemological assumptions underpinning the 'official curriculum' are imbued within the dominant pedagogic discourse and aligned with educators' beliefs and professional identities. The study exposes the necessity for transformations in educators' traditional thinking, epistemological assumptions, perceptions, attitudes and roles to occur before any substantial attempts to introduce the FLM in 'classrooms' are made.

Furthermore, the FLM takes for granted the ease of embedding technology in the teaching/learning process. This study exposes the relationship between a lack of technological familiarity/ know-how and the strength of resistance to 'flipping the classroom'.

South African educators work in an environment that promotes very strong boundaries between: classroom/home; educator/learner; and schoolwork/homework. Flipping, weakening or altering these, challenges educators' strongly held notions of what it means to be a professional educator. It is within this context that Bernstein's work with respect to the development of such seminal concepts as 'pedagogic device', 'classification' and 'framing' provided the language of description and analytical basis for this research study.

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Table of Contents

Declaration 2

Abstract 3

Acknowledgements 4

Chapter 1 – Introduction 7

Chapter 2 – Literature Review 12

2.1 The Flipped Learning Model and the work of Basil Bernstein 12

2.2 Bernstein's work in the field of Pedagogic Studies 12

2.3 Classification and Framing 13

2.4 The Pedagogic Device 14

2.5 The Flipped Learning Model (FLM) 17

2.5.1 FLM History 18

2.5.2 FLM and Pedagogy 19

2.5.3 FLM and the Flipped Classroom 20

2.5.4 FLM and Technology/Blended Learning 21

2.5.5 FLM and the Role of the Educator 22

Chapter 3 – Methodology 24

3.1 Ethical Clearance 24

3.2 The Research Techniques 24

3.3 The Research Design 26

3.4 FLM Workshop 29

Chapter 4 – Results 31

Chapter 5 – Analysis of research findings 64

Chapter 6 – Discussion 68

Chapter 7 – Conclusion 71

7.1 Limitations of the Study 72

References 74

Appendices **78**

Appendix 1 - Email sent to Participants in preparation for FLM workshop **78**

Appendix 2 - Interview Schedule 1 (pre-implementation interview) **79**

Appendix 3 - Participant 1 – Observation Schedule (control and experimental) **80**

Appendix 4 - Participant 2 – Observation Schedule (control and experimental) **82**

Appendix 5 - Participant 3 – Observation Schedule (control and experimental) **84**

Appendix 6 - Participant 4 – Observation Schedule (control) **86**

Appendix 7 - Participant 4 – Observation Schedule (experimental) **88**

Appendix 8 - Interview Schedule 2 (post-implementation interview) **90**

Appendix 9 - Ethical Clearance **91**

Appendix 10 - Principal Consent Form **92**

Appendix 11 - Participant Consent Form **93**

Chapter 1

Introduction

This research explores the "journey" of four educators' attempts to shift, through their engagement with the Flipped Learning Model, from an essentially traditional educator-centered pedagogy to a far more constructivist learner-centered pedagogy. It investigates the manner and extent to which this journey challenged the beliefs and identities of the educators (over a period of six weeks) and considers the impact of the journey on the educators' pedagogy.

The study does not intend to explore the cognitive impact of the FLM on learners nor even, on the learning process itself. Rather, its significance is situated in its exploration of the way in which educators experience the FLM and the challenges that they face when implementing it in their respective learning environments. Unlike prevailing research in the field, this study addresses the impact of the FLM on the educator rather than on the learner.

The study requires a language of description and a framework within which to analyze the experience of and effect on educators of introducing the FLM in their teaching practices. Bernstein's (1971) work introduces the concepts of 'classification' and 'framing'. These, now well-developed concepts together with his 'pedagogic device' (1996) provided me with an extremely useful tool for describing and analyzing the impact of (introducing) the FLM into the teaching practices of a sample of four educators.

Recent research reflects concerns over traditional pedagogy as a viable response to 21st century learning. Globalization and gigantic advances in information technology have brought about changes in society and in particular, in the nature and needs of the workplace. Consequently, the competences and skills required to live functionally and to succeed in the modern, competitive workplace, have changed. "We not only need a higher percentage of our kids graduating from high school and college – more education – but we need more of them with the right education" (Robinson, 2011: 11). Here, I believe, Robinson is referring to an educational model that is less standardized and prescriptive. The "right education", for Robinson (2011), is that which is sufficiently flexible and innovative to prepare learners to meet the needs of a dynamic, innovative and global 21st century post-industrial environment. Indeed, and as Robinson (2011:8) asserts, "Mass systems of public education were developed primarily to meet the needs of the Industrial Revolution and, in many ways they mirror the principles of the industrial production. They emphasize linearity, conformity, and standardization. One of the reasons they are not working now is that real life is organic, adaptable and diverse."

> *"[Business leaders including those in Fortune 500 companies]… complain that education isn't producing the thoughtful, creative, self-confident people they urgently*

> *need: people who are literate, numerate, who can analyze information and ideas; who can generate new ideas of their own and help to implement them; who can communicate clearly and work well with other people. They want education to provide such people, but too often they also cling to an uncritical belief in traditional academic education"* (Robinson 2011: 15).

The need for a new pedagogy better able to adequately prepare learners for a post-industrial knowledge economy is underscored by, amongst many others, O'Brien and Hart (1999), Guilfoyle (2006) and Grey (2009).

It is unsurprising then, that the U.S. Department of Education has called for "engaging and empowering learning experiences for all learners… [that places the focus on] what and how we teach to match what people need to know, how they learn, where and when they will learn, and who needs to learn" (U.S. Department of Education, National Education Technology Plan, 2010: 8). In short, the thinking underlying classic school pedagogy predicated upon the demands of a labour economy requires urgent revision.

Standardized models of linear learning within highly structured physical and didactic spaces are inherently designed to produce and reinforce the uniformity, conformity, discipline and hierarchical asymmetry that the [capitalist] labour economy of the 19th and 20th centuries required. The needs of this century's knowledge economy can no longer, as research mentioned above reflects, be met by 19th and 20th century pedagogy. Indeed, the competencies enabling success in the workplace increasingly require creative and lateral thinking, critical and problem solving proficiencies, effective communication and such collaborative skills as enabling team work. It is within this context that schools and educators need to urgently reconsider, re-evaluate, revise and/or revolutionize their conceptualization of what successful teaching is all about.

At the very least, educators who have commonly taught in a formal structured lecture-style environment need to be encouraged to enable far more active learner engagement and learner responsibility in their classrooms. They need also to be persuaded to embed technology into their teaching and to work with a pedagogy that enables them to facilitate, mediate and guide learning rather than lecture.

The FLM is, in my judgment, an effective means of facilitating such teaching and learning. The model is, as Toppo (2011) and Tucker (2012) point out, gaining increasing traction, and as a result, increased attention in educational circles as well as in the international press.

The Flipped Learning Network defines flipped learning as:

> *A pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter* (2014:1).

Importantly, the FLM provides learners with the opportunity to acquire content knowledge prior to class time (individual learning space) thereby enabling the classroom to be used as a group learning space in which learners engage in academic discourse, work collaboratively (and at times interdependently) and apply knowledge by finding solutions.

The FLM is a learner-centered model which requires more active learner engagement and learner responsibility in and out of the classrooms. The role of the educator becomes, against this background, one of facilitation, guidance, mentorship and mediation. Notably, this model sees the educator's 'equipment' as needing to include the fullest range of affordable information and educational technology available.

It is clear that, in the main, the FLM challenges the orthodoxy of traditional epistemologies, and perturbs prevailing teaching methodologies, by requiring, inter alia, a redefining and repositioning of the educator's role in the classroom. It confronts perceptions, including, most significantly, educators' self-perceptions. It is, arguably, a revolutionary rather than reformative approach, and as such may create socio-educational dissent, internal (cognitive and affective) dissonance and resistance.

The FLM is foundationally underpinned by a constructivist epistemology. Bergman and Sams (2007), who are cited as the inventors of the concept, note that the growing popularity of the flipped classroom as a constructivist pedagogy is, in fact, constructivist — as educators experiment and come to new understanding.

Constructivism holds knowledge to be socially constructed, created and constantly recreated through a dynamic complex of historical and everyday experience, background and culture. Whereas knowledge is viewed as a subjective creation (rather than a reflection of a *sui generis* objective reality), learning is seen to be a process by which the learner looks for meaning (including regularity and order) in their experience of the world (including the lesson); and then constructs their own understanding. It does not simply involve the mirroring and reproduction of that which is read or presented.

The constructivist epistemology underlying FLM pedagogy implies that learners are best educated when they are treated both as active and powerful participants in the learning process and are permitted to have a 'voice', and a discursive space in which to be heard (Confrey, 1995; Shotter, 1995).

The changing practice of traditional/standard education – from the face-to-face didactic transmission of information to the FLM's collaborative, experiential and blended education approach is not without sets of significant challenges. One of these sets relates to the impact that flipped learning methodology has on educators' implicitly and explicitly held pedagogies.

Radical shifts in pedagogy always have, as Gouldner (1980) implies, consequences for those who trusted in or identified with the existing system. Educators' internalization of and reliance upon the epistemological assumptions underlying 'their' pedagogy, serves to provide them with a professional identity and feelings of competence and authority. A change in

pedagogy and therefore the methodology of teaching will inevitably impact the educator's identity and as a result his or her professional relationship with learners. Wenger (2000) defines identity as:

> *…what we know, what is foreign and what we choose to know, as well as how we know it. Our identities determine with whom we will interact in a knowledge sharing activity, and our willingness and capacity to engage in boundary interactions.* (Wenger, 2000: 239)

Wenger argues that institutional affiliation does not, in and of itself, signify professional identity. This identity, he suggests, is an experiential co-construction which relies upon the engagement that the professional has with significant (work related) others.

The Flipped Learning Model revolutionizes the professional engagement between educator and learner by flipping asymmetrical relations into symmetrical ones. Both educator and learner become active and responsible participants in the learning process.

Content delivery (subject knowledge) is learnt outside of the classroom through video, graphics, text and even games. The classroom is used as a space in which an educator/facilitator scaffolds learner acquired knowledge and facilitates group learning activities designed to co-construct the substance of the syllabus. In brief, active learning (understanding and abstraction) takes place through educator facilitation of prior knowledge within the classroom.

In this model the educator shifts from a knowledge curator/disseminator to a learning facilitator, such that control, albeit not necessarily normative discipline, is shared. The learner is thus empowered to work with content, reflect upon and communicate lacks and gaps in his/her understanding of it, and source assistance and guidance from peers and, more particularly, from the educator/facilitator. In short, while FLM educators weaken the power and control they have over both the learning process and the learner, they strengthen their authority as facilitators of learning and mentors of learners.

The FLM refutes the epistemology underlying models of conventional teaching which implicitly consider the educator to be the 'holder' of knowledge and the curator of subject content.

The FLM's underlying constructivist epistemology challenges the boundaries between and control within categories of discourse, agency and space. It imposes the need for educators to re-evaluate the way they experience and treat their classrooms, the curriculum and their learners. In particular, it undermines conventional interpretations of authority, control and discipline, thereby challenging the educator's (as well as the learner's) sense of identity.

The FLM flips the classroom and the external environment, as well as the archetypal educator-learner relationship. Disappointingly, researchers have neglected to adequately

interrogate the consequences and full impact of the FLM on the educator's agency, sense of self and professional identity.

This study aims, in so far as its limited scope enables, to explore the impact of the FLM on the educator rather than learner. It endeavors to redress the conspicuous absence of research on the subjective meaning of educators' revised roles and the relational and systemic implications of this revision for the process of teaching. It considers that the introduction of the FLM in classrooms will, *ipso facto*, require a transformation in educators' traditional perceptions, attitudes, roles and practices.

Chapter 2

Literature Review

2.1 The Flipped Learning Model and the work of Basil Bernstein

The FLM is a pedagogy that turns traditional teaching on its head. The inimitable and hugely influential work of Basil Bernstein with respect to analyzing the structures of pedagogy (1971; 1975; 1990; 2000) has been employed to provide the theoretical foundation and general theoretical orientation for analyzing the FLM in this study.

In short, the study, in so far as it required an appropriate analytic means of describing, examining, tracking and unpacking the changes needed; the unintended consequences of; and challenges for educators, when newly introducing the FLM in their pedagogic practices, relied heavily on Bernstein's work.

Bernstein's theories provide a language of description which, as Morais and Neves (2001:187) recognize, is "a framework that is diagnostic, predictive, descriptive, explanatory and transferable, broadening the relationships studied, and permitting conceptualization at a higher level, without losing a dialectical relation between the empirical and the theoretical."

In particular, Bernstein's seminal concepts of 'pedagogic device', 'classification' and 'framing' provide the language of description and analytical basis for this research study.

It is against the background introduced above, that the literature reviewed for this study focused on both the Flipped Learning Model (as an alternative pedagogy) and apposite elements of the work of Basil Bernstein.

2.2 Bernstein's work in the field of Pedagogic Studies

Morais, Neves and Fontinhas (1999; 2001a; 2001b) employed Bernstein's concepts of 'classification' and 'framing' in their work on science and teacher education. Significantly, their research demonstrates the efficacy and value of using Bernstein's theory of pedagogic discourse to define pedagogic practice across various spaces and agencies.

AI-Ramahi and Davies (2002), in reviewing the Palestinian Integrated Learning Project (ILP), used Bernstein's 'classification', 'framing' and 'pedagogic device' to interpret data with respect to determining the type of pedagogy needed for implementation in ILP schools.

Whereas Riksaasen's (1999) employed Bernstein's more comprehensive (macro) theory in his large-scale study of teacher education in Norway, Lerman and Tsatsaroni (1998) employed Bernstein's notions of 'classification', 'framing', and evaluative criteria as analytic tools to compare and contrast pedagogic models.

Bernstein's work has also been used, inter alia, to study cultural reproduction through schooling (Hoadley, 2005); as a framework within which to study history curriculum reform

(Bertram, 2012); to assess achievements of learners from low social class backgrounds (Reeves, 2005); and to evaluate teacher education (Ensor, 2004).

It is indeed, as a function of my reliance on Bernstein's work, that this chapter of the study seeks to provide an overview of his theoretical exposition, and in particular, a more in-depth review of his concepts: 'pedagogic device', 'classification', and 'framing'.

2.3 Classification and Framing

Bernstein's concepts, 'classification' and 'framing', enable one to grasp and explore changes made with respect to both pedagogy and the curriculum. He defines 'classification' as "the degree of boundary maintenance between content" (1975:88). His theory places considerable focus on the strength of boundaries between the different sets of content [or indeed, as he would have it, classifications of knowledge], and the strength of boundaries between the framing of this knowledge as pedagogy. Significantly, 'classification' and 'framing' can be usefully employed to 'capture' changes that occur in both the curriculum (through the way in which knowledge is classified) as well as in pedagogy (through the way in which content, sequencing, pacing and evaluation get to be framed).

> *"Where classification is strong, contents … [i.e. categories such as academic subjects, agents and spaces] will be well insulated from each other by strong boundaries. Where classification is weak, there is reduced insulation between contents, for the boundaries between contents are weak or blurred"* (Bernstein, 1971, 49).

Strong classification refers to a curriculum structure that is highly differentiated and separated into specific academic disciplines/subjects. Strong classification precludes curricula which engage with forms of multidisciplinarity, interdisciplinarity, or merged disciplinarity. In short, neither subject nor even topics within subjects are integrated. Weak classification embraces inclusion, incorporation and merger. It refers therefore to a curriculum that is integrated and in which boundaries between subjects and topics are blurred.

Similarly, strong classifications maintain the boundary between school knowledge and 'everyday' knowledge. They enable the 'bracketing' of everyday learning from the curriculum. Weak classifications, on the other hand, enable a curriculum to incorporate everyday knowledge – thereby loosening the 'hold' of school knowledge on the curriculum. Clearly, the integration of school knowledge and everyday knowledge elevates the status of knowledge acquired outside of the classroom and undermines the privileged status of school-acquired knowledge.

The integration of school knowledge and everyday knowledge challenges the distinction between educators and learners and, by way of extension, their relations of power (Bernstein, 2000). In short, whereas strong classification refers to clearly defined pedagogic identities between educator and learner (and, through systems of prefecture, between learner and learner), weak classification refers to poorly defined or blurred pedagogical identities.

Similarly, classification of space relates to the strength of the boundary between the educator's space and the learners' space as well as the space between learners (Bernstein, 2000:99). It is this classification which enables analysis of the FLM's characterization of home as a significant 'official' learning space.

Whereas classification, in the context of pedagogy, is concerned with the organization of knowledge in the curriculum and the pedagogic identity between agents within the school, framing is related to the transmission of knowledge through pedagogic practices.

'Framing' refers to the degree of control that the educator (and learner) possess with respect to such pedagogic practices as: "selection, organization, pacing and timing of knowledge transmitted and received in the pedagogical relationship" (Bernstein, 1975:88).

Where framing is strong, the educator's control is high and learners are left with limited options. Where framing is weak, the learners are left with more control of pedagogic practices and more 'say' in relation to what is taught and learned. Framing, then, refers to relations within boundaries and is expressed in terms of its strength or degree of control.

'Classification', Bernstein (1990:100) asserts, "regulates the voice of a category [while] framing regulates the form of its legitimate message" and refers to the location of control over the rules of communication. It addresses "the strength of the boundary between what may be transmitted and what may not be transmitted" (Bernstein, 1975:89).

2.4 The Pedagogic Device

The 'pedagogic device' provides a useful framework with which to understand the mechanics behind the relaying of what Bernstein (2000) called the "message" system. The three messages relayed comprise: curriculum, pedagogy and evaluation. The pedagogic device structures and organizes the content and distribution of these messages.

The pedagogic device, through the constructs of 'classification' and 'framing', allows the researcher to analyze the structure of the curriculum as well as the pedagogic decisions that educators make over the selection, sequencing, pacing and evaluation of school knowledge and how this relates to processes of power and control.

Bernstein's theory of the pedagogic device provides researchers with explicit criteria/rules to describe the macro and micro structuring of knowledge, and in particular, the generative relations of power and control constituting knowledge (Singh 2002: 571).

The concepts of 'classification' and 'framing' relate only to the nature of pedagogic processes and the pedagogic discourse that occurs within and between the classroom and other learning environments. They fail to capture the social and political circumstances that both overtly and covertly influence or shape the pedagogic processes and discourse that constitute learning environments.

In short, Bernstein sees the distribution of power and exercise of social control as impacting, through the pedagogic process, support /reproduction (or, in some instances, rejection) of the status quo.

> *How a society selects, classifies, distributes, transmits and evaluates the educational knowledge it considers to be public, reflects both the distribution of power and the principles of social control* (Bernstein 1971: 47).

Bernstein uses the term, 'pedagogic device', to understand the systemic and institutionalized ways in which knowledge, produced in academic and other significant 'higher order' institutions (the field of production), is recontextualized to accommodate transmission and application in schools (field of reproduction). In brief, the 'pedagogic device' refers to an ensemble of rules/procedures (or, indeed, a model) for analyzing the processes by which expert knowledge is converted into the curriculum and even into classroom talk. It allows a researcher to go beyond the normative question of how faithfully the official curriculum message is interpreted and implemented. Rather it enables them to both identify and describe the substance and nature of messages embedded in curricula and the ways in which the messages are re-fashioned and re-interpreted, i.e. recontextualized as they move through the education system.

According to Bernstein (2000) the process of recontextualization entails the principles of de-location (i.e. selecting a discourse or part of a discourse from the field of production, such as a university), and re-location (i.e. the placement of that part or whole discourse into a field of reproduction, such as the school). Importantly, Bernstein (2000:116) points out that the original discourse may, during the de-location /re-location cycle (and as a function of special interests in the recontextualization field), undergo ideological transformation.

Bernstein (2000) regards the production of 'expert' pedagogic discourse and the process by which it is converted into the curriculum and classroom as dependent upon rules which apply in "three main fields", namely: the field of production, the field of recontextualization, and the field of reproduction (Singh, 2002).

Within the first field, i.e. that of production, 'distributive' rules regulate power relations between social groups. It is here that knowledge is defined and theory is produced (usually by university academics), and from here that it is 'distributed' and 'legitimized' as official/ theoretical/academic or expert rather than everyday/experiential or subjective (Bernstein, 2000). Whereas official knowledge is structured through academic disciplines, everyday knowledge is kept out of the textbook, coursework and classroom.

Bernstein (1996:172) sees official knowledge as either hierarchically or horizontally organized. The natural sciences are, by way of example, organized into an "explicit," "coherent" and "organized" hierarchy. In contrast, the humanities and social sciences are organized along horizontal lines. This is because Bernstein argues, unlike the natural sciences where systems of knowledge are interactive, and principles of description and explanation

shared, the humanities and social sciences embrace systems of knowledge which are far more discrete, comprising "a series of … non-translatable, specialized languages with non-comparable principles of description based on different, often opposed, assumptions" (1996: 173).

A crucial distinction between the two forms of knowledge structure relates to the form taken by their development. According to Moore and Maton (2001), hierarchical knowledge structures are based on integrating codes, while horizontal knowledge structures are based on collection codes. 'Collection' codes generate subjects that have very distinct boundaries and are well insulated from each other and thus kept apart. 'Integrated' codes generate subjects, which, as a function of their need for/reliance upon joint principles of description and explanation, require relatively weak boundaries. Indeed, there is little need for insulation between these subjects.

The second field, known as the field of recontextualization, is ordered by 'recontextualizing rules' which regulate the formation of specific pedagogic discourses. Pedagogic discourse is, as Bernstein (1996:46-47) argues, "…the principle by which other discourses are appropriated and brought into a special relation with each other, for the purposes of their selective transmission and acquisition. Pedagogic discourse is a principle for the circulation and the reordering of discourses."

The 'pedagogic device' is made up of 'instructional discourse' embedded within 'regulative discourse' (Bernstein, 1996, 49). Instructional discourse is "a discourse of skill of various kinds, and their relations to each other" (Bernstein, 1996:46). Regulative discourse is "a discourse of social order"(Bernstein, 1996:46).The important point is that Bernstein did not draw this analytical distinction to translate pedagogic practice simplistically into the transmission of skill though discourse on the one hand, and the transmission of values on the other. For Bernstein there was only one discourse: the pedagogic discourse.

The recontextualizing field is divided into the official recontextualizing field (ORF) and the pedagogical recontextualizing field (PRF). The ORF is usually made up of statutory agencies such as national and provincial departments of education, regulatory bodies and curriculum designers, who make selections about official knowledge, pedagogic practices and evaluation/assessment criteria. It is their choices that ultimately get to comprise ''the curriculum' (Bernstein, 2000:65).

A further recontextualization takes place within the specialized field of the PRF where pedagogic discourse is discussed and interpreted by university education departments, course developers, textbook writers, and in some cases educators themselves. This field may become a place of considerable contestation, since diverse groups compete to impose on learners, their particular methodological approaches to the teaching of the curriculum.

Even though the state, through its agents, imposes high levels of control over the curriculum, its control is never absolute. Ultimately, educators, residing in the field of reproduction,

recontextualize the official curriculum in their classrooms. In brief, the field of reproduction is ordered by evaluative rules which regulate the recognition, selection and recontextualization of official knowledge. It is within this field of reproduction that educators employ their pedagogy to determine processes involving, for example, the selection of knowledge; sequencing of content; and pacing of lessons.

Significantly, Bernstein acknowledges that learners, too, have the opportunity to further recontextualize the pedagogy used by the educator. They may, for instance, use their own processes of knowledge recognition or their own 'evaluation criteria' to legitimize or challenge school knowledge. In this way pedagogic practice provides a means for initiating change in the power relations and mechanisms of control between educators and learners.

"Control [here] is," Bernstein (1996:19) contends, "double-faced for it carries both the power of reproduction and the potential for its change."

2.5 The Flipped Learning Model (FLM)

Flipped learning requires what Lage et al. (2000) refer to as an inverted classroom. Its defining characteristics include moving the lecture outside of the class, usually delivered through some electronic means, and moving the practical application assignments, formerly homework, into the classroom (Educause, 2012). In short, what might otherwise be called homework, is undertaken in class time, and so called 'class work' gets to be allocated as homework or as Pink (2012:38) puts it: "Lectures at night, 'homework' during the day".

Significantly, flipped learning enables learners to explore study material in their own time and space and at their own pace (Educause, 2012). Clearly, the educator's time is allocated during the most cognitively demanding tasks in the curriculum. As Boyer (2013) rightly notes, "It does seem ironic that so much time is spent in class 'teaching', and then students are sent home to struggle through the actual 'real work' on their own without any assistance" (2013:28).

Empirical research with respect to the FLM has tended to concentrate on the model's capacity to meet pre-determined assessment criteria. It is little wonder then that, in the main, the corpus of FLM academic literature comprises, as Hamdan et al. (2013) indicate, educator reports on learner achievement. There is also, however, a body of research exploring the FLM's use of technology, reliance on interactive group activities, and experiential impact on learners (Educause, 2012). Notably, the FLM academic literature is punctuated with descriptions of flipped classrooms and an array of survey outcomes with respect to learner, educator, and parental perceptions of the FLM.

Clearly, the FLM requires that the traditional binary with respect to educator and learner be revolutionized. Learners in this model, as Gallagher (2009) points out, have a far more active role in acquiring concrete subject knowledge; and educators have a far more active role in facilitating the depth of understanding, higher order thinking and means of applying the knowledge acquired.

Power relations in this context are shifted to relations of authority in which the educator becomes a 'subject curriculum' authority. It is in this capacity that the educator uses his or her skills, knowledge, judgment and expectations to explain, clarify, extend, challenge and assess knowledge. Clearly, the FLM not only flips the classroom and the external environment but also flips perceptions and practices related to the power and control residing in so-called formal education. It challenges power and control within the pedagogic relationship and prescribes a radical revision of the archetypal educator-learner relationship.

Significantly, researchers have neglected to adequately interrogate the nature or the consequences of this revision. They have, in other words, failed to interrogate, incorporate, disaggregate, or even adequately consider the impact of the FLM on the educator's perceptions, professional identity and agency.

2.5.1 FLM History

During the course of 1982 Baker attempted to make class time more meaningful by placing his lecture notes online thereby enabling learners to access them from home. He called this approach the "*Classroom Flip"*.

> *The basic concept I applied in that class was to move the rote transmission of information that had been the content of my lectures out of the classroom (delivered instead through network-delivered presentations) and to use the opened-up class time for the students to work on application of the principles from that content while I was there to see what they were doing, answer questions and make suggestions.* (Baker, 2011: 2)

Around the same time, Lage, Platt and Treglia introduced a similar approach in which learners would view lectures in advance of class and spend class time clarifying and applying difficult concepts while working in small groups in the classroom. They referred to their approach as the "Inverted Classroom".

> *Inverting the classroom means that events that have traditionally taken place inside the classroom now take place outside the classroom and vice versa. The use of learning technologies, particularly multimedia, provide new opportunities for students to learn.* (Lage, Platt and Treglia, 2000: 32)

Two middle school chemistry teachers, namely Aaron Sams and John Bergmann, are credited with popularizing the "inverted classroom" concept. They recognized that learners' absence from class (whether for personal reasons, extracurricular commitments or illness) had the potential to negatively impact them. They considered that absent learners could minimize the impact of absenteeism (including the stress associated with falling behind their peers and having to catch up class work) if they were given out-of-classroom access to classroom educational instruction:

> *In the spring of 2007 Aaron was thumbing through a technology magazine and showed me an article about some software that would record a PowerPoint slideshow including voice and any annotations, and then it converted the recording into a video file that could be easily distributed online. As we discussed the potential of such software we realized this might be a way for our students who missed class to not miss out on learning. Thus, we began to record our live lessons using screen capture software. We posted our lectures online so our students could access them. When we did this, YouTube was just getting started and the world of online video was just in its infancy. In all honesty, we recorded our lessons out of selfishness. We were spending inordinate amounts of time re-teaching lessons to students who missed class, and the recorded lectures became our first line of defense* (Bergmann, 2011: 1).

A number of advantages of flipped learning methodologies have been recognized. These include the more efficient use of class time (Cole, 2009); more active learning opportunities for learners (Gannod, Berg & Helmick, 2008); increased one-on-one interaction between learner and educator (Lage, Platt & Treglia 2000); increased learner responsibility for learning (Overmyer, 2012); and the utilization of mixed (including flipped) learning styles (Gallagher, 2009).

2.5.2 FLM and Pedagogy

Strayer (2007) reported that in most instances where the classroom flip is used, the goal is to create an active learning environment during class time, while ensuring (through home learning) content coverage.

The classroom flip is usually motivated by a desire to educate through ensuring "active participation" in the classroom (Strayer, 2007: 45).

Strayer's emphasis on active learner *participation in the classroom* is derived from Piagetian cognitive theory. Whereas the process of content familiarization (Piagetian 'assimilation') occurs in the learner's home environment, active participation (Piagetian 'accommodation') takes place in the classroom.

Constructivist epistemology provides the philosophical foundation upon which the FLM is situated. The FLM advocates that learners be given a 'voice' in order to express their opinions, ideas and thoughts in the classroom. It advocates that educators suppress the dominance of their own voices in favour of listening to and indeed 'really' hearing learners' voices. This is because educators need to hear the 'voices' of learners giving expression to the knowledge and understanding of the subject content that they acquired as homework.

Listening to learners' 'voices' enables educators to both fully grasp learners' educational needs and shortfalls, and to appreciate the constructions of understanding and meaning that learners attach to educational content. "To guide students' thinking, educators must also understand how children's ideas about a subject develop, and the connections between their ideas and important ideas in the discipline" (Borko, 2004:6). In short, the relationship

between educator and learner, the balance of power and control and the engagement with the learner's 'voice' constitute core characteristics of the FLM's underlying pedagogy.

From Bernstein's perspective, student 'voice' is louder when framing is weakened in terms of the relationship between learner and educator, with the educator empowering the learner to have a 'voice'. Thus the hierarchical relationship is diminished and the power (albeit not the authority) shifts from being only in the hands of the educator, to a sharing of power in a learner-centered classroom. Constructivism promotes a climate of shared responsibility among educator and learners, and therefore power and control are shared among all members of the classroom community.

In the FLM's constructivist classroom, learners are given the necessary structure, voice, time, and space to question, explore, and argue – thereby ensuring that the educator can understand their levels of content knowledge, remedy problems, fill in shortfalls and advance the acquisition of additional/more in-depth subject knowledge.

The constructivist classroom is patently learner rather than teacher-centered. In this regard, McCombs and Whisler (1997) see the classroom as a space in which:

> *students are challenged, are given an explanation of what is expected, have choice and control, may work cooperatively with others, see activities as personally interesting and relevant, believe that they have the personal competence to succeed, believe that they are respected and that their opinions are valued, have individualized attention to personal learning preferences and needs, are trusted to be responsible for their own learning, and have some input into what standards and methods will be used to evaluate their learning* (McCombs & Whisler, 1997:33).

The South African Curriculum Assessment Policy Statement (CAPS) is as it stands antithetical to constructivist informed pedagogies including the FLM. This is because the CAPS content, sequencing and assessment criteria are strongly prescribed, and put, as a result of the heavy burden of content, severe pressure on the pacing of lessons.

> *Currently (2012) the education system is being tightened, with clear separation of the everyday from the specialized, clear distinctions between subjects and inside of subjects, clear specification of what should be in the curriculum, when and how it should be taught and what is to be assessed.* (Hugo, 2013:181).

Instead of learner-centered classrooms where classification and framing are weak, CAPS requires strong classification and framing and therefore strongly educator-centered classrooms.

2.5.3 FLM and the Flipped Classroom

Often Flipped Learning is reduced to signifying no more than flipping the classroom. Educators erroneously believe that flipping the classroom whereby learners read content and watch videos at home and educators use the classroom to lecture them thereafter, amounts to

meaningful pedagogic change. This approach (characteristic of tertiary education) provides for preparation before a lecture in which the educator remains central and the primary arbiter of knowledge. The FLM requires 'the classroom' to be a facilitative environment for the application and testing of knowledge.

2.5.4 FLM and Technology/Blended Learning

Internationally, educators are under increased pressure to integrate technology into their classroom teaching practices. Education policy makers are at pains to extract value from the information technology and telecommunications revolution. Many appreciate the opportunities that videos, gamification, social media and interactive virtual reality spaces and engagements offer with respect to educational instruction and learning. The provision of 'excellence' in education is becoming increasingly associated with the implementation of blended learning. This approach to learning is multifaceted but, in the main, involves "integrating online with traditional face-to-face class activities in a planned, pedagogically valuable manner" (Picciano, 2006: 97). For Horn and Staker (2011: 3) learning should be regarded as blended, "any time a student learns at least in part at a supervised brick-and-mortar location away from home and at least in part through online delivery with some element of student control over time, place, path, and/or pace".

Telecommunications and information technology are the enablers for models of flipped learning. This is because they merge boundaries between both learning spaces and learning times and in so doing weaken the traditional classification of the classroom as the dominant or only learning space. Information technology and telecommunications enable syllabus related demonstrations, documentaries, animations, dramatizations and the like to be made accessible in the homes and communities in which learners reside.

The role and influence of the school and classroom is in no way diminished by the 'flipped' content delivery platform. Indeed, the content delivery flip should serve only to elevate the school and classroom in the learning process. The school/classroom should in this context become a knowledge building center in which understanding, exploring, debating, testing and sharing information are standard. The blend of mixed/diverse IT-driven content with more individualized face-to-face learner-centeredness constitutes the methodological foundation upon which the FLM is situated.

The FLM encourages the utilization of all instruments which enrich the learning environment and learning processes. Whereas these instruments incorporate, for example, computers, mobile devices, software and videos, processes include inter alia recording, annotating, posting video lessons and online discussions. Both the technical instruments and processes associated with the FLM can be, as Wang and Reeves (2003) assert, easily mastered by both educator and learner.

Despite the contribution of technology to the blended learning approach of the FLM it is vital that educators appreciate that it is their skill, talent and know-how that as Bergman and Sams

(2012) insist, provide the greatest benefit to the flipped learning model and any flipped classroom.

2.5.5 FLM and the Role of the Educator

The FLM shifts educators' focus from lecturing and presenting content to facilitating learning. This changed role has been described, as a shift from being a "sage on the stage to a guide on the side", and more importantly (citing Mc William, 2008), to being "a meddler in the middle" (in Hunt, Chalmers & Macdonald, 2012: 27).

Wisdom, guidance and meddling require sound epistemological grounding; a well thought-out and tested pedagogy and a sophisticated methodological set of skills. Educators need to select not only appropriate learning modalities but also the activities that will best engage learners in active learning. Scott (2005) found in his study of nearly 95,000 graduates that students really "appreciate a range of interactive classroom learning strategies such as buzz groups, debates, lectures and small group work for peer learning, independent study and negotiated learning" (in Hunt, Chalmers & Macdonald, 2012:27).

Educators' employment of blended learning becomes particularly impactful against the background of a constructivist rather than behaviourist epistemology. This is because as Brooks and Brooks (1999) point out, educators in constructivist classrooms generally behave in an interactive manner, mediating the learning environment rather than disseminating information in a didactic fashion. The constructivist educator actively seeks learners' opinions and interpretations in order to assess and facilitate the expansion of their in-depth understanding. They are less directly concerned with using correct/incorrect answers as the primary measure of learners' understanding.

Brooks and Brooks (1999), in comparing aspects of traditional and constructivist classrooms, indicate that traditional classrooms tend to strictly adhere to a fixed curriculum in which learners' educational needs are secondary. Learners are often viewed as "blank slates" onto which information is etched by the educator. This is in contradistinction with the constructivist FLM educator's treatment of learners as thinkers with emerging theories about the world.

Significantly, O'Brien and Hart (1999: 78) make the connection between the adequate preparation of learners for employment and the value of the active learning environment characterized by flipped instruction:

> *It would seem therefore that the introduction of teaching methods which encourage active learning will not only improve the quality of understanding of the subject by students, but also provide the acquisition of working patterns and skills that employers seek in business graduates while, at the same time, ensuring that the tertiary education sector is fulfilling its educational, social and economic remit.* (O'Brien and Hart, 1999:78)

Many educational researchers support O'Brien and Hart in so far as they see the current instructional models as increasingly outdated and ill-equipped to deal with the demands of the Information Age (Grey, 2009; Guilfoyle, 2006; Robinson, 2011).

These researches reflect an epistemological allegiance to pedagogies which, in Bernstein's terms, employ weaker than standard systems of classification and framing. They also attribute considerable agency to the PRF, thereby implicitly challenging the legitimacy of the ORF. Clearly, the Flipped Learning Model and any pedagogy associated with constructivist thinking, requires an ORF/PRF alignment. At the very least, however, the classification system informing the ORF needs to demonstrate enough elasticity to enable reasonable amounts of active and blended learning such that elements of the FLM can be meaningfully applied.

Chapter 3

Research Methodology

3.1 Ethical Clearance

Ethical clearance for this study was obtained from the Research Ethics Committee of the School of Education at the University of the Witwatersrand (Wits) before any research was undertaken (see appendix 9). Permission was granted by the Principal of the school to carry out the research the school (see appendix 10), while all four of the participants were informed about the confidentiality of information gathered, and gave informed consent for their participation (see appendix 11). They were also assured that they were free to withdraw from the research at any time. In fact, one of the participants fell out of the research after the initial interview and had to be replaced. The participants comprised four Grade 8 educators. The names of the participants were never used in order to protect their identities.

3.2 The Research Techniques

The research for this study was conducted at a private school in Johannesburg during September of 2014. The intention of the research was to explore the impact of the Flipped Learning Model (FLM) as 'pedagogy', on the teaching practice of educators. The school is a well-established, co-educational, multi-cultural, private high school which draws its learners from the mainly affluent areas of Johannesburg north. It is a high-performing school which offers a wide range of co-curricular activities. Educators are all well trained with university degrees.

The central aim of the research was to assess the effect that the FLM had on a group of four educators' practice and the way in which it might redefine and reposition their role in the classroom. In particular it aimed to assess the ways in which the FLM would impact on the educators' power and control over the selection, sequencing, pacing and evaluation of school knowledge. The research was conducted with the intention of contributing to the limited existing knowledge, about ways in which educators are responding to the introduction of the FLM as pedagogy.

The broader research questions were:

- What impact does introducing the FLM have on educators?
- What challenges are created when educators introduce the FLM into the 'classroom'?
- How do educators deal with the challenges of engaging the FLM?
- Which conceptions (aligned with or antithetical to the FLM) do educators hold when introducing the FLM?

Since qualitative methods are the most effective means of getting to understand the human experience and the meanings ascribed by individuals living the experience (Mason, 2006), they are ideally suited to this study. As such, the study employs a qualitative methodological

research approach to enable an in-depth understanding of the psychosocial impact that educators experience when introducing the FLM in their teaching practices.

The purpose of a qualitative methodology is to describe and understand, rather than to predict and control (Streubert and Carpenter, 1995). Qualitative research aims to provide researchers with the subjective/inter-subjective 'data' needed to enable depth understanding ('verstehen') and meaningful accounts of human experiences; behavior; perceptions; attitudes and so on (Mason, 2006). It seeks, as Greenhalgh and Taylor (1997:740) assert, "to study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings that people bring to them." The use of qualitative techniques provided me with the opportunity to capture the complexity of the educators' experiences when using the FLM in their "natural setting".

The research procedures employed in this study included in-depth interviews and participant observation.

The empirical research took six weeks to complete. During the first week, pre-implementation interviews and a FLM workshop took place. During the second and third weeks participants prepared instructional material for the introduction of the FLM. During weeks four and five, the participants introduced the FLM into their teaching practices and it was during this period that participant observation was employed. Participant observation was followed, during the sixth week, by the employment of post-implementation interviews.

Grade 8 classes provided the 'sample groups' as all learners in this grade were part of an iPad pilot project and had access to mobile technology. (Access to information technology is a criterion for the successful implementation of the FLM.)

Educators, taking part in the research, all taught at least two Grade 8 classes in the same subject. One class acted as the experimental group and was taught through the FLM, while the second class acted as the control group, such that no changes were made to the educator's standard teaching practices. (After the six week research engagement, for ethical reasons, the control group was given the opportunity to be taught using the FLM. However, this was not documented as part of the research).

Educators were also chosen according to the subjects that they taught, as the research required that educators represent different teaching disciplines. This was to enable a comparison between data collected from educators teaching in the Maths/Science disciplines and those teaching in the Language/Humanities disciplines. Due to the withdrawal of one of the original participants, two Maths educators were used in this study. The other participants represented the discipline of Social Sciences (History and Geography) and Technology. Three female and one male (Maths) educators comprised the sample.

After the first set of interviews, a FLM workshop took place, an account of which follows in the next section. The workshop was intended to familiarize the participants with the FLM. Educators at the school have very little knowledge or experience with respect to using the

FLM. Following the workshop, participants were given two weeks to prepare instructional material for their classes.

As Interviews are a method used which "enables participants to describe their situation" (Stringer, 1999: 68), these took place at the beginning of the study, before the workshop, and again at the end of the study. According to Reinhartz (1992: 19), "interviewing offers researchers access to people's ideas, thoughts, and memories in their own words, rather than the words of the researcher". Semi-structured interviews allowed me to ensure both that research questions were, in all cases, comprehensively addressed, and that where required, respondents' responses were further clarified and probed.

The first set of interviews, lasting approximately an hour each, investigated the conceptual frameworks and pedagogy which respondents relied upon in their respective teaching practices and significantly also, their expectations of the FLM. With the consent of the participants, interviews were audio-taped for accuracy and transcribed soon after the interviews were completed (see appendix 2).

The second set of interviews, conducted in the same way as the first set, explored the experiences and the challenges of introducing the FLM among the research participants as well as the attempts the respondents made to address the challenges (see appendix 8).

Participant observation enables the systematic transcription and recording of events, behaviours, and objects facilitating a detailed, in-depth and qualitative appreciation of the pedagogic process (Marshall & Rossman, 2006). It is a methodology which relates as Gold (1958) asserts, to four qualitatively different research techniques. Whereas, Gold contends, "complete participation" is situated at one end of an observation continuum, "complete observation" is situated at the other end.

The observational technique, "participant observation" adopted in this study is situated in the centre of Gold's observation continuum. Gold regards participant observation as a research technique requiring that "the researcher is a participant in the group who is observing others and who is interested more in observing than in participating…" Notably, Adler (1994: 380) considers the researcher utilising this form of participant observation to be filling a "peripheral membership" role in the research setting.

This study utilises participant observation with respect to gaining a value-free and in-depth account of the application of the FLM, as well as of traditional pedagogics, in the experimental and control group settings respectively. Significantly, observations undertaken with respect to the FLM Workshop do not qualify as participant observation. These observations were undertaken in order to ensure both that Flipped Learning methodology was properly explained, and that educators were adequately and similarly qualified to apply the experimental intervention. In short, researcher participation in the workshop was undertaken in order to safeguard both the reliability and validity of the study.

This methodology provided me with the understanding and insight (i.e. 'verstehen') needed, to observe and intuit the explicit and implicit procedural dynamics attached to the respondents' engagement with the FLM. Participant observation of both the experimental groups as well as the control groups took place on two occasions during the course of the research (see appendices 3-7).

3.3 The Research Design

Bernstein's framework of pedagogical practice facilitated the utilization of an appropriate and powerful means of codifying the qualitative data gathered. A 'Bernsteinian' 4-point scale 'measuring' classification and framing was used. It ranged from very strong to very weak classifications (C+ +, C+, C-, and C- -) and very strong to very weak framing (F+ +, F+, F-, and F- -). This instrument generated by Bernsteinian scholars such as, for example, Morais and Neves (2001), provided the modality through which pedagogic practice was considered (see appendix 3-10).

In short, the 'Bernstein' Classification (C) and Framing (F) scales were employed to establish the extent of change in pedagogy, as a consequence of changes in classification and framing, following the introduction of the FLM. The scales enabled me, in other words, to both consider the boundary strength between and within learning spaces and subjects (i.e. classification) and the demarcation of and between pedagogic identities with respect to control of the pacing, sequencing and evaluation of 'lessons'. In short, the C and F scales allowed me to determine whether and/or the extent to which a recontextualizing process with respect to pedagogy and curriculum occurred during the educators' application of the FLM methodology.

The C scale enabled an assessment of the boundary strength between subject disciplines (collection or integration codes) and topics and spaces. In the respondents' standard classrooms (exemplified in their control groups), the boundary strength would be strong, ensuring that distinct boundaries are kept between subject disciplines and subject topics. The successful implementation of the FLM should show a significant weakening of boundary strength and thus a blurring of disciplines as well as of topics within disciplines, thereby ensuring an integrative learning approach.

The way in which physical space is organized in the classroom highlights the boundaries and asymmetry underlying pedagogic relations between educator and learner and between learners and learners. In short, the way in which the educator manages his or her instructional space may well be understood to demonstrate the power differential between educator and learner. In this regard I considered the educator's primary physical placement in relation to the placement of learners' desks, as well as the allocation of work to be done at home in relation to that which was allocated to the classroom, to be boundary determinants. I considered, for example, the educator centering him/herself in front of the class to be a determinant of a hierarchical pedagogic relationship – in which the educator 'takes centre

stage'. On the other hand, educators' moving between learners is treated as a measure of a more symmetrical pedagogic relationship. Similarly, the extent of holding versus sharing ideas, through listening and talking, etc., were used as other means of determining the nature of the pedagogic relationship.

Similarly, I used the arrangement of learners' desks as a measure of the learner to learner space. Seating arrangements in which learners' desks are grouped together shows a sense of collaboration and cooperation, while desks that are separated into rows such that learners are separated from one another implies social distance. Gender, ethnic and racial seating clusters were, for example, closely observed.

The successful implementation of the FLM should show a weakening of boundary strength, integrating both the space of the educator and the learners as well as the space between the learners themselves.

Significantly, the Bernsteinian F scale enabled me to compare the type and extent of framing characterizing the experimental and control classrooms. In short, it facilitated my determination of the frame of the pedagogic process and the extent to which the educators were willing to loosen their control over the frame. Coding framing changes allowed me to determine the degree of learner control/involvement in their own learning. Notably, I was able to assess the extent of learner participation in the sequencing and pacing of (portions of or complete) lessons, and importantly also, the choice of assessment instruments and criteria.

In short, whereas the frame in a 'standard' classroom (such as the control group classrooms) is usually strongly and unilaterally determined by the educator, the successful implementation of the FLM sees a distinctly collaborative approach in which both the educator and learner are active education agents.

The hierarchical relationship between educator and learners in the classroom defines the pedagogic identity of both the educator as well as the learners. In addition, classification between learners shows the degree to which the learners' individual pedagogic identities are explicitly demarcated. The constructs of classification and framing have given me a language with which to describe the educator-learner relationship as well as the challenges arising from the introduction of the FLM. Classification provided a framework for exploring relationships between different categories, while framing gave me a framework for exploring relationships within these categories.

Bernstein's constructs ('classification' and 'framing') provided me with a useful 'means' of describing and understanding the pedagogic changes and challenges that accompany the introduction and implementation of the FLM. It was via the exploration and analysis of these changes and challenges that I was able to explore the impact that the FLM had on the participants' teaching practices and identities.

3.4 The FLM Workshop

Following the pre-implementation interviews, a FLM orientation and preparation workshop was held with the participants under the aegis of **Think Ahead** – a private company with expertise in teacher training, curriculum integration and blended learning.

The workshop, was, in so far as it was possible, and designed to 'educate' the participants with respect to the FLM via the use of the model itself. All of the participants reported having familiarized themselves with resources which the facilitator had sent to them prior to the workshop.

iPads were made available for those who had not brought their own or had not managed to preload the required computer applications (apps) for the workshop. iPads also enabled the participants to use **iTunes U** in the workshop.

The facilitator commenced the workshop by using the **Nearpod** iPad app to (instantly and with the participants watching) transmit content and assessment data onto the screen of an **Apple TV** situated in the classroom. She was thereby able to both see and assess the participants' knowledge of the workshop material and simultaneously demonstrate the efficacy and value of utilizing technology in the classroom.

Ironically, the workshop assessment methodology exposed the participants' failure to have adequately viewed the 'prescribed' pre-workshop material (Appendix 1). This knowledge required that the facilitator recalibrate her workshop plan, to include the revision of homework content. The participants were able to see how technology in the classroom enables educators to establish whether or not their classes require homework revision.

Indeed, given the participants' inadequate attention to their own 'homework', classroom revision of content was required. The facilitator downloaded the FLM tutorial which she had prepared for the participants – on **ITunes U**. She used the workshop time to 'revise' and reinforce the participants' understanding of the tutorial content. The participants were then given an hour to (re)work through the material, while she walked around and assisted each individually when needed.

Participants worked through the content at their own pace. They used headphones when audiovisual material was presented. Those who understood the content moved on to the next section, while those that needed more time were able to rewind and review or reread sources.

Once satisfied that her learners understood the subject content, the facilitator went on to lead an active discussion on learning objectives and lesson planning, during which she deliberately prompted conversation around Bloom's taxonomy.

Following the group discussion, participants worked together to debate and thereafter classify those learning objectives in Bloom's taxonomy that they believed best lent themselves to flipped learning. They concluded that learning objectives which focus upon

memorization and concrete operational reasoning or, in some cases, pre-operational 'lower order thinking' should constitute homework, and those which address new conceptual frameworks, or require critical thinking, evaluation, and analysis be dealt with in the classroom.

The facilitator then downloaded the app '**Explain Everything'** to assist participants' understanding of the best flipped learning practice. '**Explain Everything'** demonstrates how educators (and learners) can plan and design presentations for external (home/professional) viewing. It enables the presentation of data/information through such activities as drawing, presenting diagrams and graphics to producing one's own voice-overs and videos.

Once the participants had gone through the app's tutorial and had made their own short video presentations, the trainer facilitated 'creative' engagement and debate around the "FLM experiment" with which they were to engage. The matters considered here Included:

- The most appropriate methodologies for educator use in the flipped experimental classroom

  It was agreed that, given the short duration allowed for the preparation of flipped learning resources (two weeks) the standard flip would be employed. Here videos and resources are simply made available to learners via the internet.

- The resources best suited to employing the FLM

  It was agreed that participants could use resources already available on the internet and/or create their own content by using an app such as 'Explain Everything'.

- The subject matter to be covered during the two preparation weeks

  It was agreed that participants would follow, as closely as possible, their respective syllabi.

- The volume of work to be covered during the two implementation weeks

  It was agreed that participants would, as far as possible, work (from commencement to completion) on a topic (Technology and Social Sciences) or concept (Maths), requiring approximately two weeks to 'teach'.

- Assistance with respect to finding and /or making resource material

  I agreed to make myself available for the two weeks leading up to the start of the 'experiment'.

Chapter 4

Results

This section reports on the findings of each participant interviewed and observed in the research project. With each of the four participants I address and consider their responses to their preferred teaching practices; the implementation of the FLM; the challenges of the FLM; and the way that they dealt with these challenges.

The findings reflect the experiences of a selected group of educators, in a specific private school and from a specific province in South Africa, with its own unique peculiarities, strengths and weaknesses. This study employs an idiographic methodology to explore the FLM. In so doing, it hopes to inform both the future introduction of some elements of FLM in 'traditional classrooms' and the planning of larger/nomothetic studies. In attempting to explore the impact of the FLM on educators' teaching practice, I needed to capture the changes that took place with the introduction and after the implementation of the FLM. In order to do this it was imperative for me to understand the current and preferred teaching practices of the participants. This I did by interviewing each participant prior to the implementation of the FLM (pre implementation-interviews). I was very well aware of the fact that these interviews would represent participants' perceptions and feelings and not represent their actual practices. Thus the importance of the observations of both the control group as well as the experimental group.

By coding control group findings with regard to classification and framing I could confirm the normal teaching practice of the participants before the introduction of the FLM. By coding the results of the experimental group, i.e. the group using the FLM, I could track and confirm the changes in each participant's teaching practice. In short, experimental research design was selected in order to enable me to determine the impact of the FLM on the four educators' teaching practices.

Participant 1

Participant 1 is a 34-year-old female educator, who started her teaching career in 2006 by tutoring students. She started teaching at a formal school in 2010. Presently, she is a permanent, full time Maths teacher, teaching a range of secondary school grade levels. She has been in the current school since January 2010.

Pre-Implementation Interview

The first set of questions dealt with the way Participant 1 perceived her normal teaching practice as well as the way she understood the FLM. I have reported on this using the language of Bernstein in terms of classification and framing.

Participant 1 described her classroom as being a mainly learner-centered class:

> *Mainly learner centered. Making sure that the right questions are being asked… you are guiding them, you are not telling them which questions to ask but you are leading them to where you would like them to find the information. I think you can't just throw one question out there and randomly let them go wild.*

A learner-centered class would necessitate a weakening of framing in terms of the control she had over the selection, sequencing, pacing and evaluation of knowledge in her classroom. The next set of questions related to the participant's framing.

When asked about who controlled the selection of the content that was taught in her class, she was in no doubt that this was controlled externally by the constructs of the CAPS curriculum:

> *CAPS… it's a bit unfortunate, I think, as we are so jam packed with trying to get the syllabus done that we've got very little room to do anything else different, interesting, more real life. I would love to do different lessons but we're just trying so hard to finish the syllabus that we are controlled by that. We have to teach what is in the curriculum.*

A similar response was received when asked about who controlled the sequencing of the lessons, yet there seemed to be some room to manoeuvre, as long as this was recorded for anyone wanting to inspect what was happening in the class:

> *CAPS is quite careful in what they say we need to do, but wherever we have diverted from the CAPS document, we've always just written cover notes saying why we've diverted and we've never had a problem, or come backs or anything like that.*

With regard to the pacing of the lessons, a similar answer was given, in that the CAPS curriculum seemed to be quite specific and prescriptive in terms of the pacing of the class:

> *According to CAPS, they are expecting us to pretty much cover a concept every single lesson, which is impossible in Maths, that's why I am saying we're just running after a goal, we've got no time to divert or do something fun. It's just getting that syllabus out there… time wise they do give us allocations, but I don't know if they are that realistic.*

With regard to assessment, here again CAPS dictated the evaluative criteria:

> *Obviously with CAPs they prescribe once again, the different levels that you've got to ask, the sections, what percentage of each section should be in the exam.*

The answers to the above questions seem to suggest that due to strong external framing, the participant has weak control or limited options over pedagogic practice. Participant 1 saw the

CAPS curriculum as being strongly prescriptive and requiring her to teach a huge amount of set content in a particular sequence at a particular pace in order to evaluate learners according to a set of prescribed criteria. This would imply that she would be unable, in her present pedagogy, to provide learners with more control over their learning. Interestingly, when it came to sequencing, she felt that she had relatively more control and that as long as it could be justified, she could sequence her lessons differently to what was prescribed within the curriculum.

The next set of questions dealt with the way the discourse, agents and spaces seemed to be classified in her classroom. A learner-centered classroom should see a weakening of the classification of categories.

When asked whether she integrated her subject with any other subjects, she answered in the negative:

> *Not really, I suppose it overlaps a little bit with Science but sometimes the Maths teachers and the Science teachers, the way we do things is very different. I know that the Science teachers get irritated with the way we do things.*

In terms of her relationship with her learners, she liked to think that she had a good relationship with them but that she remained in control:

> *I'd like to think that my students see me in control but at the same time find me very approachable…They are not scared of me.*

In terms of classroom rules, they seemed to be explicit:

> *Um, when I talk, you don't, um…I expect them to do their work, I don't police their work every single day.*

When it comes to spaces, it seems like the categories between students of different abilities are strongly classified:

> *So at the moment, like I say, I've got my center section where the students are battling, I've got my front rows where the students who battle to see the board sit and then I've got my side row where they are coping but are welcome to ask me any questions.*

The answers to the above questions seem to suggest that the categories of discourse, space and agents are strongly classified. This suggests that there are unequal power relations between the categories and in particular within the pedagogical relationships.

The next set of questions revolved around the participant's understanding of the FLM. Participant 1 had no experience in using the FLM and had only heard of the concept. Her understanding was as follows:

> *I pretty much thought it was just the students…, you giving them the topic, they need to go home and research, do as much reading up on it as they can and then come back to you with hopefully some kind of understanding before you start.*

I also questioned what the perceived challenges might be when implementing the FLM:

> *I worry that they'll go home and learn something the wrong way …Well I suppose there's no way of learning something the wrong way. If they are learning it and understanding it, then it's fine. But I worry that they might get a misunderstanding somewhere along the line, a gap… that they come back and now there's a problem because of that gap. I don't know, I've never tried it with Maths to be honest, so…*
>
> *I think the challenges are going to be to get the information across in a way that they understand it, but still getting the content across that they need to learn. They need that content to be absolutely perfect. I think that that's going to be the challenge. They need to be able to understand, it needs to be at their level but at the same time it needs to be technical enough that the actual content comes across.*
>
> *Um… the students that aren't going to go home and do that. I'm going to be policing who hasn't actually watched those videos. How do you… how do you cope with that? I know that there are students that aren't going to do the work at home. They don't do their homework currently, I'm pretty sure that they aren't going to. I suppose another challenge will be making the videos interesting enough to make them want to go home and watch them.*

The pre-implementation interviews already indicated that there was a concern by Participant 1 over the use of the FLM. Interestingly, at this stage, the concerns were less about the mechanics of implementing it, and more about the loss of control over the teaching and learning process. The concern was mainly around the learner's contribution to the successful implementation of the FLM in that they would not do the work and not be able to learn the content through flipping the class. At this stage there was far less concern around the educator's contribution to its success, although she did mention her concern at the end that a challenge would be having to make the videos interesting enough to make the learners want to watch them. At no stage did she discuss the challenges that might arise in having to adapt the FLM within the classroom.

Observations

Control Group (see appendix 3 for observation schedule)

The classroom was set up in groups. Learners entered the class looking relaxed, and took their places according to mathematical ability.

A picture of a circle was projected onto the board and learners were asked to come up to the board and label the different parts of the circle. If they correctly labelled the part, the educator would acknowledge that they were correct and if not she would call upon another learner to make the correction. I assumed that the educator was recapping a prior lesson in order to find out how much the learners could recall. However, the reason for the activity was never made known to either myself or the learners.

Learners were then given a worksheet which showed circles of various sizes and were asked to measure the diameter and radius with a ruler and the circumference with a piece of cotton. Once this was done for all four circles, learners were asked to look for what was common when examining their results.

During the activity, learners were talking among themselves, assisting one another, explaining concepts, etc. After some time, the educator asked the learners what they had found. Learners shouted out a range of answers including πr^2. At this point the educator told them what they should have discovered, without really asking the learners, by saying:

> *If you take the circumference of your circle and you divide it by the diameter, you will get an answer of Pi. Therefore the definition of Pi is the relationship between the circumference and the diameter of a circle…right...yes?*

The students then answered "yes". The educator then went on to say:

> *I'm going to give you a formula that you can use to find the circumference of a circle, and that formula looks like this…circumference is equal to diameter times by Pi.*

She then asked the learners if they all understood and if they were happy. Some of them replied in the affirmative after which she then gave them a worksheet to calculate either the diameter or the circumference of the circle depending on what values were missing. What they did not complete in the remaining 10 minutes of the lesson was given for homework. I was not sure how the educator would actually have known whether the learners had understood the lesson.

Experimental group (see appendix 3 for observation report)

The learners entered the class in the same relaxed way and took up their places in the same format (groups) and the same groupings (academically) as the control group. The introduction to the class was very similar to the control group in that the learners were asked to name the parts of a circle on paper. Learners simply googled an image of a circle and started to label

the circle. The educator then asked learners to come up to the board and to label the circle on the board as with the control group.

Once the circle had been labelled, the educator asked them to download an app which took them to different locations around the world where there was a landmark which was circular in shape. The learners then had to use the information they had acquired (πr^2), through watching a video at home, to calculate the area of the given landmark. Out of the 20 learners, only six had watched the video at home. The learners were not given the four circles on paper that the control group had been given. Rather, they were asked to download a distance measurement application to use to measure the circumference and diameter of the circle of the landmark they were given. Thus the control group used circles on paper while the experimental group used real landmarks. However, the classroom exercise amounted to the same thing.

The main difference was that in the control group the learners, with the help of the educator, who eventually gave them the formula, had to work out how to calculate the area of a circle, whereas the experimental group already had the formula, and now had to apply the formula to find out the area of given landmarks.

Through my observation of the lessons, I noted that there was very little difference in the way the two classes operated. Both classes were strongly classified in that the subject (Maths) was strongly insulated from other subjects. While the experimental group used landmarks in the real world, which could have been seen as an attempt to integrate Geography into the lesson, the background to these landmarks was never discussed or used to explain why these landmarks were circular in shape. They were only used as far as being able to calculate the area of a circle. As far as the integration of other mathematical concepts or topics was concerned, the classification was also strong. The only concept discussed was that of the calculation of area.

In terms of space, in both classes, the educator moved around during the activity and so there was a weaker classification between the space occupied by the educator and the learners. However the spaces between the learners themselves, was strongly classified in terms of learner ability, with weaker learners in the middle groups and stronger learners in the outside groups.

Within the pedagogic relationship, the classification between the role of educator and learner was strongly classified in both classes. The educator remained the main source of information. In the control group, while learners were asked to come up with the formula to calculate the area of a circle, they were never given the opportunity to share how they managed to derive this formula or even whether they had managed to do so. Thus their “thinking” remained invisible and learners were not given a voice. The educator gave the learners the information required and ensured that she told them what the formula was, even before they had an opportunity to discuss their findings with her. Thus she established a hierarchical relationship with the learners, where she remained the knowledge provider and they remained the

knowledge receivers. While the knowledge was provided through a video to the experimental group, the activity presented to the learners was similar to that of the control group – the only difference being that the experimental group was given the formula for calculating the area of a circle beforehand. The fundamental change that should have occurred when using the FLM did not produce an opportunity for students to think creatively or critically. There was no need to be innovative or to use problem-solving skills. The lesson was based on using prior knowledge to do a lower order activity in which learners were required to measure distances and to use these measurements in order to find missing measurements with which to calculate the area of a circle. All that was required was the ability to follow the formula. Throughout both classes the rules were explicit and the talk was instructional when content was being delivered and question/answer talk was used when the educator was requiring a response from the learners.

While the CAPS curriculum was being followed, the educator was in control of ensuring that the prescribed content was being transferred and within the sequence that was required. The pacing of the class was in the control of the educator, who ensured that she finished what needed to be done by the end of the class. In terms of assessments, due to the short time period allocated for this research, I could not determine the framing around summative assessments. The formative assessments being done in class were strongly framed with explicit criteria which had to be met by certain time frames. The assessments were not differentiated in any way, nor was there any sign of individual feedback. Thus as far as I could determine the framing within the classroom was strong and was the same for both the control group as well as the experimental group. Both classes were traditional, with the exception of the students sitting in groups. However, this seemed to be more about seating arrangements and less about the interaction between the learners. Sitting in groups seemed to classify the class as a learner-centered classroom in the mind of the educator, when in fact very little collaboration with regard to lesson outcomes took place.

Post-Implementation Interview

The post-implementation interviews were intended to explore further the findings of the observations. As mentioned, the observation data recorded from Participant 1's control class were identical to those of her experimental class, which identified that the classification and framing values remained the same. Thus the classification and framing remained strong, showing that there was in fact no change in the power and control relationships. This would establish that there was no change in the pedagogy between the two groups and therefore indicate no impact on the actual teaching or outcome for the experimental group. The reason behind this is what was at the heart of the post-interviews.

When asked about how she experienced the FLM, Participant 1 expressed enjoyment in the planning of the lessons but not in the implementation of the lesson:

> *I honestly can say that I enjoyed the planning of it, now that I knew that I was going to have the little bit more time in class to plan something creative or more hands on. I*

> *enjoyed the planning phase of it, very much. I don't know if I enjoyed the implementation of it that much, purely because of them (learners) not doing their part*.

While my observation of her experimental class had shown that most of the learners had not watched the video, this had made very little difference to the planning of the in-class activity. Learners were able, through prior knowledge and peer learning, to calculate the surface area of a circle. What was missing was the active learning and higher order activity which is needed when implementing the FLM successfully. Participant 1 had in no way given up any control over her class and remained in a hierarchical pedagogic relationship with her learners.

When asked about what she found most useful or helpful about the FLM, she answered that it enabled her to re-look at the way she taught:

> *I think, I enjoyed the fact that I was being forced to look at a section from a different point of view. So instead of my normal teaching, standing, doing, this is how I've always done it, I was now being forced to say, right, here you've got two different scenarios, how are you going to approach it. It forced me to go and think of different creative ways, so I really enjoyed that. I think that it can be helpful, if everybody does do the work, um, to gain that extra time in terms of a nice activity.*

Participant 1 seemed to acknowledge that the positive aspect of the FLM was that it enabled the educator to re-think their pedagogy. This confirmed my initial thought, that her normal/preferred teaching practice was in fact a more traditional educator-centered pedagogy. However, even though she had enjoyed thinking about alternative pedagogies, she was unable to move from her normal/preferred teaching practice, thus both classes ended up being taught in the same way. The classification and framing remained strong.

The next question enabled me to explore what Participant 1 found most challenging about the FLM:

> *I had very little control over the stuff that they did at home and also the way that they perceived it at home. You know, you give them the formula, but you don't know if they're actually looking at it in the right way, you're not there to see it.*

Participant 1 was also extremely worried about the lack of control that she would have over what the learners were doing at home. In the classroom, she felt that she could 'direct' them:

> *I think in the classroom, I can at least see, um, the learning that's happening, you know, if they're investigating something, I can see that they're on the right track. I'm not going to tell them what track to be on but I can at least guide them a little bit, whereas the flipped learning model, they A weren't doing it and like I say B they might have been looking at it completely incorrectly and I wasn't there to …redirect them.*

Her use of the word 'redirect' implies that she preferred the classification in her classroom to remain strong. She felt that she needed to direct the learners in the learning of content. This

implied a strongly educator-centered classroom where she was identified as the content provider. This was confirmed by the observations.

She was extremely concerned that without her input, learners would not be able to get the correct information in the right order and in the right amount of time. This showed that she was far more confident when she was in control over the content, sequencing and pacing of her classroom. Thus she wanted to keep the framing strong:

> *I think the fact that I know that I'm relaying the correct content to them, the fact that I know that, um, I'm relaying it in the right order. I know what I want them to perceive. I'm guiding them to that end point and pacing time wise. I suppose it's also that it's new to me, the flipped model that I was feeling not as in control of it.*

Participant 1 was also concerned with the amount of time that it would take to prepare a FLM classroom as opposed to her normal preparation:

> *I feel like the flipped class takes time out of your day, it's not done during working hours. The flipped classroom means over and above work, you have to put something together and that takes up time… although as a teacher, you go home and prep anyway, but after a while you don't need to prep anymore, especially if you've been there for three years, you know exactly what you're teaching , you just do it.*

She was also concerned that she would need to be technologically savvy:

> *Um… the Wi-Fi, it's always a problem. When they said, all of a sudden, that the app wasn't working, I got myself into a bit of a flap about it because I'm not very technical.*

Participant 1 also expressed a concern that with the implementation of the FLM, she felt useless in the classroom and that due to being used to teaching in her normal practice, the FLM was going to require her to change:

> *Um…I felt a little bit useless, I must be honest, I didn't feel like I was doing what I was supposed to be doing, um, I kept wanting to jump in and stand at the board and give them something concrete, but I had to keep forcing myself not to because I needed them to actually…learn through their own experiences, so I felt a little bit useless… I'm very set in my ways, and old school in my thoughts, so it's going to take a lot of change in me.*

The above comments show that her professional identity is defined by her being seen as being useful and this implies that she stands in front of the classroom and imparts concrete knowledge. The role of facilitator, promoted by the FLM, seemed to lessen her importance as an educator and made her feel useless.

When asked whether the FLM enabled her to use her normal teaching practice, it was apparent that it had not:

> *I'd say it wouldn't enable you…I think it should change it a little bit. I think it should be different.*

Participant 1 confirmed this by saying that she had remained completely in control in her class and that she had not given up any of the control over the selection, sequencing, pacing and evaluation of school knowledge

When asked as to whether she would continue to use the FLM in the future, she answered that she would but would change it compared to how she had implemented it during the research and possibly with older learners:

> *I will, I'd like to, um, I'd change it a lot, like I said to you. I'd like to try and make it more my own, um, and possibly I would use it on the older grades, where they may be more mature to understand that the work that they need to do at home, needs to be done, because I almost felt that on the grade 8's it had been lost a little bit, although, I know that we need to start at the younger ages. I feel like I need to try this with my older students.*

Participant 2

Participant 2 is a 26-year-old female educator, who started her teaching career in 2012. She is a permanent, full-time Social Sciences teacher, teaching a range of secondary school grade levels. She has been in the current school since January 2012. She has three years of teaching experience.

Pre-Implementation Interview

The first set of questions dealt with the way she perceived her normal teaching practice as well as the way she understood the FLM. Once again I have reported back on this using the language of Bernstein in terms of classification and framing.

Participant 2 described her classroom as being a mainly learner-centered class:

> *Predominantly…..learner-centered, I wouldn't say 90/10 but predominantly, learner-centered.*

With these answers in mind, I then asked questions which would explore her teaching practice further in order to probe her assumptions about her practice.

When asked about who controlled the selection of the content that was taught in her class, while acknowledging the constraints of the CAPS curriculum, she believed that she had a certain amount of control:

> *I do, to a certain degree, um… we are obviously given the curriculum which we have to follow um and that is checked, we get checked up on that.*

As to the sequencing of lessons, she felt that she was completely in control:

> *No, we definitely have control over that, we are given the topics we need to cover and then… find topics that can link to one another. So for example the textbook may be in a certain order but we will take the industrial revolution and the scramble for Africa, which is colonization, and do those one after the other, because they link nicely, so we do have control over that.*

With regard to the pacing of the lessons, a similar answer was given:

> *We have quite a lot of control um… we use our discretion with the different topics, if we feel that there is a certain topic that we can go into in more depth than the textbook says, we'll take extra time. If there is a topic that, you know, we don't feel in the textbook is worth spending six weeks on we will reduce it but as long as the rest of the department is in agreement. It will never be that one teacher spends six weeks on the industrial revolution and another spends two.*

With regard to assessment, she felt that in terms of formative assessment and class assignments, she was in control. However when it came to summative assessments, tests and exams, CAPS was in control:

> *We are very much in control over the assignments, the assignments that are done during the term, but with tests and exams, not at all. We have very strict guidelines of what we have to include in an exam and it's often quite a downfall for us because what we are trying to encourage in the students, critical thinking, thinking for themselves, not necessarily having to recall information and regurgitate it onto a page, which is what CAPS is all about.*

Unlike Participant 1, Participant 2 felt she had much more control over the content, sequencing, pacing and formative evaluation of knowledge. Perhaps this was due to the fact that she taught a different discipline (humanities). The answers to the above questions seem to suggest that she was very much in control over how she ran her class and would indicate that unlike Participant 1, she had control over her pedagogic practice. This would imply that she would be able, in her present pedagogy, to provide learners with more control over their learning should she wish to do so.

The next set of questions dealt with the way the discourse, agents and space seemed to be classified in her classroom. A learner-centered classroom should also see a weakening of the classification of categories. When asked whether she integrated her subject with any other subjects, she answered in the affirmative:

> *It's funny you say English because English is my passion, that's the subject I love, so I do, quite sneakily. They really struggle with the essays, and I try and give them clues on how to write an essay properly.*

In terms of her relationship with her learners, she liked to think that she had an open relationship with them but that she remained in control:

> *It's open to a certain extent, I want to be approachable, I don't want them to fear me or not want to ask any questions, but at the same time there is also a boundary that can't be crossed.*

In terms of classroom rules, they seemed to be explicit:

> *My grade 8's, I greet them, they greet me, it's not an authority thing, I've explained to them, it's not an old fashioned authority thing, it's just that I want to greet you and I want you to great me and it starts the lesson off.*

While Participant 2 described her normal teaching practice as being mainly learner-centered, her description of the power and control she had in her classroom seemed strongly classified and framed, indicating a far more educator-centered classroom. A learner-centered classroom would see a weakening of both the classification of categories and a weakening in the control over the framing.

The next set of questions revolved around the participant's understanding of the FLM. Participant 2 had no experience in using the FLM and had only heard of the concept. Her understanding was as follows:

> *Ok, what I understand by it is that, in a traditional classroom you would have a teacher teaching the content and the homework goes home and that is where the children basically apply what they have learned. The flipped classroom, the way I understand it, is instead of the homework going home the content goes home to be learned and then they come back and the homework is given to them in class and the teacher is there to assist and make sure that what they have learned is understood and applied properly.*

Participant 2 seemed to have a clear understanding of the FLM and how it should be implemented. Next I questioned what she perceived could be challenges to successfully implementing the FLM:

> *I wouldn't be able to control whether they went and learned the work. At the moment they are in the class and I know that they are all present, whether they are engaged or*

not is another story... I don't know if I trust that they would all go home and do what they were meant to do, especially if it, like homework could potentially be for a mark, so it needs to be done and handed in. If they go home and don't do the content, don't learn, I'm not necessarily going to know. There is nothing proving that they have learned it, there is, if they are filling out a questionnaire or a worksheet, it will be evident. But I can't go home with them and see that they are learning.

Challenges, the parents. The first problem could be the fact that one class is getting homework whereas the other is not. The other problem with the parents is, we pay the teachers to teach and so why are we paying if my child has to teach themselves. Um, another problem I foresee is that there are certain children that I know won't go home and learn the content, they don't even go home and do their homework, never mind having to go home and teach themselves something.

I also don't think that it's always possible to send them home to learn the work and for them to come home and fill an entire 40 minute lesson with a worksheet or some other task where they have to apply the work, I just don't see every single day having them applying for 40 minute what they have learned at home.

Participant 2 seemed to have very similar reservations in implementing the FLM as those expressed by Participant 1. The concerns were less about the mechanics of implementing it, and more about the loss of control over the teaching and learning process and the role of the learner in ensuring its success. Interestingly, she did voice concern that parents would have issues with learners having to learn work on their own. At no stage did she discuss the challenges that might arise in having to adapt her pedagogy within the classroom. While she described the purpose of the FLM, her last comment gave me room for thought as she seemed to suggest that applying knowledge in the classroom would entail learners having to fill out a worksheet for the entire lesson. I was hoping that the FLM workshop, which would follow the pre-interviews, would rectify this assumption.

Observations

Control Group (see appendix 4 for details of observation report)

The classroom was set up in groups. Learners entered the class looking relaxed and took their places. Generally boys and girls sat in gender groups, while they were mixed in terms of racial identity.

While no explicit rules were given to the learners, there was a sense that the teacher was in control over what was taking place. She greeted them and began by asking a few questions pertaining to urban development. These questions were asked by the educator and answered individually by learners who put their hands up. If learners were correct the educator would say "right" and if wrong the educator corrected them. Learners were then asked to view two

videos on urban settlement which were shown to them in class. Learners watched the videos tentatively but took no notes. After the videos a diagram was put on the board which depicted the structure of an urban zone. Learners were asked to identify the sections of the urban zone. This was done by asking particular learners one at a time, who then called out the answer. All learners were then given a hand-out with information similar to what was depicted in the video about urban planning. The educator started reading the notes aloud and then randomly chose students to read different paragraphs until the contents of the notes had all been read. Some learners, mainly the girls, highlighted areas of the notes. Those not highlighting the notes, mainly the boys, seemed bored. Although the learners had been given the content through watching the video, labelling the diagram and receiving notes in the form of hand-outs, the educator still felt that it was necessary to read through the notes with the learners. The follow-up activity entailed the learners using re-cycled material, made up of a paper plates, some coloured paper and parts of an egg box to build a model of an urban zone. The diagram was on the board. They were then required to take a photo of the model on their iPads and label it. Learners got to work while the educator moved between the groups, mainly to confirm the instructions that had been given about the activity. Most learners finished before the end of the period and then started to play games on their iPads. There was very little evidence of critical or creative thinking. While learners spoke amongst themselves, there was very little need to collaborate or communicate on the task that had been set. The task was a simple re-creation of the diagram that was on the board and labelling which could be found on the iPad.

Experimental Group (see appendix 4 for observation report)

The learners entered the class in the same relaxed way and took up their places in the same format (groups) and the same groupings (gender and racial) as the control group. The introduction to the class was very similar to the control group. However, not all the learners had watched the video on urbanization at home. There were various reasons including: no Wi-Fi; no time; forgot. The educator then decided to show the two videos to the class. After the video, the students were asked to fill in the diagram on a piece of paper that was handed out to them. This they had to do by themselves and then put their name on the back and hand it back to the educator. I presume this was the way the educator could find out whether the work had been done at home. However, this was never made clear to the learners. Once this was completed the learners had to do the same follow-up activity as the control group. They did not however go through the notes in class. I presume these were given to the learners before this class took place. The learners then went about putting together the model, while the educator moved between the groups, once again clarifying the instructions. Learners finished the activity well before the end of the lesson. This was mainly due to the fact that the educator did not spend time reading the notes to the learners.

This lesson was in many ways a repeat of the control lesson. The only difference was that the notes were given to the experimental group beforehand and so were not read in class. Learners used their iPads to get the information but as the activity was a see-copy-do type

activity, learners just googled the urban diagram image that had to be labelled. However, the follow-up activity was identical. Thus the main difference was that the experimental group had more time to finish the activity, which the control group had finished in the available class time. The experimental group was not given any different instructions or activities which required them to use creative or critical thinking skills. There was no evidence of a change in pedagogy.

Learners in the flipped classroom needed a more challenging activity, which would require them to use thinking skills. An active learning activity would have required the learners to not only sit in groups but to have collaborated and communicated with each other. Due to the fact that learners finished the follow-up activity way before the end of the class, this dispelled the notion held by the educator that there is no time to concentrate on the application of content knowledge due to the CAPS curriculum. Rather there seemed to be a lack of understanding as to what the FLM could achieve and more importantly a lack of understanding of a learner-centered classroom.

Both the control group as well as the experimental group were run identically. The subject being taught was Geography and dealt with urban development. At no time was there any attempt to integrate any other subject knowledge into the lesson. The topic of urbanization was also taught without integrating it to any other areas within the specialization of Geography. Thus the boundary strength between the subjects as well as between the topics within the subject were kept very strong. While learners sat in groups these groups were according to gender, with girls sitting together and boys sitting together. Even though they sat in groups, there was very little opportunity for the learners to talk to each other or collaborate. The educator stood in the front of the class for most of the lesson, while learners viewed the video, labelled the diagram and read the notes. Thus the boundary strength between the space of the educator and the learners as well as between the learners themselves was strong. The pedagogic relationship between the educator and the learners was clearly defined from the moment the students entered the classroom and remained that way throughout, with the educator clearly being the provider of rules and content, while the learners were there to obey the rules and receive the content. Thus I would draw from my observation of the class that the categories were strongly classified.

At all times the educator was in control over what was taking place within the classroom environment. The content (videos and hand-outs) had been chosen by the educator, the sequence in which the class progressed as well as the pacing was also controlled by the educator. The only form of assessment (formative class assessment) was also controlled and directed by the educator and took the form of questions directed towards the learners, where there was either a right or wrong answer. When it was wrong, the educator gave the learner the correct answer.

As the two classes of Participant 2 were almost identical, the classification and framing values remained the same.

Post-Implementation Interview

The post-implementation interviews were intended to explore the findings of the observations. As mentioned the observation data recorded from observing Participant 2's classes showed that the classification and framing values remained the same in the experimental group as those recorded in the control group. Thus the classification and framing remained strong, showing that the FLM did not seem to be implemented successfully. These interviews were intended to try and assess why this was the case.

When asked about how she experienced the FLM, Participant 2 expressed frustration with the reality of implementing the FLM.

> *It was quite frustrating at times. Um…, just because of all the things that went wrong and unforeseen issues that came up. The one I mentioned to you at the observation lesson was the fact that I had planned this entire presentation on a certain app and uploaded it and spent a lot of time doing it only to find out that the kids couldn't view it because they didn't have the app and the app wasn't free, so I couldn't expect them to now pay for the app.*

While I understood the frustration of Participant 2, I was now convinced that she did not have a clear understanding of the role of the FLM in changing her pedagogy to incorporate active learning within the classroom. Her frustration at the learners not having the app with which to view her presentation, did not justify the fact that the in-class activity was exactly the same as that of the control group and required no higher order thinking skills. In the class that I observed, it would have made no difference had the learners viewed the presentation at home or in the class as the follow-up activity was identical. Participant 2 had in no way given up any control over her class and remained in a hierarchical pedagogic relationship with her learners.

When asked about what she found most useful about the FLM, she found that it allowed her to intervene more easily, in that the FLM differentiated the class into those who understood the concepts as opposed to those who had not yet understood them:

> *Um, I found it helpful to pinpoint, where the kids didn't understand something. Provided that they had gone home and done the research and the learning. If they came to class and didn't understand something, it was very easy to pick it up. Just because they, you know, they would be doing an activity that was given to them and they'd be doing it wrong, or they'd have a certain aspect of it confused with something else and then it was easy for me to go in and intervene and explain to them the correct way to do it.*

The next question allowed me to interrogate the challenges experienced in implementing the FLM. This would speak directly to the difficulties in implementing a change in pedagogy and enable me to further explore the impact this would have on the educators.

When asked about what she found most challenging about the FLM, she expressed concern over losing control over the learning process:

> *The fact that the kids would come to class and I personally wasn't sure if they had done it, um, and I wasn't confident knowing that they completely understood everything… I feel that I lost control over the actual learning.*

One of her biggest fears was that left on their own, learners would do the "task" incorrectly and educators would not be there to correct it immediately and would have to "reteach" it:

> *Yes, if they had gone home with the task, and did the task incorrectly, you would only be able to deal with it once they got back to the class and …you know, it's sort of now set in their minds that that's the way to do it, and you've got to sort of re-teach it, whereas you can now intervene before it is engraved in their minds, as the right way to do it.*

This answer confirmed that Participant 2 was struggling with the concept of the FLM and its correct implementation. The whole point of the FLM is that learners don't have to go home and do a "task" as this is meant for the class, where the educators can help the learner. Participant 2 seemed to be confusing the word "task" with content and her fear seemed to be that learners would learn the wrong content and that she would have to re-teach the content. Her answer to this question also proved that her classroom did not involve any weakening of the framing when it came to the way in which content was taught. Learners were not given an opportunity to challenge the "right way" of doing things. The educator's role was strongly classified as content provider and within that category, her control over the way teaching and learning took place was strongly framed.

She also expressed a lack of confidence in the majority of learners going home and learning the content:

> *I didn't have confidence that they would go home and do what they had to do, because, I know that there are certain students who would, that would absolutely go and do it, and go above and beyond, go and research and do more but they are very few and far between.*

From her next response, I could get a reasonable idea of the power of the regulative discourse which impacts on the instructional discourse within the classroom:

> *I think it's foreign to them, so I don't think they took it seriously. They don't see it as this is how we work at the school, this is what happens and we need to go home and learn.*

Although Participant 2 saw her normal teaching practice as being predominantly learner-centered, this seemed to contradict what was seen in the observations, as well as in response

to the next question, which asked what made her more secure when teaching in her normal teaching practice:

> *If it were a concept that really required thorough understanding, a proper explanation, um, where there was quite intricate detail, I would feel more comfortable using the controlled, the normal standard teaching.*

Thus, from the above response, it seemed as if Participant 2 was more confident teaching in a more educator-centered classroom, when it came to what she saw as "thorough understanding".

One of the major challenges experienced by Participant 2 was the lack of time to prepare adequate presentations for home viewing:

> *Basically the lessons that I've been doing now, it's been an entire two weeks, almost, close to two weeks, and it's put a lot of pressure on me in terms of making sure that there's something in that shared folder, for them every lesson… it inhibited me from creating this elaborate presentation that's fun and interesting and interactive… because I just felt that there wasn't enough time.*

As well as wasting time due to issues surrounding access to the technology:

> *For me personally it actually wasted time in this experiment, um, just because it didn't run as smoothly as I would have liked it to…both mine and the students. Just because they would come to class and the first 10 minutes would be a discussion on how they could not access this, I couldn't get this, ma'am, I didn't understand this and only after a few minutes did we start the activity and get on with the lesson, so I felt that a lot of time was wasted over the technicalities.*
>
> *I had planned this entire presentation on a certain app and uploaded it and spent a lot of time doing it only to find out that the kids couldn't view it because they didn't have the app…I think that because my initial attempt didn't work, I sort of thought, I can't go and spend hours putting something else together if that doesn't work.*
>
> *I feel like there are a lot of external factors to consider, especially at our school in terms of the Wi-Fi and the infrastructure around doing this, because it can inhibit the process and that has caused some stress. Initially we had an entire project where they had to go online and build this city and they were so excited… and then we had to scrap it altogether and go back to pen and paper and that's when they lost interest. So that definitely effected the whole flipped classroom process because they were going home to learn the information to come to class to play a game and when they found out that they couldn't play the game, there was less incentive to go home and learn the information.*

The fact that students weren't prepared for lessons as well as the fact that, often due to the failure of the technology, the FLM did not work, led to a lack in motivation and confidence:

> *I go back to the initial presentation that I put together. I was excited, I was motivated and when that didn't work, my whole confidence level, my motivation dropped completely and I felt that it was a waste of my time and would be a waste of my time to put anything together for fear of it not working again.*

The next set of questions dealt with whether the FLM enabled Participant 2 to use her normal teaching practice. Although, I found no evidence of a learner-centered classroom, she still felt that she was conducting a learner-centered classroom albeit to individuals and not to the class as a whole:

> *Yes, I would say so, it was just more on an individual basis, so I was still applying the same tactics but instead of to the entire class, it was to individuals who I found were struggling.*

This made me question her understanding of a learner-centered classroom. As discussed previously, a learner-centered classroom would have seen a weakening of the framing values in the classroom. While my observation showed no substantial weakening of framing values, I questioned her as to whether she felt that she still had control over the selection, sequencing, pacing and evaluation of school knowledge when implementing the FLM. She believed that she was firmly in control over the framing of her lessons. Perhaps due to this, she was unable to successfully implement the FLM.

My next question explored whether she would continue using the FLM in the future, especially given her somewhat difficult experience implementing it during the research. Participant 2 felt that she would but would limit it to once-off assignments:

> *I would seriously consider doing a flipped classroom activity for an assignment as a once-off for the term. I don't see myself creating um, a flipped classroom sort of twice for every topic. Just for in between this would suit. So during normal lessons I don't see myself doing it. I would do it to apply it to an activity.*

I was interested by the fact that she termed non-FLM classes, "normal" lessons. This showed me that her "normal" teaching practice or pedagogy was in fact a much more traditional educator-centered class, and that the FLM was not something that she was comfortable implementing.

Participant 3

Participant 3 is a 37-year-old female educator, who started her teaching career in 2001. She is a permanent, full-time Technology teacher, teaching a range of secondary school grade levels. She has been in the current school since January 2012.

Pre- Implementation Interview

The first set of questions dealt with the way she perceived her normal teaching practice as well as the way she understood the FLM. Once again I have reported on this using the language of Bernstein in terms of classification and framing.

Participant 3 described her classroom as being both educator as well as learner-centered:

> *There are times when we have to be teacher-centered, where there is theory that has to be completed when the children are focusing on the teacher while the teacher works. I try to make it as interactive as possible.*

The above answer seems to suggest that in an educator-centered classroom it is the educator that is the active participant while the learners are passive recipients of information. With this answer in mind, I then asked questions which would explore her teaching practice further and test her assumptions about her practice.

When asked about who controlled the selection of the content that was taught in her class, while acknowledging the constraints of the CAPS curriculum, she believed that she had a certain amount of control:

> *CAPS sort of guides you on the topics that you need to cover, but the amount of detail that you go into, that's up to you.*

As to the sequencing of lesson, although she felt that the CAPS curriculum was prescriptive, she felt that she was in control:

> *I think, you know, if I had to follow the CAPS document to the word, time would be a problem but, um… I am not able to because I do not have enough lessons, so I choose what I'm going to do and how I'm going to do it. I try follow it as much as I can but it's quite prescriptive.*

With regards to the pacing of the lessons, a similar answer was given:

> *I gave the kids that were struggling four lessons to do the **Pinterest** activity (using an iPad application) while some children did it in two, and then they went straight on.*

With regard to assessment, she felt that CAPS was in control:

> *I am bound by the CAPS curriculum.*

As with Participant 2, Participant 3 felt that she had control over the content, sequencing, pacing and formative evaluation of knowledge. Perhaps this was due to the fact that she also taught a different discipline (Technology), which is not seen to be an important subject within

the school. Unlike Maths, it has relatively few lessons in the week and learners are not required to write a formal test during the cycle testing period.

> *We don't have a formal test, because the bigger subjects need it and there's not enough slots for everyone.*

From her answers, Participant 3 seemed to have control over her pedagogic practice. This would imply that she would be able, in her present pedagogy, to provide learners with more control over their learning should she wish to do so.

The next set of questions dealt with the way the discourse, agents and space seemed to be classified in her classroom to determine the power relations within the classroom. A learner-centered classroom would also see a weakening of the classification of categories. When asked whether she integrated her subject with any other subjects, she answered that she preferred them to be separated:

> *I like them being separate… I want them to know that there is this field called civil engineering, and if they are interested in that, it's in the back of their mind when they choose their subjects or future careers.*

In terms of her relationship with her learners, she liked to think of herself as a facilitator who remained in ultimate control of the environment:

> *I see myself as more of a facilitator, I do not like seeing myself as this dictator that says, you will do this, I don't like that. I don't think that it works with the students.*

In terms of classroom rules, they seemed to be absolute (from few to "freeze"):

> *I don't have rules, I have expectations… I expect a certain level of behaviour and I have a freeze rule, that's my only rule. Every now and then, I tell them to freeze.*

By her own admission, Participant 3 saw her teaching practice as being both educator-centered as well as learner-centered. My observations would test these assumptions.

The next set of questions revolved around the participant's understanding of the FLM. Participant 3 had no experience in using the FLM and had only heard of the concept. Her understanding was as follows:

> *Um… I think in its purest form it's when the kids go and listen to podcasts or lectures or lessons at home and then they do the homework that would traditionally be done at home in the class so that the teacher is there to assist them with the homework.*

Next I questioned what she perceived could be challenges to successfully implementing the FLM:

> *I don't think that my subject should give the children work at home, it should be done in class. I don't think that children have time nowadays. I think that they are under a huge amount of pressure, you can do it within class time. I would not be very comfortable with them working at home. Because it will take time at their home, and I don't want them particularly to be spending time at home on Technology. It's just a personal feeling.*
>
> *I've downloaded that app where you get a little avatar that speaks for you. I hate the sound of my own voice. I'm so conscious that I stutter when I realize that I'm being filmed or recorded so I think that's the biggest thing, it's a self-conscious thing. I am self-conscious of that.*
>
> *Time to film or record the videos, I think that might be a bit of an issue.*

Unlike Participant 1 and 2, Participant 3 seemed particularly concerned with the actual mechanics of implementing the FLM. Whereas Participant 1 and 2 were concerned about learners' taking responsibility for their 'homework' as well as their understanding of significant subject-related content, Participant 3 was uncomfortable with giving the learners any work whatsoever to do at home. Perhaps the lower order status of Technology within the school curriculum enabled her to feel freer with respect to the demands (including completion) of the syllabus. Indeed, she failed to address how she might need to adapt her pedagogy to the challenges that could foreseeably arise from her use of the FLM.

Observations

Control Group (see appendix 5 for observation schedule)

Students entered the room in a very relaxed way, in fact it was the educator who seemed relatively nervous. Given the circumstances the learners were very well behaved. The learners took their places at long desks which were bolted to the floor. They grouped themselves according to gender.

The educator began the class by showing a short video which demonstrated food packaging and labelling. While the video was good, it was very simple and really meant for younger learners. After the video the educator asked some relatively simple questions which were answered by individual learners who were called upon by the educator. She then continued by projecting content information, via digital camera, onto the white board and asked the learners to take notes. The lesson continued with the research participant reading the content

on the white board. As she finished a paragraph, she stopped to explain the content. When questions were asked by the educator, the girls mainly answered. The boys seemed totally uninterested. The educator only asked learners who had their hands up to answer her questions. Thus the boys were in a sense excluded from the class. No questions requiring any thinking were asked. All questions related to recall or clarification. Learners thus became passive recipients of content. When the educator had finished reading the notes off the board she decided to assess what they had remembered by giving them a quiz which was once again projected onto the white board and answered by the class as a whole. These were true or false questions and were answered by the class in chorus.

Notably, Participant 3's teaching methodology reflected an impoverished 'conventional' pedagogy. This observation should have no significant impact on the findings of the study unless the participant's depth of appreciation of the pedagogic discourse contained within the FLM differed markedly from that which she applied when working with the experimental group. (Matched intellectual skills would be applicable to both control and experimental groups.)

Experimental Group (see appendix 5 for observation schedule)

The learners entered the class in the same relaxed way and took up their places in the same format (groups) and the same groupings (gender and racial) as in the control group. The introduction to the class was very similar to that in the control group. However, none of the learners had watched the video on food packaging at home due to the fact that Participant 3 had failed to understand the need for additional technology (Flash Player), which was needed to open the presentation she had sent. Without this software certain videos cannot play on an iPad.

The educator then decided to show the video in the class. Thus the flipped classroom was no longer a flipped classroom in the traditional sense. Due to the simplicity of the video, probably aimed at prep school learners, most of the learners seemed to disengage. After the video, learners were asked to go onto Google Classroom, where the class quiz was posted. Most learners worked individually on the quiz, which was quite simple and so they finished quickly. With 20 minutes of class time left, the educator seemed to have run out of learning activities. She thus reverted back to handing out the notes that had been projected onto the screen for the control group and told the learners to read them in their groups.

The subject being taught was Technology and dealt with food packaging. At no time was there any attempt to integrate any other subject knowledge into the lesson. The topic of food packaging was also taught without integrating any other areas within the specialization of Technology. Thus the boundary strength between the subjects as well as between the topics within the subject were kept as strong as they were with the control group.

Classroom stratification tendered to be (naturally) gender and friendship related. Learner to learner interaction focussed in general on social rather than academic matters. The educator

stood in the front of the class reading her notes for most of the lesson. This she did when learners viewed the video, as well as when they answered the quiz.

The pedagogic relationship between the educator and the learners was clearly defined from the moment the students entered the classroom. Participant 3 continued to provide content (as with the control group), and the learners remained passive recipients.

In short, as in the control group, the participant remained in control of content: selection (videos and notes); sequence; pacing and evaluation. Classification and framing values remained the same.

Post-Implementation Interview

As indicated in the discussion above, Participant 3 hopelessly failed to successfully implement the FLM. The post-implementation interview was intended to explore why this was the case.

When asked about how she experienced the FLM, Participant 3 expressed that she wasn't very good at it or comfortable with implementing it:

> *Um… I must say, I wasn't as good at it as I thought I would be. I thought I'd be more comfortable with um… you know getting them to do the work at home and then planning the lessons around that, it took a lot more creativity than I thought it would, I had to up my game.*

When asked about what she found most useful about the FLM, she indicated that she would have benefited had the learners been able to open the home-based video. She also appreciated the value of being able to step out from behind a desk to engage and assist learners as they work on their own:

> *…I like the idea of teaching them to pre-study because I know that at university… you actually prepare for the lecture, you're reading ahead, and I think it's a good skill. I would have liked to step out from behind my desk, you know, in front of the classroom and actually get close up to the children. It's a pity that the technology never worked.*

The next question allowed me to interrogate the challenges the participant experienced in preparing for and attempting to implement the FLM. The question speaks directly to the difficulties that the participant experienced with respect to conceptualizing a change in pedagogy. When asked about what she found most challenging about the FLM, she expressed concern about losing control over the learning process:

> *It was actually a relinquishing of control… I was worried that they wouldn't get all the information or absorb all the information.*
>
> *It's basically…I know children like storytelling and so I tell stories in my lessons. I was worried that they wouldn't get all the information or absorb all the information. It's also seeing a child's face, you can see whether they understand a concept or not and its actually taking it for granted that they would A watch the video, B…um…absorb it*

> *and if they didn't then um having to go through it again. I think a grade 8 student, I don't know if they've got the responsibility to do that… traditionally, I'd be going through the notes with them.*
>
> *A strong child will do that but a weaker child will look at it, maybe, and then think, I'd rather be playing Play Station, you know, than watching it again.*

The answers above reflect Participant 3's concern about relinquishing control over the learning process. She was extremely worried that learners were not responsible enough to review the content at home and that even if they did, they would not be able to adequately absorb it. Participant 3 felt that if teaching was done traditionally, by reading the notes to the learners and telling stories in class, they would both better obtain and retain content knowledge.

The educator was also questioned about what made her more secure in her normal teaching practice:

> *The first lesson (FLM) was a complete disaster, so that I felt out of control, I was on the back foot. Whereas the control group, I was, you know, in control… you can't just have people doing what they want, how they want it and that sort of thing.*

Participant 3 seemed to feel that during the experimental class, she was not in as much control over the content selection, sequencing, pacing and assessment, as she was in the control group. This pointed to the fact that, while she initially purported to like the idea of the FLM, she was much more comfortable with her normal teaching practice.

Participant 3 found it frustrating that learners could not connect to the Wi-Fi or the internet, especially when the lesson was reliant on the technology working. The fact that learners used the failure of technology at home as an excuse for not viewing the content before class frustrated her. She failed to mention that her lack of technological know-how had thwarted the learners' capacity to access the homework content.

> *I think that I was a bit thrown because…they hadn't been able to watch the video.*

She also expressed that having to be creative was a challenge:

> *I think the coming up with creative ideas, in the flipped classroom is very hard. I think its fine to do a Wiki, but you can only do that …and then it's going to get boring and you're going to have to come up with another idea… um, another concept… and I think that's quite challenging.*

When asked whether the FLM enabled her to use teaching practices which she had been restricted from using in the course of her normal teaching practice (e.g. more learner-centered or creative practices), she asserted that she had been able to act out her intuitive need to engage more actively with learners. There was however no evidence of this.

> *Um… it took me from going through the notes to engaging. I don't think it's everyone's cup of tea, there are teachers who wouldn't like it.*

I questioned whether the participant felt in control of the selection, sequencing, pacing and evaluation of school knowledge in the FLM experimental classroom. She believed that she exercised control albeit less strongly than in the control group.

When asked whether she would continue to use the FLM, she said that she would:

> *Yes, I'm using it with my grade 9's. Um, pretty much using the Wiki, using BBC 'Bite size', and…um… I've got it on the classroom and they go and get it and they… some of the kids come and watch it in my class during break.*

However, I was not convinced from her answer that she understood the FLM and how to implement it. She continued to talk about the viewing of content and not about classroom activities or the need to change her pedagogy within the classroom.

As a result of Participant 3's inability to fully appreciate the methodological needs associated with the FLM, her treatment of the experimental group coalesced with that applied to the control group. She had demonstrated within the context of both the control and experimental groups, her lack of maturity and understanding of requisite educational theory and practice.

Participant 4

Participant 4 is a 44-year-old male educator, who started his teaching career in 1996. He is a permanent, full-time Maths teacher, teaching a range of secondary school grade levels. He has been in the current school since January 2011.

Pre-Implementation Interview

The first set of questions dealt with how the participant perceived his normal teaching practice as well as the way he understood the FLM. Once again I have reported on this using the language of Bernstein in terms of classification and framing.

Participant 4 described himself as a dedicated learner-centered educator and his classroom as a learner-centered space:

> *Definitely more learner-centered... I try to focus on the kids in a way that I'm sort of guiding them and not the center of attraction. I don't want them to have to listen to my stories, I want them to engage with the work, to apply their own minds, to grapple without too much formal assistance. This means that I have to work hard to develop quality tasks that test and grow my students.*

With his answer in mind, I then further explored his assumptions about his teaching practice.

When asked about who controlled the selection of the content that was taught in his class, he believed that he had very little control:

> *Um, in terms of the content, very little, because you are CAPS aligned and because it's foundational you have to complete that curriculum on the continuum from grade 8 to 12. You have very little control over the content itself.*

A similar response was received when asked about who controlled the sequencing of the lessons:

> *Very little, my understanding is that in the school you follow the CAPS outline. We have a big contingent of teachers who write textbooks and they are all CAPS aligned, so there's a bit of politics involved.*

With regard to the pacing of the lessons, a similar answer was given, in that the CAPS curriculum seemed to be quite specific and prescriptive in terms of the pacing of the class:

> *This is really one of the difficulties, there's too much content to cover effectively so there're times when you're not teaching for understanding, you're teaching to cover the content. And obviously if you exaggerate that over five years the mediocre to weak students just never recover from that. You are stretched, you don't always have the luxury of always teaching for understanding.*

With regard to assessment, he indicated that CAPS dictated the evaluative criteria when it came to common assessments which were summative. He felt, however, that he had more control over the formative assessments in his own class:

> *I do to a certain degree. We still, you know, have common assessments. Those are, particularly in my Maths scenario here, with two other teachers, so there needs to be a common exam, a common cycle test. So that needs to look and feel a little more traditional in terms of what the other teachers are doing. Certainly in my own class, I will control things in terms of assessment. I have free latitude to do that.*

Participant 4 saw the CAPS curriculum as being strongly prescriptive and requiring him to teach a huge amount of set content in a particular sequence, at a particular pace and in accordance with evaluative and prescribed criteria. In so far as he believed that external framing precluded him from taking proper control over his pedagogic practice, he had no control to hand to learners.

The next set of questions dealt with the way the discourse, agents and spaces seemed to be classified in the classroom. A learner-centered classroom would also see a weakening of the classification of categories. When asked whether he integrated his subject with any other subjects, he answered that there was a slight overlap due to his understanding of Science:

> *The only overlap I will sometimes have is a little bit with Science… but no real inter-disciplinary teaching as such.*

In terms of his relationship with his learners, he liked to think that he had a good working relationship with them:

> *I try and reach them at their level, because in Maths teaching, with your weaker students, the more of a relationship you have with them, the better their learning becomes. So I definitely try and approach them on their level. I try and remove the tag of management completely, I don't patronize them, and I don't lower expectations because they're in grade 8. I think I have a fairly good working relationship with these kids, in that if they need to they will ask.*

In terms of classroom rules, there seemed to be few but those that were there were explicit:

> *I try to have very few rules, and they're more about effective communication. Like if one person is talking, you can't have the others talking because then no one learns from that. So I have a few rules like that. I try and actually remove the rules. However, they're still young and there are times when you need to just say, you need to sit, you need to listen, I'm going to explain something to you and we're going to talk about it afterwards in terms of what it applies to.*

The next set of questions revolved around the participant's understanding of the FLM. Participant 4 had no experience with using the FLM and had only heard of the concept. His understanding was as follows:

> *Very basically if you swap the role or the function of the classroom. Whereas I would have been, in the classroom scenario… typically, you're delivering content, the kids are practising and re-enforcing that at home. I'm going to reverse that model, where at home I'm going to make sure that they gain a certain content and then when they come into the classroom, they're going to use that content.*

I also questioned what the perceived challenges might be when implementing the FLM:

> *I think there are topics that don't lend themselves to that. You know, they're a little bit abstract in nature. If you take exponents for example, you know you can go home and get a kid to watch a video, and they could perhaps come back and regurgitate it, but I don't know if they would gain understanding. So sometimes you've got to construct your lessons in such a way that you link it to previous knowledge, and I don't know if it would be effective to do that at home.*

Time really, time, because it's new, there're going to be a certain percentage of kids that are going to struggle with it and that means that you have to sit with those kids and make sure that they ultimately have to understand that work. So that would be my initial concern. I think that until it becomes a model that is widely used and kids are comfortable with it, I think it will definitely add work load.

I think it's more deliberate when I'm in the classroom. I can emphasize what I need to, whereas I don't think that you can always, you know once they're at home, it's open to their interpretation of something and I don't think that you can control that element without physically being there to, you know, to answer clarifying questions. I definitely think that's one of the factors you'll struggle with.

Observations

Control Group (see appendix 6 for observation schedule)

The classroom set-up was different from those of the other three participants. Students were very relaxed and took their seats which were set up in a very traditional manner with all the desks facing the front of the classrooms. The educator began the class by recapping the understanding of terminology that was covered in the previous lesson. This was done by the educator asking questions. The class was disciplined in their approach to answering the questions. Learners raised their hands and only answered when asked to. The educator was clearly in control of the class and learners seemed very aware of the rules and expectations of how to participate in the class. While learners all seemed to be concentrating, it was only the learners who raised their hands that were engaged by the educator. Often the educator would rephrase the answers given by the learners, or complete the answer if the learner took too much time to get to the final answer. There was no collaboration or communication between learners.

The educator then went on to explain the concepts that were needed for the activity that would be done in class for that particular lesson. He built on the concepts and as he did so he continued to lead the class to where he wanted it to go, by asking leading questions. The learners who were involved in answering his questions seemed engaged and seemed to understand the concepts. However, those that remained quiet and did not volunteer information by answering questions, seemed to be disengaged. There was no way of ascertaining whether these learners understood the concepts.

The class were then asked to calculate the surface area of three-dimensional shapes. These learners had been given no prior information about how to calculate the surface area. They came to their understanding by the educator teaching it to them by asking leading questions and working on the board. Using the formula that had been arrived at through a concrete explanation by the educator, the learners sat by themselves and started working out the surface area of six different shapes that were given to them. During their previous lesson they

had learnt how to calculate the surface area of a flat object. With that knowledge, as well as the explanation given by the educator, they had to discover how to calculate the total surface area of a three-dimensional object.

Learners spent considerable time working on their own before the educator used an example on the board to explain how to arrive at the right answer. The educator then asked the learners to draw the objects on a piece of paper and then to cut them out and build the three-dimensional object. He then walked around helping students.

In observing this lesson, I noted that despite his giving the learners time to try and grapple with the problem posed, the educator remained in complete control over the teaching and learning process.

The subject being taught was Maths and dealt with the calculation of the surface area of three-dimensional objects. At no time was there any attempt to integrate any other subject knowledge into the lesson. The topic under discussion was also taught without integrating any other areas within the specialization of Maths. Thus the boundary strength between the subjects as well as between the topics within the subject were kept very strong.

Learners sat in traditional rows, characterised by girls only and boys only clusters. There was thus very little opportunity for the learners to talk to each other or collaborate. The educator stood in the front of the class for most of the lesson, while learners listened to explanations and watched the educator work through examples. Thus the boundary strength between the space of the educator and the learners as well as between the learners themselves was strong. The pedagogic relationship between the educator and the learners was clearly defined from the moment the learners entered the classroom and remained that way throughout, with the educator clearly being the provider of rules and content, while the learners were there to obey the rules and receive the content. Clearly, my observation of the control group indicated that the participant employed a strong system of classification.

At all times the educator was in control over what was taking place within the classroom environment. The content and sequencing of the lesson, although prescribed by CAPS, was being carried out by the educator, while the pacing of the lesson was also firmly controlled by the educator. The only form of assessment (formative class assessment) was also controlled and directed by the educator and took the form of questions directed towards the learners, where there was either a right or wrong answer. When it was wrong, the educator gave the students the correct answer. Framing too, was strongly evident in the control group classroom.

Experimental Group (see appendix 7 for observation schedule)

Learners entered in the same relaxed way as the control group and took up their seats in the same traditional format. The educator greeted the learners and made the rules of the class very explicit. These explicit rules were used to explain to the learners how the class would be run as well as for the purpose of explaining the ‘real world activity’ that was about to take

place. Learners were asked to get into groups. These, while not pre-arranged, were suitably heterogeneous with respect to levels of Maths competency, race and gender. The educator then presented the mathematical problem

Learners were given two three-dimensional shapes. The first was a cube (option A) which came with a piece of wrapping paper (A4 size) and the second a rectangle (option B) which also came with a piece of wrapping paper (22cm by 22cm in size). Each shape needed to be covered by the wrapping paper. The activity required the learners to calculate the option which would save the most paper and, therefore be most cost effective.

The participant advised the class that each sub-group needed to work to find the solution to the problem and that each could therefore ask him only three questions. Two of these were to be binary only (yes/no) whereas the third could be probative (open ended).

The class was informed that their knowledge of the video viewed at home had already addressed and demonstrated the methodology associated with calculation of the total surface area of a three-dimensional object. Their class work required that they apply this knowledge in order to avoid "wasting money on wrapping paper". Since only 13 of the 23 learners had done their homework, i.e. viewed the video, the class was advised that the better informed learners in each group should share their prior knowledge so that the power of all group members' intellects would be available to solve the problem.

Immediately the learners started working together on the problem. Unlike the control group, where there was quiet while learners independently worked on the problem, here learners communicated and collaborated. They determined their own pace with respect to the progression of questions, explanations, disagreements and so forth and set their own time limits with regard to moving forward.

Each group, having quickly come to the conclusion that they would need to calculate the total surface area of the objects that were to be wrapped, immediately deferred to those learners who had viewed the homework video. These shared their recall of the video's demonstration with respect to the calculation of total surface area. Since the problem required integration of other Maths topics (e.g. fractions and percentages), learners generally shared their prior knowledge (drawn from the current syllabus and past syllabi).

Notably, all of the sub-groups were prudent with respect to asking the educator questions. They chose their questions carefully and evidently placed extremely high value on the educator's responses.

It became apparent that the sub-groups where disproportionately few learners had watched the video were more pressurized and took longer to solve the problem than their counterparts. Thus the importance of having viewing the material at home became evident to the learners themselves.

The participant moved between the sub-groups observing the working processes of the learners (peer learning) and intermittently answering each group's three questions.

Although the educator finally required that each group provide a formal answer to the Maths problem posed (including an explanation) as well as a report back on the processes involved with working to solve the problem, in general his classroom demonstrated both weak classification and weak framing as well as significant learner agency with respect to recontextualizing the PRF.

Unlike the pedagogic process dominant within the control group classroom, the pedagogic process within the experimental classroom enabled learners to make their knowledge and understanding visible. The experimental classroom was transformed from a field of 'blind' reproduction to a field of active recontextualization of the PRF. The FLM had enabled active problem solving, creativity, critical thinking and innovation. The experimental classroom had become genuinely learner-centered.

Post-Implementation Interview

The post-implementation interviews were intended to explore my findings with respect to the observation of Participant 4's experimental and control group pedagogic practices.

When asked about how he experienced the FLM, Participant 4 expressed anxiety as well as a loss of control:

> *Definitely more anxious and less in control. I didn't know what I was going to be asked. I didn't know what the kids had interpreted from the work that I had given them at home. So you don't know what questions are going to come your way.*

When asked about what he found most useful or helpful about the FLM, he answered that it enabled him to analyze and evaluate his teaching practice:

> *It was interesting in that it made me really reflect on what I wanted to achieve and how I needed to assess that and what task I needed to have in class to make sure that they actually applied the content I'd given them at home. It really was an analysis of my own teaching style; an evaluation is a better word.*

The next question enabled me to explore what Participant 4 found most challenging about the FLM:

> *I'm not in control of ensuring that the students will know the content that will be required for a formal test.*
>
> *You don't know what the kids are going to go and pick up. You always run the risk that there's going to be several kids that don't do the homework, for whatever reason. They may not have had internet, or they made the decision not to do the homework. So you're now stuck with those kids in the class, who haven't got the content and you have to accommodate that as well.*

Definitely more anxious and less in control. I didn't know what I was going to be asked. I didn't know what the kids had interpreted from the work that I had given them at home. So you don't know what questions are going to come your way. I would be more comfortable with the control group, because I know exactly what I've given them. I know that they can answer the questions that I need them to answer.

Because you know what content there is and I guess that a little bit is through experience. You know where the misunderstandings are going to be and you foreshadow that, you make sure that the kids don't make that mistake. So it's much more predictable, whereas with the flipped classroom you don't know what you are going to get, you don't know what they have interpreted from the content… 95% of the time I could write the questions down before the class happens.

I think that if you've got teachers that have been trained in a more traditional role this is very difficult because it is the opposite of what they've spent years learning and experiencing.

When asked whether the FLM enabled him to use his normal teaching practice, it was apparent that he thought it had:

Much more… I really am into thinking, get the kids to think, that's the whole objective to it… when you go and watch kids in an exam, typically the kids that don't understand, it's that they don't know how to approach problems and we never put them in that situation. So my process with the flipped model was, you have three questions, you need to use them valuably. It makes them think about what they need to know in order to answer the question, which really, when you get down to the nuts and bolts of the exam, that's what they have to understand, what information do I need to answer this question. It's something that I don't think we do well enough, in the traditional classroom, about putting them in that situation. It's a really new feeling for them in the exam and I think that's why a lot of kids feel that anxiety with exams and will openly say to you, it didn't seem like what we did in class and they don't think it's a fair reflection and sometimes I think in that context, they are right.

When asked whether he would continue to use the FLM in the future, he indicated that he would but would change it compared to how he had implemented it during the research:

There are certain topics that lend themselves so nicely to this model and it's much more enriching for the kids. So undoubtedly, I'll be careful in the topics that I'll use it for… there are other topics such as exponents or exponential equations which are much more sophisticated in nature and I think in terms of that, because the information is much more sophisticated, I don't know if your average kid would be able to go home and assimilate that content and apply it when they get to school… but I'll definitely use this again.

Chapter 5

Analysis of research findings

All four participants found it difficult to articulate the primary epistemological assumptions underlying their understanding of teaching and learning and therefore, unsurprisingly, were also unable to adequately explain their respective pedagogic choices. Where, for example, they said, during their pre-interviews, that they used a mainly learner-centered approach in the classroom, my observations of their teaching practices with their control groups demonstrated the employment of strongly educator-centered teaching practices.

Importantly, the introduction of the FLM (the experimental intervention) failed to demonstrate significant shifts in the pedagogic practices of three of the four participants. Their classification of and between categories and their framing around content, sequencing, pacing and evaluation remained very strong.

The fourth participant, unlike the others, significantly weakened the standard system of classification and framing in his experimental group. In short, he demonstrated marked changes in his pedagogic practice when working in the experimental classroom. Notably, he like the other three participants, expressed concern about the implications of introducing or implementing the FLM in their teaching practices.

Whereas all four participants were, prior to ' introducing' the FLM in their experimental groups, excited about the model's potential, the reality of the FLM in practice, left these educators uncomfortable about having less control and authority over the teaching process than that to which they had become accustomed.

Their concerns related, in the main, to:

- the unexpected amount of work and creative planning that the introduction of FLM requires;
- the shift in the locus of knowledge production and recontextualization from school to home (their frustration was most marked when learners failed to complete their 'homework');
- having to rely on (sometimes) unreliable technology.

This does not mean that the research participants were entirely negative about the FLM as a useful pedagogy. Indeed, they all seemed to find some elements of the FLM useful. On the whole their involvement in applying the FLM, functioned, positively, to help them:

- assess learners' general understanding of educational material/content;
- more accurately identify learners' specific problems;
- re-look at and re-evaluate their preferred pedagogy and, in particular, their preferred teaching methodologies;

- appreciate that their preferred teaching methods were educator rather than, as they had previously believed, learner-centered. (Significantly, this realization did little to shift their confidence in their preferred teaching methodology.)

All four educators articulated their preference for unflipped learning modalities. They expressed unease with blended learning and embedded technology and revealed their lack of confidence in their own and their learners' abilities to properly employ multiple learning platforms. Furthermore, they expressed concern about losing control over the acquisition of the requisite content knowledge needed for academic learning. In this regard, they demonstrated strong attachments to a behaviorist epistemology, and a subsequent unease with constructivist epistemology in general, and the FLM, in particular.

The differences in treatment between the experimental and control groups for Participants 1, 2 and 3 indicated:

- Differing locations in which audiovisual material was engaged. Whereas the control groups were shown the video in their classrooms, the experimental groups were asked to watch the video at home.
- Differing quantities of content information. The participants used considerable amounts of time disseminating subject content to their control group learners. As a result experimental groups completed the in-class activities with time to spare.

Notably, where the FLM was introduced, results for Participants 1, 2 and 3 showed very few shifts in 'pedagogic practices as a result of:

- Very little weakening of category boundaries. Classification remained strong.
- Very little input from learners. Framing remained very strong.

In short, while all three participants were fully aware that the introduction of the FLM in the experimental group classroom would require changes in pedagogy, their teaching practices reflected no meaningful methodological shifts.

These research participants used the post-implementation interviews to express and explain their uneasiness and concerns with respect to the introduction of the FLM in their experimental groups. Significantly, these clustered around the perceived threat of the FLM's potential to undermine their control of, and control over, subject content and the learning process.

With respect to Participant 4, the differences in treatment between the experimental and control groups were as follows:

- Differing locations in which audiovisual material was engaged. Whereas the control groups were shown the video in their classrooms, the experimental groups were asked to watch the video at home. Unlike Participants 1, 2 and 3, Participant 4 did not

facilitate video viewing in the experimental classroom. Learners who failed to do their 'homework' worked in peer groups which became organically stratified along lines of prior knowledge. Peer regulation and peer sanction became (albeit unintentionally) very significant useful pedagogic processes.

- Whereas the control group was given a conventional Maths lesson, the experimental group was subject to the pedagogy associated with the FLM. Unlike the FLM 'experiment' for Participants 1, 2 and 3, the boundary between conventional (control group) and FLM (experimental group) pedagogy was strongly maintained. Despite the differentiation with respect to the pedagogic process between the two groups, assigned tasks for each tended to amount to the same period of time. There is little doubt that Participant 4's sound preparation served both the control and experimental groups well.

Participant 4's implementation of the FLM showed a significant change in pedagogic practice, i.e.:

- Weak category boundaries. Classification was weakened.
- Considerable input from learners. Framing was weakened.

Clearly, the experimental group was characterized by significantly weaker systems of classification and framing than was the control group. In short, there were notable pedagogic differences between the experimental and control groups.

Moreover, the pedagogy employed by Participant 4 with respect to the experimental group demonstrated much weaker systems of classification and framing than was the case in the experimental groups of the other 3 research participants.

Video material was given by Participant 4 to learners prior to the class lesson. Video content (including web references) was comprehensive, ensuring good access to subject content and enabling classroom discussion and engagement. In this way, learning was flipped. There was, thus, a significant weakening between the categories of internal/external or school/ home and the boundary associated with where learning takes place, was weakened.

Notably, there was also a weakening in the category boundaries between Participant 4 as educator/content provider and technology as the purveyor of content. Although it could be argued that the educator was still providing the content through the medium of technology, learners were also encouraged to look outside of the recommended and prescribed websites.

In terms of relationship boundaries, these were significantly weakened as learners took control over their own learner engagement. The learners were given a "real life" problem to solve and were asked to use the content provided to them at home to solve this problem. This encouraged peer collaboration; communication; problem solving; and critical and creative thinking skills.

Significantly, analysis of Participant 4's interview and (participant) observational material signifies the existence of a glaring disjuncture between his role perception and his teaching practice. He, like the other participants, reported having been in control (of the classification and framing) of content and process. He, however, unlike these, was wrong. Contrary to his perception, he had successfully employed the FLM in the experimental classroom.

The disjuncture between his perception and his pedagogic practice can be understood as a function of his ongoing and considerable concern about the possibility of the FLM diluting his power to educate. In short, he had used his experience, sound planning skills and desire to contribute to educational research, as well as his new knowledge of the FLM, not only to recontextualize the curriculum (rather than to simply reproduce it) but moreover to recontextualize his authority (rather than to simply impose it).

Participant 4 had used constructivist pedagogy, through the FLM, to facilitate his 'experimental' learners' freedom to explore, collaborate, critique and apply knowledge within the parameters of his guidance and overriding judgment. He had applied his experience, creativity and commitment to education research to the FLM's pedagogy and in so doing had not only successfully applied the FLM but moreover commanded discipline and respect. Despite the fact that Participant's 4's FLM Maths lesson (aligned to the syllabus) was by my as well as his own account, outstanding, he reported that he felt more comfortable employing his conventional pedagogy to "teach the CAPS curriculum".

Despite Participant 4's lack of awareness of the fact that he had successfully applied the FLM without losing control of his lesson plan or any class discipline, he remained convinced of the power of the FLM to undermine educator authority. Ironically, it was indeed both his authority (to control the process) and skill (to implement the FLM) which had enabled him to naturally/organically retain or even strengthen his authority. Indeed it was these characteristics which had so successfully enabled him to weaken both classification and framing and thereby create a constructivist learning environment.

Chapter 6

Discussion

Bernstein's work (1971; 1975; 1990; 2000) goes a long way to explaining the failure of Participants 1, 2 and 3 to adequately engage with the FLM. A new pedagogy (manifest in a new learning model) cannot be implemented without the expectation of some degree of tension between the ORF and the PRF. Nevertheless, educators residing in the field of reproduction (i.e. in the school classroom), apply (to greater and lesser extents, and with more or less creativity), the rules governing the recognition, selection and recontextualization of official knowledge.

They, as subjective agents with their own collective and individual educational, political and class backgrounds, are able (depending on the extent to which they recognize their own agency), to engage in the differential treatment of knowledge reproduction. They place selective emphasis on content and sequence content for transmission; pace their lessons; and shape their assessment criteria. In short, decisions regarding the selection of pedagogic discourse for relocation in the classroom, depend upon the educators' exercise of agency.

Significantly, and despite:

- the official permission that was granted to research participants for their involvement in this research study;
- the research participants' expressed agreement to engage with the objectives of the research study; and
- the participants' enthusiasm and excitement about trying the Flipped Learning Mode (expressed during the FLM workshop);

the three participants failed to apply the most basic elements of the FLM in their experimental group's classrooms. They failed, in Bernstein's terms, to prepare for and delocate, even for a few hours, the dominant pedagogic processes characterizing the CAPS associated curriculum.

The introduction of the FLM needed research participants to anticipate – through pedagogic recontextualising within the PRF – the changes that the FLM would introduce into their respective learning environments.

The disjuncture between the participants' preferred teaching methodologies and the FLM prompted them to avoid relocating the pedagogic discourse with which they were familiar and felt comfortable.

The fact that the introduction of the FLM had no significant impact on three of the four educators' teaching practices suggests, as the post-implementation interviews reflect, that the 'official ideology' imbued within the dominant pedagogic discourse was so aligned with the teachers' prior beliefs that a paradigmatic shift was impossible. In short the FLM was

inherently antithetical to the belief system (including beliefs relating to professional identity) of these participants.

Spillane (2006) points out that educators' prior beliefs and practices often pose challenges not only because educators are unwilling to adapt to new policies, but also because their existing subject knowledge may interfere with their ability to interpret and implement a reform in ways that are consistent with policymakers' intent. Although the FLM is not a curriculum directive, its introduction as a new pedagogy, clearly acted in the same way as any change prescribed by official policy makers.

Although Participant 4 expressed his identification with the dominant ideology underpinning the ORF, as well as his concern about the power of the FLM to undermine educator authority, his pedagogic practice within the experimental group classroom reflected his capacity for a significant paradigmatic shift. Indeed, he successfully applied the model.

Interestingly, he, to a much greater extent than Participants 1, 2 and 3, had been able, throughout the research engagement, to appreciate the value of a constructivist pedagogy with respect to curricula that are far less prescriptive than that of CAPS. Ironically, Participant 4 was unaware that he had himself demonstrated, within the experimental classroom, a successful recontextualization of the ORF and PRF underpinning the (prescriptive) CAPS curriculum itself.

The four research participants expressed their concerns with respect to the classroom flip. All four felt particularly uncomfortable about relinquishing their authority with respect to the dissemination of subject content, as well as their control with respect to ensuring that the process of learning occurred.

They can, by using Bernstein's system of classification and framing, be seen to have been highly invested in maintaining the strong boundary between the classifications of educator and learner. This investment results in pedagogic processes associated with the CAPS curriculum being employed in the field of reproduction. The research participants' commitment to a strong classification system in which the boundary between educator and learner is definite, served, with the exception of Participant 4, to undermine the participants' active engagement with the FLM.

In short, despite their best intentions, three of the participants found themselves unable to tolerate the shift in locus of control over the reproduction field that successful implementation of the FLM required. It is for this reason that they simply could not trust the learners to independently source, select or engage with subject content outside of their ambit of control.

Notably, since the ambit of the research participants' control could not reach into their learners' homes, the unconscious classification of their classrooms as the 'official' learning

space was strengthened. The first three participants' poor management of a flipped learning methodology wherein they contaminated the research by 'normalizing' experimental and control group treatment, ensured that the learner's home could not achieve the status of an official or formal learning space. Significantly, Participant 4 respected the need to include the home as an official learning space, albeit for the purpose of this research alone.

Whereas classification, in the context of Bernstein's pedagogic theory, is concerned with the organization of curriculum knowledge as well as the pedagogic identity of agents within the school, framing is related to the transmission of knowledge through pedagogic practices.

The FLM, in so far as it sees the learner as an active agent in the learning process, requires that he or she be given more control of and choice in relation to what is taught and learned. While all of the research participants experienced dissonance in relation to weakening the frame around the transmission of knowledge, only Participant 4 was able to manage his ambivalence and to succumb to the FLM's need for weaker framing. The other participants retained their intellectual allegiance to strong framing.

In the main then, three participants demonstrated, throughout the application of the experimental group treatments, considerable 'loyalty' to the South African CAPS curriculum, with its system of strong classification and framing, and were thus unable to test the value of a flipped classroom or indeed the efficacy of the Flipped Learning Model. Indeed these participants remained true to their preferred teaching practices – in line with the official CAPS curriculum requirements – while the fourth, although in touch with his "discomfort", successfully weakened the CAPS curriculum's system of strong classification and framing.

For Bernstein, three of the four participants were, in the main, unwilling to shift away from or meaningfully alter the evaluative rules which regulate the recognition, selection and re contextualization of official knowledge in the South African CAPS curriculum. Their pedagogic practices failed to demonstrate qualitative changes in either the power relations or the mechanisms of control between educators and learners. In short, they remained located in the acquired/required field of reproduction and thereby committed to their prescribed roles and their traditional pedagogic practices.

Participant 4's successful implementation of the FLM demonstrated definite qualitative changes in the power relations between educators and learners. Indeed, constructivist pedagogy epitomized in the participant's well-reasoned and "disciplined" application of the FLM saw the institutionalized power relationship (in his control group) replaced by genuine relations of authority in his experimental group.

Chapter 7

Conclusion

This research study was conducted within the context of a highly privileged private school where, in the main, learners enjoy relatively sophisticated home-based technology and learning resources. Where difficulties with home-based technologies arise, the findings with respect to Participant 4 reflect the capacity of skilled educators to overcome these.

The heightened expectations of and demands on educators in private sector schools, when combined with the often arduous CAPS curriculum, afford educators a paucity of time in which to engage with the FLM in their classrooms. The FLM requires highly sophisticated 'lesson plans'. Indeed, educators are required to inter alia: identify/make/select/blend/ video/create technological material (including games) for learners' home engagement. Significantly, all four respondents in this study were concerned about the demands on their time. But as Smith (2013) suggests, whereas the upfront time and resource commitment for flipping the classroom is daunting for educators new to the FLM, with sound preparation and experience, time demands significantly diminish.

Despite the fact that all four participants were confronted by technological difficulties and time pressures, Participant 4's experimental group teaching practice demonstrates that there were no FLM implementation obstacles which could not, with will and commitment, have been overcome.

Indeed, post-implementation interviews reflect that it was neither technology, nor time, nor lack of experience, nor subject content that ultimately accounted for the failure of participants to implement the FLM. Rather, three out of the four participants, even when 'officially' permitted to lessen both the hold of the CAPS curriculum as well as the regulative discourse of the school, still felt unable to engage with a pedagogy which challenged the fundamental epistemological assumptions with which they identified.

Clearly, the dominant pedagogic discourse had become so aligned with the educators' prior beliefs, that they had treated or perhaps even transformed it into an official ideology – thereby making any meaningful (or lasting) paradigmatic shift impossible. In short, it was the antithetical challenge by the FLM, with respect to the participants' assumptions about knowledge, learning and their role as educators, which unconsciously undermined their confidence/will to apply the different treatment (FLM) to their experimental group teaching practices. Significantly, even Participant 4 who successfully applied the FLM (unconsciously and) erroneously considered that he had applied strong classification and strong framing (characterizing a behaviorist pedagogy) in his experimental group teaching practice.

In short, three of the four educators' 'use' of the FLM hardly impacted their teaching practices in their experimental classes. These educators felt, this study demonstrates, almost compelled to sabotage their own best intentions in order to defend the school's dominant pedagogy against the imposition of the alternative constructivist pedagogy. Even the participant who successfully applied the FLM felt compelled to deny the constructivist nature of his experimental group classroom.

It is within the context of the findings of this limited research study that one can begin to appreciate the enormous obstacles which challenge schools wishing to implement the FLM in their classrooms. While the FLM relies heavily on the fruits of the (post) modern information and telecommunications revolution, it can never, this study contends, be successfully implemented and developed without an accompanying 'paradigmatic' (epistemological) revolution.

7.1 Limitations of the Study

This study constitutes the research component of a master's degree in education - by coursework and research report. Notably, the time allocated for the research engagement was limited to 6 weeks. Clearly this is a study of limited scope and as such the weight of its findings are similarly limited. In short it utilised a very small sample size (4 educators) drawn from a single school and employed an experimental intervention of no more than 1 FLM lesson per educator.

The majority of FLM studies tend to focus upon the application of the model in universities. The reasons underlying the absence of FLM classroom studies, having not been investigated, remain uncertain. It is however clear that relative to schools, the less regulated nature of university instruction, as well as the relative autonomy given to most university educators, invites the exploration of new pedagogic methodologies. This may well account for the fact that these FLM studies, unlike those undertaken in schools (as in the case of this work) tend to focus on the effect of the model on learners rather than on educators.

In short, unlike most university 'lecture theatres', the school 'classroom' is beset with structural and pedagogic constraints. School educators are required to strictly adhere to implementing classroom discipline, ensuring compliance with a diverse range of school rules, and acceptance of a PRF (usually) supporting strongly classified and framed curricula.

While FLM research in the university environment may be regarded as thought provoking or even exciting, it may paradoxically be perceived of as potentially risky or even 'dangerous' within the school environment. This is because the FLM when applied in the university context may serve to reinforce or even legitimately challenge existing pedagogies, it may in the school classroom (and even when applied through research) serve to unsettle or even disrupt educators' existing epistemological assumptions and pedagogy. Indeed, it may well be the disruptive potential of the FLM when applied in the school classroom that accounts (in full or in part) for the paucity of school centred FLM research.

Notably, contrary to most serious educational research, a disproportionate amount of FLM related research is available only via publication on websites. While some of these research studies (as well as research cited in accredited peer reviewed journals) employ constructivist analyses, in the main, 'web-reported' FLM research tends to be underpinned by broad 'learner-centred' epistemologies. Significantly the 'tone' of a number of these web reported research studies reflects a leaning, and in some cases an underlying commitment, to the FLM.

Contrary to these 'web-reported' studies, this research project in no way advocates for the use or indeed 'non use' of the FLM. The study is rooted in constructivist rather than in loose 'learner-centred' epistemologies. It employs as value free a form of participation observation as possible. Indeed, attempts were made, following Husserl (1999), to both "bracket" subjective values and limit engagement with research participants in both the experimental and control group settings. Finally its outcomes, notably, substantially less positive than those of most other, albeit longer and larger, FLM research studies, are subject to rigorously applied Bernsteinian analysis.

This study acknowledges that its (research participant) educators' relative lack of familiarity with the FLM may have unintentionally influenced its largely negative outcomes. It is for this reason, as well as in the interests of good research science, that rather than either advocating for the use of the FLM - or indeed negating its value, this study suggests that further larger scale FLM research, using thoroughly FLM trained research educators, be undertaken.

Neither the findings of this research project, nor the significantly more positive FLM research evidence available, provide a sufficiently substantial basis for determining the value of the FLM within (or outside of) the school classroom. Rather the findings of this work as well as the paucity of sound peer reviewed literature with respect to the application of the FLM in the school classroom setting; suggest that there is a very real and pressing need for further serious academic research in this field.

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Appendices

Appendix 1

Email sent to Participants, in preparation for the FLM workshop, by Facilitator (Think Ahead)

The **Flipped Classroom** model works on the principle that resources are **shared** with your learners **prior** to coming to class - flipping the theory, as it were.

We have compiled resources for you to engage with **before** Tuesday's workshop. The workshop will be based on the fact that you have looked, read and understood the resources - it will really take you between 10 and 20 minutes to go through and it is a lot of fun!

PLEASE WORK THROUGH THE FOLLOWING LINKS/RESOURCES PRIOR TO WORKSHOP - it will only take 10 minutes of your time!

Introduction to workshop - essential to watch:
http://youtu.be/RD7E9IULn0Y

New to flipped classroom - steps for teachers:
https://www.edsurge.com/n/2014-05-21-from-the-diary-of-a-flipped-classroom-newbie

Infographic of research done about the flipped classroom:
http://www.sophia.org/flipped-classroom-survey?utm_source=twitter&utm_medium=organic&utm_campaign=flippedinfographic

If you would like to EXTEND your knowledge - not compulsory reading/viewing:
http://www.emergingedtech.com/2014/01/flipped-classroom-the-movie/

If you are opening this on your iPad, you need to have the app iBook installed. Keep your finger on the attachment and choose iBook. It will open as a book.

Also see:
http://www.educatorstechnology.com/2014/07/the-best-tools-and-apps-for-flipped.html

Appendix 2

Interview Schedule 1 (pre-implementation interview)

Question	Participant 1	Participant 2	Participant 3	Participant 4
How would you identify your preferred teaching practice?	Mainly learner centred	Mainly learner centred	Mainly learner centred	Predominantly learner centred
What control do you have over the selection of content?	Limited control	Some control	Some control	Very little control
What control do you have over the sequencing of content?	Limited control	Complete Control	Limited control	Very little control
What control do you have over the pacing of lessons?	Limited control	Fair amount of control	Fair amount of control	Very little control
What control do you have over the evaluation of teaching and learning?	No control	Very little control	Very little control	Very little control
What control do learners have over the above?	None	None	None	None
To what extent are subjects integrated?	Limited	Reasonable	Reasonable	Limited
Describe the pedagogic relationship?	Relatively Hierarchical	Relatively Hierarchical	Relatively Hierarchical	Relatively Hierarchical
How are spaces in your classroom set up?	Grouped according to ability	Mixed groups	Mixed groups	Rows
To what extent do you understand the FLM?	Limited	Limited	Limited	Limited

Appendix 3

Participant 1 – Observation Schedule (control and experimental)

Since results with respect to the two groups reflected insignificant changes. One table has been appendicized with respect to results drawn from Participant 1. Any changes that did occur with respect to the experimental group are highlighted in bold/blue.

Observation criteria	Observation description	Classification/Framing
Subject Disciplines Collection or integration code. Does the subject discipline allow integration or is the boundary between subjects well insulated?	I will observe whether the discipline (subject) taught is kept distinct (collection) or whether references and connections are made to other disciplines (Integration). If fully confined to the discipline then C++. If fully integrated with other disciplines then C- -.	(C++) Entire lack of integration **(C+) While the sites used to calculate the area of the circle were geographic, no attempt was made to integrate any geographic content/concepts into the lesson.**
Topic Does the topic allow for other topics within the subject discipline to be integrated or is the topic boundary well insulated?	I will observe whether the topic taught is kept distinct or whether references and connections are made to other topics within the discipline. If kept distinct then C+ +. If integrated then C- -.	(C++) No attempt was made to connect the (concept) calculation of the area of a circle with any other topic in mathematics.
Space Is the classroom set up in a traditional format? Where does the educator position herself? Is there a gender and racial split in terms of learner seating arrangements?	I will observe how the classroom is set up. I will observe where the educator stands as well as her movements during the class. If the educator is confined to one area and learners are in rows then C++. If the educator moves around and learners are in groups then C- -. If learners arrange their seating according to race or gender then C++. If they integrate then C- - .	(C+) The educator was positioned mainly in front of the class. There was little movement. (C-) Learners were seated in groups. (C-) Learners were seated in groups according to gender but mixed in terms of race.
Pedagogic Relationship Is there a hierarchical relationship between educator and learners?	I will observe whether the educator takes on the traditional identity of instructor (educator-centred classroom) or that of facilitator (learner-centred classroom). If there is a hierarchical pedagogic relationship between educator and learner then C+ +. If the relationship boundaries blur, then C- -.	(C+) While the learners seemed comfortable with the educator, the relationship between educator and learners was clearly hierarchical. She stood mainly in front of the class imparting information and giving instructions.
Classroom Order Are the rules structuring classroom order explicit or implicit? Who speaks, when do they speak and in relation to what do they speak?	I will observe whether the classroom rules are prescriptive and made explicit or whether they allow for learner involvement and negotiation and are made implicit. I will also observe whether the "talk" is instructional, dialogical or question/answer talk. If the rules of classroom are explicit then C+ +. If implicit then C- -. If classroom talk is instructional or question/answer type then C+ +. If dialogical then they are C- -.	(C+) The rules in the class were explicit and the educator was in control. (C+) While the educator used an instructional & question/answer type of talk, learners were free to engage with each other when group work commenced.

Observation Criteria	Observation description	Classification/Framing
Selection of Content Do educators have control over the selection of content and to what extent is that control over selection determined on the basis of learners' interest and/or input?	I will observe whether the content is introduced by the educator as prescribed by the curriculum or educator's directive or whether the content is introduced, through a collaborative approach, as something negotiated with learner input. If there is evidence of a collaborative approach to the input of content into the lesson then F- -. If content is prescribed by the curriculum or at the discretion of the educator then F++.	(F++) The content is completely prescribed by the curriculum and relayed by the educator. Learners have no input whatsoever into the selection of content or material used.
Sequencing Do educators control the organization, ordering and sequencing of the content? To what extent is this negotiated with the students?	I will observe whether the lesson is sequenced according to the curriculum or educator's directive or whether there is evidence, through a collaborative approach, as to a negotiated sequencing of the lesson with learner input. If there is evidence of a collaborative approach to the sequencing of the lesson then F-. If sequencing is prescribed by the curriculum or at the discretion of the educator then F+.	(F++) The sequencing is mandated by the curriculum and the educator follows the order. Students have no input whatsoever into how the lessons are sequenced.
Pacing Do educators control the time taken to cover a specific topic? To what extent is this reliant on the specific/individual needs of the learners?	I will observe how flexible the pacing of the lesson is and whether it is responsive to the needs of the learners. I will observe how time is allocated to the different learning tasks as well as how strictly the educator adheres to time allocations and timetable requirements. If the pacing of the lesson is flexible and is responsive to the individual needs of the learners then F- -. If the pacing of the class is inflexible and adheres to the curriculum and timetable and not the individual needs of the learners, then F+ +.	(F++) The pacing of the lesson is totally in the control of the educator. Indeed the flipped class finished at exactly the same point as the control group. The timing was strictly adhered to. There was no evidence that the individual needs of the learners were taken into account.
Evaluation Do educators control the assessment dates, criteria and distribution of results? To what extent are these areas open for negotiation and learner input? Is differentiated assessment, according to learner needs, accommodated?	I will observe whether assessment dates are negotiated or prescribed, whether assessment criteria is explicit or implicit and whether feedback is regular with opportunities to edit and resubmit work. I will also observe whether the different needs of learners are taken into account when it comes to preparing assessments. If assessment dates are negotiated, criteria implicit and feedback regular with opportunities to edit then F- -. If assessment dates are non-negotiable, criteria explicit and all students expected to complete the same assessments without the opportunity to edit and resubmit then F+ +.	(F++) There was no evidence of negotiated time frames for assessments to be completed. Assessment work done in groups had to be finished by the time allocated by the educator. Assessments were not differentiated nor did there seem to be room to edit work done. Criteria were explicit in the assessment work done in class.

Appendix 4

Participant 2 – Observation Schedule (control and experimental)

Since results with respect to the two groups reflected insignificant changes, one table has been apendicized with respect to results drawn from Participant 2.

Observation criteria	Observation description	Classification/Framing
Subject Disciplines Collection or integration code. Does the subject discipline allow integration or is the boundary between subjects well insulated?	I will observe whether the discipline (subject) taught is kept distinct (collection) or whether references and connections are made to other disciplines (Integration). If fully confined to the discipline then C++. If fully integrated with other disciplines then C- -.	(C++) No attempt was made to integrate any other discipline into the lesson. It was a strongly classified Geography lesson.
Topic Does the topic allow for other topics within the subject discipline to be integrated or is the topic boundary well insulated?	I will observe whether the topic taught is kept distinct or whether references and connections are made to other topics within the discipline. If kept distinct then C+ +. If integrated then C- -.	(C++) No attempt was made to deal with or refer to any other topic within this discipline. It dealt specifically with Urbanization.
Space Is the classroom set up in a traditional format? Where does the educator position herself? Is there a gender and racial split in terms of learner seating arrangements?	I will observe how the classroom is set up. I will observe where the educator stands as well as her movements during the class. If the educator is confined to one area and learners are in rows then C++. If the educator moves around and learners are in groups then C- -. If learners arrange their seating according to race or gender then C++. If they integrate then C- - .	(C+) The educator was positioned mainly in front of the class. There was little movement. (C-) Learners were seated in groups. (C-) Learners were seated in groups according to gender but mixed in terms of race.
Pedagogic Relationship Is there a hierarchical relationship between educator and learners?	I will observe whether the educator takes on the traditional identity of instructor (educator-centred classroom) or that of facilitator (learner-centred classroom). If there is a hierarchical pedagogic relationship between educator and learner then C+ +. If the relationship boundaries blur, then C- -.	(C+) While the learners seemed comfortable with the educator, the relationship between educator and learners was clearly hierarchical. She stood mainly in front of the class imparting information and giving instructions.
Classroom Order Are the rules structuring classroom order explicit or implicit? Who speaks, when do they speak and in relation to what do they speak?	I will observe whether the classroom rules are prescriptive and made explicit or whether they allow for learner involvement and negotiation and are made implicit. I will also observe whether the "talk'" is instructional, dialogical or question/answer talk. If the rules of classroom are explicit then C+ +. If implicit then C- -. If classroom talk is instructional or question/answer type then C+ +. If dialogical then they are C- -.	(C+) The rules in the class were explicit and the educator was in control. (C+) While the educator used an instructional and question/answer type of talk, learners were free to engage with each other when group work commenced.

Observation Criteria	Observation Description	Classification/Classification
Selection of Content Do educators have control over the selection of content to be taught and to what extent is that control over selection determined on learners' interest and/or input?	I will observe whether the content is introduced by the educator as prescribed by the curriculum or educator's directive or whether the content is introduced, through a collaborative approach, as something negotiated with learner input. If there is evidence of a collaborative approach to the input of content into the lesson then F- -. If content is prescribed by the curriculum or at the discretion of the educator then F++.	(F++) The content is completely prescribed by the curriculum and relayed by the educator. Learners have no input whatsoever into the selection of content or material used.
Sequencing Do educators control the organization, ordering and sequencing of the content? To what extent is this negotiated with the students?	I will observe whether the lesson is sequenced according to the curriculum or educator's directive or whether there is evidence, through a collaborative approach, as to a negotiated sequencing of the lesson with learner input. If there is evidence of a collaborative approach to the sequencing of the lesson then F-. If sequencing is prescribed by the curriculum or at the discretion of the educator then F+.	(F++) The sequencing is mandated by the curriculum and the educator follows the order. Students have no input whatsoever into how the lessons are sequenced.
Pacing Do educators control the time taken to cover a specific topic? To what extent is this reliant on the specific/individual needs of the learners?	I will observe how flexible the pacing of the lesson is and whether it is responsive to the needs of the learners. I will observe how time is allocated to the different learning tasks as well as how strictly the educator adheres to time allocations and timetable requirements. If the pacing of the lesson is flexible and is responsive to the individual needs of the learners then F- -. If the pacing of the class is inflexible and adheres to the curriculum and timetable and not the individual needs of the learners, then F+ +.	(F++) The pacing of the lesson is totally in the control of the educator. Indeed the flipped class finished at exactly the same point as the control group. The timing was strictly adhered to. There was no evidence that the individual needs of the learners were taken into account.
Evaluation Do educators control the assessment dates, criteria and distribution of results? To what extent are these areas open for negotiation and learner input? Is differentiated assessment, according to learner needs, accommodated?	I will observe whether assessment dates are negotiated or prescribed, whether assessment criteria is explicit or implicit and whether feedback is regular with opportunities to edit and resubmit work. I will also observe whether the different needs of learners are taken into account when it comes to preparing assessments. If assessment dates are negotiated, criteria implicit and feedback regular with opportunities to edit then F- -. If assessment dates are non-negotiable, criteria explicit and all students expected to complete the same assessments without the opportunity to edit and resubmit then F+ +.	(F++) There was no evidence of negotiated time frames for assessments to be completed. Assessment work done in groups had to be finished by the time allocated by the educator. Assessments were not differentiated nor did there seem to be room to edit work done. Criteria were explicit in the assessment work done in class.

Appendix 5

Participant 3 – Observation Schedule (control and experimental)

Since results with respect to the two groups reflected insignificant changes, one table has been apendicized with respect to results drawn from Participant 3.

Observation criteria	Observation description	Classification/Framing
Subject Disciplines Collection or integration code. Does the subject discipline allow integration or is the boundary between subjects well insulated?	I will observe whether the discipline (subject) taught is kept distinct (collection) or whether references and connections are made to other disciplines (Integration). If fully confined to the discipline then C++. If fully integrated with other disciplines then C- -.	(C++) No attempt was made to integrate any other discipline into the lesson. It was a strongly classified Technology lesson.
Topic Does the topic allow for other topics within the subject discipline to be integrated or is the topic boundary well insulated?	I will observe whether the topic taught is kept distinct or whether references and connections are made to other topics within the discipline. If kept distinct then C+ +. If integrated then C- -.	(C++) No attempt was made to deal with or refer to any other topic within this discipline. It dealt specifically with recycling.
Space Is the classroom set up in a traditional format? Where does the educator position herself? Is there a gender and racial split in terms of learner seating arrangements?	I will observe how the classroom is set up. I will observe where the educator stands as well as her movements during the class. If the educator is confined to one area and learners are in rows then C++. If the educator moves around and learners are in groups then C- -. If learners arrange their seating according to race or gender then C++. If they integrate then C- - .	(C+) The educator was positioned mainly in front of the class. There was little movement. (C-) Learners were seated in groups. (C-) Learners were seated in groups according to gender but mixed in terms of race.
Pedagogic Relationship Is there a hierarchical relationship between educator and learners?	I will observe whether the educator takes on the traditional identity of instructor (educator-centred classroom) or that of facilitator (learner-centred classroom). If there is a hierarchical pedagogic relationship between educator and learner then C+ +. If the relationship boundaries blur, then C- -.	(C+) While the learners seemed comfortable with the educator, the relationship between educator and learners was clearly hierarchical. She stood mainly in front of the class imparting information and giving instructions.
Classroom Order Are the rules structuring classroom order explicit or implicit? Who speaks, when do they speak and in relation to what do they speak?	I will observe whether the classroom rules are prescriptive and made explicit or whether they allow for learner involvement and negotiation and are made implicit. I will also observe whether the "talk'" is instructional, dialogical or question/answer talk. If the rules of classroom are explicit then C+ + If implicit then C- -. If classroom talk is instructional or question/answer type then C+ + If dialogical then they are C- -.	(C+) The rules in the class were explicit and the educator was in control. (C+) While the educator used an instructional and question/answer type of talk, learners were free to engage with each other when group work commenced.

Observation Criteria	Observation Description	Classification/Classification
Selection of Content Do educators have control over the selection of content to be taught and to what extent is that control over selection determined on learners' interest and/or input?	I will observe whether the content is introduced by the educator as prescribed by the curriculum or educator's directive or whether the content is introduced, through a collaborative approach, as something negotiated with learner input. If there is evidence of a collaborative approach to the input of content into the lesson then F- -. If content is prescribed by the curriculum or at the discretion of the educator then F++.	(F++) The content is completely prescribed by the curriculum and relayed by the educator. Learners have no input whatsoever into the selection of content or material used.
Sequencing Do educators control the organization, ordering and sequencing of the content? To what extent is this negotiated with the students?	I will observe whether the lesson is sequenced according to the curriculum or educator's directive or whether there is evidence, through a collaborative approach, as to a negotiated sequencing of the lesson with learner input. If there is evidence of a collaborative approach to the sequencing of the lesson then F-. If sequencing is prescribed by the curriculum or at the discretion of the educator then F+.	(F++) The sequencing is mandated by the curriculum and the educator follows the order. Students have no input whatsoever into how the lessons are sequenced.
Pacing Do educators control the time taken to cover a specific topic? To what extent is this reliant on the specific/individual needs of the learners?	I will observe how flexible the pacing of the lesson is and whether it is responsive to the needs of the learners. I will observe how time is allocated to the different learning tasks as well as how strictly the educator adheres to time allocations and timetable requirements. If the pacing of the lesson is flexible and is responsive to the individual needs of the learners then F- -. If the pacing of the class is inflexible and adheres to the curriculum and timetable and not the individual needs of the learners, then F+ +.	(F++) The pacing of the lesson is totally in the control of the educator. Indeed the flipped class finished at exactly the same point as the control group. The timing was strictly adhered to. There was no evidence that the individual needs of the learners were taken into account.
Evaluation Do educators control the assessment dates, criteria and distribution of results? To what extent are these areas open for negotiation and learner input? Is differentiated assessment, according to learner needs, accommodated?	I will observe whether assessment dates are negotiated or prescribed, whether assessment criteria is explicit or implicit and whether feedback is regular with opportunities to edit and resubmit work. I will also observe whether the different needs of learners are taken into account when it comes to preparing assessments. If assessment dates are negotiated, criteria implicit and feedback regular with opportunities to edit then F- -. If assessment dates are non-negotiable, criteria explicit and all students expected to complete the same assessments without the opportunity to edit and resubmit then F+ +.	(F++) There was no evidence of negotiated time frames for assessments to be completed. Assessment work done in groups had to be finished by the time allocated by the educator. Assessments were not differentiated nor did there seem to be room to edit work done. Criteria were explicit in the assessment work done in class.

Appendix 6

Participant 4 – Observation Schedule (control)

Observation criteria	Observation description	Classification
Subject Disciplines Collection or integration code. Does the subject discipline allow integration or is the boundary between subjects well insulated?	I will observe whether the discipline (subject) taught is kept distinct (collection) or whether references and connections are made to other disciplines (Integration). If fully confined to the discipline then C++. If fully integrated with other disciplines then C- -.	(C++) No attempt was made to integrate any other discipline into the lesson. It was a strongly classified Maths lesson.
Topic Does the topic allow for other topics within the subject discipline to be integrated or is the topic boundary well insulated?	I will observe whether the topic taught is kept distinct or whether references and connections are made to other topics within the discipline. If kept distinct then C+ +. If integrated then C- -.	(C++) No attempt was made to deal with or refer to any other topic within this discipline. It dealt specifically with calculating surface area.
Space Is the classroom set up in a traditional format? Where does the educator position himself? Is there a gender and racial split in terms of learner seating arrangements?	I will observe how the classroom is set up. I will observe where the educator stands as well as his movements during the class. If the educator is confined to one area and learners are in rows then C++. If the educator moves around and learners are in groups then C- -. If learners arrange their seating according to race or gender then C++. If they integrate then C- - .	(C+ +) The educator was positioned in front of the class. There was no movement. (C+ +) Learners were seated in rows and worked on their own.
Pedagogic Relationship Is there a hierarchical relationship between educator and learners?	I will observe whether the educator takes on the traditional identity of instructor (educator-centred classroom) or that of facilitator (learner-centred classroom). If there is a hierarchical pedagogic relationship between educator and learner then C+ +. If the relationship boundaries blur, then C- -.	(C+ +) While the learners seemed comfortable with the educator, the relationship between educator and learners was clearly hierarchical. He stood mainly in front of the class imparting information and giving instructions.
Classroom Order Are the rules structuring classroom order explicit or implicit? Who speaks, when do they speak and in relation to what do they speak?	I will observe whether the classroom rules are prescriptive and made explicit or whether they allow for learner involvement and negotiation and are made implicit. I will also observe whether the "talk'" is instructional, dialogical or question/answer talk. If the rules of classroom are explicit then C+ + If implicit then C- -. If classroom talk is instructional or question/answer type then C+ + If dialogical then they are C- -.	(C+ +) The rules in the class were particularly explicit and the educator was in control. (C+ +) The educator used an instructional and question/answer type of talk. Questions were directed to particular learners. Learners seldom engaged in discussion with each other.

Observation Criteria	Observation Description	Classification/Classification
Selection of Content Do educators have control over the selection of content to be taught and to what extent is that control over selection determined on learners' interest and/or input.	I will observe whether the content is introduced by the educator as prescribed by the curriculum or educator's directive or whether the content is introduced, through a collaborative approach, as something negotiated with learner input. If there is evidence of a collaborative approach to the input of content into the lesson then F- -. If content is prescribed by the curriculum or at the discretion of the educator then F++.	(F++) The content is completely prescribed by the curriculum and relayed by the educator. Learners have no input whatsoever into the selection of content or material used.
Sequencing Do educators control the organization, ordering and sequencing of the content? To what extent is this negotiated with the students?	I will observe whether the lesson is sequenced according to the curriculum or educator's directive or whether there is evidence, through a collaborative approach, as to a negotiated sequencing of the lesson with learner input. If there is evidence of a collaborative approach to the sequencing of the lesson then F-. If sequencing is prescribed by the curriculum or at the discretion of the educator then F+.	(F++) The sequencing is mandated by the curriculum and the educator follows the order. Students have no input whatsoever into how the lessons are sequenced.
Pacing Do educators control the time taken to cover a specific topic? To what extent is this reliant on the specific/individual needs of the learners?	I will observe how flexible the pacing of the lesson is and whether it is responsive to the needs of the learners. I will observe how time is allocated to the different learning tasks as well as how strictly the educator adheres to time allocations and timetable requirements. If the pacing of the lesson is flexible and is responsive to the individual needs of the learners then F- -. If the pacing of the class is inflexible and adheres to the curriculum and timetable and not the individual needs of the learners, then F+ +.	(F++) The pacing of the lesson is totally in the control of the educator. The timing was strictly adhered to. There was no evidence that the individual needs of the learners were taken into account.
Evaluation Do educators control the assessment dates, criteria and distribution of results? To what extent are these areas open for negotiation and learner input? Is differentiated assessment, according to learner needs, accommodated?	I will observe whether assessment dates are negotiated or prescribed, whether assessment criteria is explicit or implicit and whether feedback is regular with opportunities to edit and resubmit work. I will also observe whether the different needs of learners are taken into account when it comes to preparing assessments. If assessment dates are negotiated, criteria implicit and feedback regular with opportunities to edit then F- -. If assessment dates are non-negotiable, criteria explicit and all students expected to complete the same assessments without the opportunity to edit and resubmit then F+ +.	(F++) There was no evidence of negotiated time frames for assessments to be completed. Assessment work done in groups had to be finished by the time allocated by the educator. Assessments were not differentiated nor did there seem to be room to edit work done. Criteria were explicit in the assessment work done in class.

Appendix 7

Participant 4 – Observation Schedule (experimental)

Observation Criteria	Observation description	Classification
Subject Disciplines Collection or integration code. Does the subject discipline allow integration or is the boundary between subjects well insulated?	I will observe whether the discipline (subject) taught is kept distinct (collection) or whether references and connections are made to other disciplines (Integration). If fully confined to the discipline then C++. If fully integrated with other disciplines then C- -.	(C-) A very definite attempt was made to integrate subject material. Economic Management Sciences was integrated with Maths.
Topic Does the topic allow for other topics within the subject discipline to be integrated or is the topic boundary well insulated?	I will observe whether the topic taught is kept distinct or whether references and connections are made to other topics within the discipline. If kept distinct then C+ +. If integrated then C- -.	(C-) The task called for learners to integrate their prior knowledge of two mathematical concepts. Learners integrated their knowledge of percentages with knowledge of how to calculate area.
Space Is the classroom set up in a traditional format? Where does the educator position himself? Is there a gender and racial split in terms of learner seating arrangements?	I will observe how the classroom is set up. I will observe where the educator stands as well as his movements during the class. If the educator is confined to one area and learners are in rows then C++. If the educator moves around and learners are in groups then C- -. If learners arrange their seating according to race or gender then C++. If they integrate then C- - .	(C- -) The educator spent very little time in front of the class. Most of his time was spent moving from group to group where he posed questions and facilitated learning. (C- -) Learners worked in groups. (C- -) Learners were seated in mixed gender and race groups.
Pedagogic Relationship Is there a hierarchical relationship between educator and learners?	I will observe whether the educator takes on the traditional identity of instructor (educator-centred classroom) or that of facilitator (learner-centred classroom). If there is a hierarchical pedagogic relationship between educator and learner then C+ +. If the relationship boundaries blur, then C- -.	(C- -) The educator took on the role of facilitator and ran a learner-centred classroom. The relationship was clearly non-hierarchical.
Classroom Order Are the rules structuring classroom order explicit or implicit? Who speaks, when do they speak and in relation to what do they speak?	I will observe whether the classroom rules are prescriptive and made explicit or whether they allow for learner involvement and negotiation and are made implicit. I will also observe whether the "talk'" is instructional, dialogical or question/answer talk. If the rules of classroom are explicit then C+ + If implicit then C- -. If classroom talk is instructional or question/answer type then C+ + If dialogical then they are C- -.	(C+)The rules structuring the class were implicit, in that the educator never mentioned them to the learners. However, the instructions for the task were explicit. (C- -) The educator used a dialogical approach to his facilitation of the class. Learners were encouraged to engage in discussion and to share their knowledge with each other.

How - Control	Observation Description	Classification/Framing
Selection of Content Do educators have control over the selection of content to be taught and to what extent is that control over selection determined on learners' interest and/or input?	I will observe whether the content is introduced by the educator as prescribed by the curriculum or educator's directive or whether the content is introduced, through a collaborative approach, as something negotiated with learner input. If there is evidence of a collaborative approach to the input of content into the lesson then F- -. If content is prescribed by the curriculum or at the discretion of the educator then F++.	(F-) While the content given by the educator to the learners to view at home was aligned with the curriculum, Learners were encouraged to extend their search to additional self-selected sources.
Sequencing Do educators control the organization, ordering and sequencing of the content? To what extent is this negotiated with the students?	I will observe whether the lesson is sequenced according to the curriculum or educator's directive or whether there is evidence, through a collaborative approach, as to a negotiated sequencing of the lesson with learner input. If there is evidence of a collaborative approach to the sequencing of the lesson then F-. If sequencing is prescribed by the curriculum or at the discretion of the educator then F+.	(F- -) Although the lesson sequencing is prescribed by the curriculum, the educator allowed the learners to take full responsibility for the sequencing of the mathematical content/concept addressed.
Pacing Do educators control the time taken to cover a specific topic? To what extent is this reliant on the specific/individual needs of the learners?	I will observe how flexible the pacing of the lesson is and whether it is responsive to the needs of the learners. I will observe how time is allocated to the different learning tasks as well as how strictly the educator adheres to time allocations and timetable requirements. If the pacing of the lesson is flexible and is responsive to the individual needs of the learners then F- -. If the pacing of the class is inflexible and adheres to the curriculum and timetable and not the individual needs of the learners, then F+ +.	(F- -) While the educator was fully responsible for the overall time limit on the lesson (45 min), the learners were fully responsible for pacing their learning activities.
Evaluation Do educators control the assessment dates, criteria and distribution of results? To what extent are these areas open for negotiation and learner input? Is differentiated assessment, according to learner needs, accommodated?	I will observe whether assessment dates are negotiated or prescribed, whether assessment criteria is explicit or implicit and whether feedback is regular with opportunities to edit and resubmit work. I will also observe whether the different needs of learners are taken into account when it comes to preparing assessments. If assessment dates are negotiated, criteria implicit and feedback regular with opportunities to edit then F- -. If assessment dates are non-negotiable, criteria explicit and all students expected to complete the same assessments without the opportunity to edit and resubmit then F+ +.	(F+) There was no evidence of negotiated time frames for assessments to be completed. Assessment work done in groups had to be finished by the time allocated by the educator. While the educator assessed the quality and accuracy of task engaged, learners were given the opportunity to revise/edit their work before giving their final answers.

Appendix 8

Interview Schedule 2 (post-implementation interview)

Question	Participant 1	Participant 2	Participant 3	Participant 4
How did you experience the FLM?	Enjoyed the planning but not the implementation.	Frustrating at times.	It took a lot more creativity than I thought – I had to up my game.	Definitely more anxious and less in control.
What did you find most useful/helpful about the FLM?	Forced to think creatively.	Identification of students who needed help.	Students came in to class more prepared and collaborated with each other.	Allowed for analysis of teaching style.
What did you find most challenging about the FLM?	-The lack of Wi-Fi connectivity. -Inadequate time to prepare. -Loss of control over the learning.	- Students not doing work at home. -Inadequate time to prepare. -Loss of control over the learning.	-Coming up with creative ideas. -Inadequate time to prepare. -Loss of control over the learning	-Students not doing the work at home. -Inadequate time to prepare. -Loss of control over the learning.
Did the FLM enable you to use your normal teaching practice?	It should have enabled me to be more learner centered but it didn't.	Yes, but on a more individual basis.	Had to re-think my teaching practice. It was more difficult than I thought it would be.	Yes, it enabled me to be more learner centered.
When using the FLM, how much control did you have over: selection, sequencing, pacing and evaluation?	Full control	Full control	Full control	Full control
Will you continue using the FLM in the future? When? How? Why?	-Yes, but in a different way. -Next term. -With simple concepts. - To be more creative.	-Yes, but in a different way. - Next term. - When doing an activity. - To be more creative.	-Yes - Next term. - To view videos. - To be more creative.	Yes, with certain topics. -Next term. - With simple concepts. - To get students to think.

Appendix 9

Ethical Clearance

Wits School of Education

27 St Andrews Road, Parktown, Johannesburg, 2193 Private Bag 3, Wits 2050, South Africa. Tel: +27 11 717-3064 Fax: +27 11 717-3100 E-mail: enquiries@educ.wits.ac.za Website: www.wits.ac.za

05 August 2014

Student Number: 855652

Protocol Number: 2014ECE039M

Dear Joseph Gerassi

Application for Ethics Clearance: Master of Education

Thank you very much for your ethics application. The Ethics Committee in Education of the Faculty of Humanities, acting on behalf of the Senate, has considered your application for ethics clearance for your proposal entitled:

Exploring the impact of the Flipped Learning Model (FLM) on educators' teaching practice at a private school in Johannesburg.

The committee recently met and I am pleased to inform you that clearance was granted.

Please use the above protocol number in all correspondence to the relevant research parties (schools, parents, learners etc.) and include it in your research report or project on the title page.

The Protocol Number above should be submitted to the Graduate Studies in Education Committee upon submission of your final research report.

All the best with your research project.

Yours sincerely,

MMabetha

Wits School of Education

011 717-3416

cc Supervisor: Prof N Carrim

Appendix 10

Principal Consent Form

Please fill in and return the reply slip below indicating your willingness to allow your school to participate in my research project called: Exploring the impact of the Flipped Learning Modal (FLM) on educators' teaching practice.

I, _____ give my consent for the following:

Permission to observe educators in class

I agree to allow educators to be observed in class. YES/NO

Permission to be audio-taped

I agree to allow educators to be audio-taped during the interview or observation lesson YES/NO

I know that the audiotapes will be used for this project only YES/NO

Permission to be interviewed

I agree to allow educators to be interviewed for this study. YES/NO

I know that educators can stop the interview at any time and don't have to

answer all the questions asked. YES/NO

Informed Consent

I understand that:

- The name of the school and educators and information will be kept confidential and safe and that the names of educators and the name of my school will not be revealed.
- Educators do not have to answer every question and can withdraw from the study at any time.
- Educators can ask not to be audio-taped, photographed and/or videotaped
- Data collected may be used in articles that may be written and for presentation at conference if needed.
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

Sign_____ Date_____

Appendix 11

Participant Consent Form

Please fill in and return the reply slip below indicating your willingness to be a participant in my voluntary research project called: Exploring the impact of the Flipped Learning Modal (FLM) on educators' teaching practice.

I, _____ give my consent for the following:

Permission to observe you in class

I agree to be observed in class. YES/NO

Permission to be audio-taped

I agree to be audio-taped during the interview or observation lesson YES/NO

I know that the audiotapes will be used for this project only YES/NO

Permission to be interviewed

I would like to be interviewed for this study. YES/NO

I know that I can stop the interview at any time and don't have to answer all the questions asked. YES/NO

Informed Consent

I understand that:

- My name and information will be kept confidential and safe and that my name and the name of my school will not be revealed.
- I do not have to answer every question and can withdraw from the study at any time.
- I can ask not to be audio-taped, photographed and/or videotaped
- Data collected may be used in articles that may be written and for presentation at conference if needed
- All the data collected during this study will be destroyed within 3-5 years after completion of my project.

Sign_____ Date_____