On South African primary mathematics learner identity: A Bernsteinian illumination

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This paper is theoretically informed by Bernstein's (1975) earlier work on learner positions and his notion of pedagogic identity (Bernstein, 2000), supplemented by Tyler's (1999) elaboration of the model. The paper analyses key primary mathematics curriculum policy documents to investigate the official primary mathematics learner identity as constructed by the current South African education curricula. In order to analyse learner identity we need to consider their relationship to the promoted primary mathematics teacher identity. In our earlier study (Pausigere & Graven, 2013) we revealed that the recent South African curriculum policy changes constructs and promotes a "Market" (Bernstein 2000) primary mathematics teacher identity and we argue in this paper that this relates with the "Detachment" (Bernstein, 1975) pupil learner identity position. Drawing on Bernstein's (1975; 2000) work, I construct a theoretical model, that relates the pedagogic identity classes and the pupil learner positions based on framing elements and the classification concept. I finally discuss the implications of such primary mathematics identities for the teaching and learning of mathematics.

Introduction

In this paper I investigate the type of learner identity promoted by the recent changes in South African primary mathematics education, as revealed in curriculum policy documents. Our earlier study (Pausigere & Graven, 2013) on how the current CAPS curriculum changes project a particular primary mathematics teacher identity motivated this research. To help us explain the construction of the local primary mathematics learner identity we draw both on Bernstein's (1975) earlier work on how pupils position themselves to school work in relation to the instrumental and expressive orders and his pedagogic identity model(Bernstein, 2000), which explains how different modalities of curricular reform construct different identities We supplement Bernstein's concept of pedagogic identities with the findings of Tyler's (1999) study, which interprets Bernstein's (2000) pedagogic identity categories in terms of knowledge coding properties (that is, classification and framing) and also extends this theoretical foundation to learner identity classes (Bernstein, 1975).

Bernstein (1975) presented a framework for analysing how pupils relate to school work; he expressed the learner positions as a function of both the expressive and instrumental orders. Bernstein (1975) also introduced the pupil learner identity categories to understand how British pupils defined their school roles in terms of their social class position. Later in his career Bernstein (2000) used the concept of pedagogic identity to analyse Britain's contemporary educational reforms. Tyler (1999) also used and extended the pedagogic identity model in the Australian education context which like the England's National

Curriculum reforms both began in the late 1980s and were characterised by a common curriculum framework and the compulsory testing of primary learners in core subjects. Recently in primary mathematics education, South Africa has also experienced some curriculum reforms changes, which witnessed in 2011 the introduction of universal standardised primary learner Annual National Assessment (ANA) tests in numeracy and literacy and the implementation of a common curriculum framework (Curriculum and Assessment Policy Statement, CAPS) at the primary level in 2012. This development is similar to the education reforms experienced in the United Kingdom and Australia in the last quarter of the century. The question therefore arises of *how* the South African primary mathematics learner identity, promoted by the current South African mathematics education policies, relate to Bernstein's (1975) earlier work on pupil learner positions and the pedagogic identity model (Bernstein, 2000). Following Tyler (1999) and extending both his scheme and Bernstein's work we explain the relationship between the pedagogic identity categories (Bernstein, 2000) and the pupil learners positions (Bernstein, 1975) and express these as a function of the framing elements (expressive/regulative and instrumental/instructional orders or discourse) as well as the classification concept. Our earlier work, in which we argued that the current CAPS curriculum changes project a "Market" (Bernstein, 2000) primary mathematics teacher identity (Pausigere & Graven, 2013) also illuminates our interrogation of the South African learner identity.

To investigate the notion of primary mathematics learner identity we analysed key national curriculum documents, we focused mainly on the CAPS primary mathematics policy documents. We also draw from policy documentation relating to ANA in our discussion of CAPS as ANA is part of the interventions associated with CAPS. Embedded in these curriculum policy documents is an officially sanctioned version of primary mathematics learner identity (Tyler, 1999, Bernstein &Solomon, 1999). Coupling our theoretical perspective with our document analysis indicates that the current CAPS curriculum changes project a "Detachment" (Bernstein, 1975) primary mathematics learner identity that closely relates with the "Market" (Bernstein, 2000) primary mathematics teacher identity, which we disclosed in our earlier study (Pausigere & Graven, 2013).We analyse the implications of such mathematical identities on the teaching and learning of primary maths.

Literature Review

This paper will narrow its literature review to studies that focus on the concept of (mathematical) teacher and learner identities and those that are theoretically informed by Bernstein's work. There have been both local and international studies drawing upon different aspects and ideas of Bernstein's theoretical concepts in order to study the notion of mathematical teacher identity. Bernstein's (1971, 2000) classification and framing theory and the pedagogic model have been used to study mathematical teacher's official pedagogic identities within reform contexts in South Africa (Parker, 2006; Graven, 2002; Pausigere & Graven, 2013), in Britain (Morgan et al, 2002; Morgan, 2005) and Sweden (Johansson, 2010). Bernstein's concepts of pedagogic models and pedagogic discourse have also been used to study official learner identities (Muller, 2000; Bourne, 2006) and primary school

learner identities (Hempel-Jorgensen, 2012).Closely related and relevant to this study is Johansson's (2010) paper and our work (Pausigere & Graven, 2013) that has been informed by Bernstein's concept of pedagogic identities to study school mathematics reforms in Sweden and primary teacher identity in South Africa. There however have been no studies that have drawn on Bernstein to investigate the notions of mathematics learner identity or primary mathematics learner identity, furthermore I have not found in published work or conference proceedings studies that interrelates mathematics teacher and learner identities using Bernstein's theoretical lens. This study thus contributes to these identified gaps in the literature; firstly of investigating primary mathematics learner identities and secondly of exploring the relationship between teacher and learner identities informed by Bernstein's constructs of pedagogic identity and pupil learner positions.

Theoretical Framework

In investigating the officially projected South African primary mathematics learner identities this paper draws on Bernstein's (1975) earlier work about how pupils define their school roles, Bernstein's (2000)concept of the pedagogic identities and Tyler's (1999) extension of the model. This paper relates and links Bernstein's (2000) four pedagogic identity categories and four of the "five types of pupil role involvements" (Bernstein, 1975, p. 43). Bernstein (1975) explains the pupil learner identity positions as a function of the instrumental and expressive orders. To help us illustrate and explore the interconnectedness of Bernstein's (2000) pedagogic identity classes and the pupils' school role categories (Bernstein, 1975), is Tyler's (1999) work, which explains how pedagogic identities and their realisations are constructed by variations in classification and framing relations. The pedagogic model (Bernstein, 2000; Tyler, 1999) illuminates our understanding of the South African primary mathematics learner position. Following Tyler's (1999) model I extended Bernstein's (1975) school learner roles and express these as a function mainly of framing properties and relate these to the classification concept, thereby establishing criteria and a basis on which to connect the learner's positions with the pedagogic identity classes.

Central to Bernstein's pedagogic identity model (Bernstein, 2000; Bernstein & Solomon, 1999) is the argument that the official knowledge and pedagogic modalities of curriculum reforms distributed in educational institutions construct, embed and project different official pedagogic identities. Bernstein's concept of pedagogic identities generated four distinct pedagogic identity positions, namely Conservative, Neo-Conservative, Therapeutic and Market, with Tyler's (1999) study, explaining *how* the pedagogic identity categories are outcomes of classification and framing principles. Key also for this study are Bernstein's (1975) four of the five types of pupil role involvements; Commitment, Detachment, Deferment, Estrangement and Alienation whose construction are realised by the instrumental and expressive orders. The Deferment learner position cannot be linked to any of the pedagogic identity categories as this learner, according to Bernstein, is not involved either in the expressive or instrumental orders of the school. Bernstein (1975) also expressed his categories on how pupils relate to the school in relation to social class positions and these will not be considered in this paper.

Before discussing the relationship between Bernstein's pedagogic learner positions and the identity categories, I briefly explain, showing similarities where necessary, between the framing concept and the instrumental and the expressive orders. The *expressive order* is similar to what Bernstein in his later work calls the *regulative discourses* or *social order rules* and these establish the conditions for conduct, character and manner of the school (Bernstein, 1975) or in the pedagogical relation (Bernstein, 2000; 2003). The *regulative discourse* also refers to the "forms of hierarchical relations in the pedagogic relation" and this can lead to the creation of either explicit hierarchical or implicit hierarchical relationships (Bernstein, 2000, p. 13; 2003). The *instrumental order* closely relates to the *instructional discourse* or *discursive rules* and both are concerned with how knowledge is transmitted and acquired (Bernstein, 1975),in fact it refers to the selection, sequence, pacing and criteria of knowledge (Bernstein, 2000; 2003). The expressive/regulative discourse/social orders rules and the instrumental/instructional discourse/discursive rules are a function and elements of framing with Bernstein defining framing as follows:

$$\text{Framing} = \frac{\text{instructional discourse} \quad ID}{\text{regulative discourse} \quad RD}$$

Bernstein (2000, p. 13) distinguishes between the instructional and the regulative discourse, with the former being "always embedded in the regulative discourse" and the latter being the "dominant discourse". It is important to note that the strength of the instructional and regulative discourses and also the elements of the instructional discourse can vary independently of each other (Bernstein, 2000).

Classification and framing, according to Bernstein (1971) determine the structure of curriculum (knowledge), pedagogy and evaluation in any education system. The concept of the frame "determines the structure of the message system" and refers to the "specific pedagogical relationship of teacher and taught" (Bernstein, 1971, p. 205). According to Bernstein (1971; 2000) where framing is strong, there is a sharp boundary between what may be and may not be transmitted and the transmitter has explicit control over selection, sequencing, pacing, criteria and social base. Where framing is weak, there is a blurred boundary between what may be and may not be transmitted and the acquirer has more *apparent* control over the communication and its socialbase. Classification on the other hand is concerned with the organisation of knowledge into curriculum, with strong classification, areas of knowledge and subject contents are well insulated into traditional subjects (Sadovnik, 2001; Bernstein, 1971). Weak classification refers to an integrated curriculum with blurred boundaries between contents (Sadovnik, 2001; Bernstein, 1971). It is important also to note that evaluation is a function of the strength of classification and framing, yet the strengths of the classification and framing can vary independently of each other (Bernstein, 1971).

Whilst there are similarities between the expressive order and the regulative discourse and on the other hand between the instrumental order and the instructional discourse, this study also argues, following our theoretical underpinnings, that the criteria for linking the pedagogic

identity categories and the learner positions is based on the connection between the instrumental/instructional order and classification and expressive/regulative order and framing, and their respective strengths. Thus a strong regulative discourse or expressive order (R/E+) leads to strong framing (F+) whilst a weak regulative discourse or expressive order(R/E-) leads to weak framing (F-). A strong instrumental order or instructional rules (I+) points towards strong classification (C+), whilst a weak instrumental order or instructional rules (I-) points towards weak classification (W+).These two propositions benefit from Bernstein's (1975) earlier work and the pedagogic identity model (Bernstein, 2000) which Tyler (1999) relates to classification and framing principles. In the table below I show framing, firstly as made up of both the instrumental and the expressive orders and secondly as resulting from the combined strengths of the instructional and regulative rules. Table 1 below indicates the interconnectedness of Bernstein's pedagogic identity categories and the learner position classes.

Table 1. The inter-connectedness of Bernstein's pedagogic identity classes and the learner's positions in terms of classification and framing

Pedagogic identity classes	Learner positions	Framing		Framing	Classification
		Instructional Instrumental	Regulative Expressive		
Conservative	Commitment	I +	R/E +	F+	C+
Market	Detachment	I +	R/E -	F -	C +
Therapeutic	Alienation	I -	R/E -	F-	C -
Neo-Conservative	Estrangement	I -	R/E +	F+	C -

I discuss below the relationship between each of the four learner positions (Bernstein, 1975) and the four pedagogic identity categories (Bernstein, 2000). I express firstly the pedagogic identities categories as a function of framing and classification and draw similarities with the learner positions based on these two key educational knowledge codes properties. The space to relate and express both identities as outcomes of classification and framing emanates from our theoretical orientations (Bernstein, 2000; Tyler, 1999). It is also practically impossible to discuss the learner position without discussing the pedagogic categories for in the pedagogical relation the 'taught' co-exists with the 'teacher'.

Conservative Pedagogic identities are "formed by hierarchically ordered, strongly bounded, explicitly stratified and sequenced discourse and practices" (Bernstein, 2000, p. 67). Tyler (1999) thus explains that in terms of educational codes this identity position can be described as having both strong classification and framing properties typical of a collection code, as was the case with Britain before the 1960s. The Conservative pedagogic identity class relates to the Commitment pupil position whose, "behaviour is appropriate and committed". S/he "spontaneously produces the behaviour accepted by the school in both its expressive and instrumental orders" (Bernstein, 1975, p.44). The Conservative pedagogic identity exhibits strong classification and strong framing, which resonates with the explicit and strong instrumental and expressive orders characterising the Commitment position.

Bernstein (2000) also identified the Market position, which focuses on producing competitive output-products (students) with an exchange value in a market and constructing an outwardly responsive identity driven by external contingencies. This identity is also orientated towards the intrinsic value of the discourse responsible for the serial ordering of subjects in the curriculum, and has to contend with the possible tension between enhancing learners' test performance and teaching disciplinary knowledge. This pedagogic position according to Tyler's (1999) theoretical scheme is weakly framed but strongly classified. I relate the market pedagogic identity category with the Detachment learner position. The Detachment learner is "involved in the instrumental order, but he is cool or negative towards the expressive order" yet "he is eager to learn and pass examinations" (Bernstein, 1975, p. 45). A weak expressive

order leads to weak framing whilst a dominant instrumental order translates to strong classification, and it is on this basis that I relate and link between the Detachment learner role and the Market position. Quite common to both positions is their interest in "examinations" or "tests". In our earlier work we discussed how the Market primary mathematics pedagogic identity is promoted in the CAPS curriculum (Pausigere & Graven, 2013). This paper will explain how these pedagogic and learner identity positions are reflected in the current changes in the South African primary mathematics education.

Neo-Conservative Pedagogic identities are "formed by recontextualising *selected* features from the past to stabilise the future *through engaging with contemporary change*" (Bernstein, 2000, p. 68). Because of its dual desire to stabilise the past and engage with change, this teacher identity category exhibits strong framing typical of the Conservative position, yet its disregard for traditional disciplinary boundaries and academic identities leads to weak knowledge classification (Bernstein, 2000; Tyler, 1999). The Neo-conservative pedagogic identity relates with the Estrangement learner position who is "highly involved in the expressive order" and his behaviour is "consonant with the image of conduct, character, manner and the moral order of the school" (Bernstein, 1975, p. 46). The high involvement in the expressive order translate to strong framing, yet the estrangement learner cannot manage the demands of the instrumental order, "…it is all a bit difficult for him" , thus this learner prefers weakly classified practices. There is therefore resonance between the Neo-conservative identity category and the estrangement learner position.

Therapeutic pedagogic identities are "produced by complex theories of personal, cognitive and social development, often labelled progressive" (Bernstein, 2000, p. 68). The Therapeutic position projects autonomous, sense-making, integrated modes of knowing and adaptable co-operative social practices that create internal coherence. Tyler (1999, p. 276) describes the Therapeutic position as "weakly classified and framed since it exhibits low specialisation and localised, adaptable practices". In our earlier work (Pausigere & Graven, 2013) we discussed how this identity position was promoted through Curriculum 2005(C2005), launched in South Africa in the late 1990s. The therapeutic pedagogic category relates with the Alienation learner position where "the pupil does not understand, and rejects both the instrumental and the expressive orders of the school" and this fits with the weak classification and framing of the therapeutic identity position (Bernstein, 1975, p.46; Tyler, 1999).

Figure 1 relates and links Bernstein's (2000) four pedagogic identity categories and four of the five pupil learner identity positions (Bernstein, 1975) and expresses these as a function of framing and classification. The model developed here, whilst informed by Tyler's (1999) scheme, also extends Bernstein's (2000, 1975) work on pedagogic and learner identity classes, and can be used in other studies to investigate national-official learner and teacher identities.

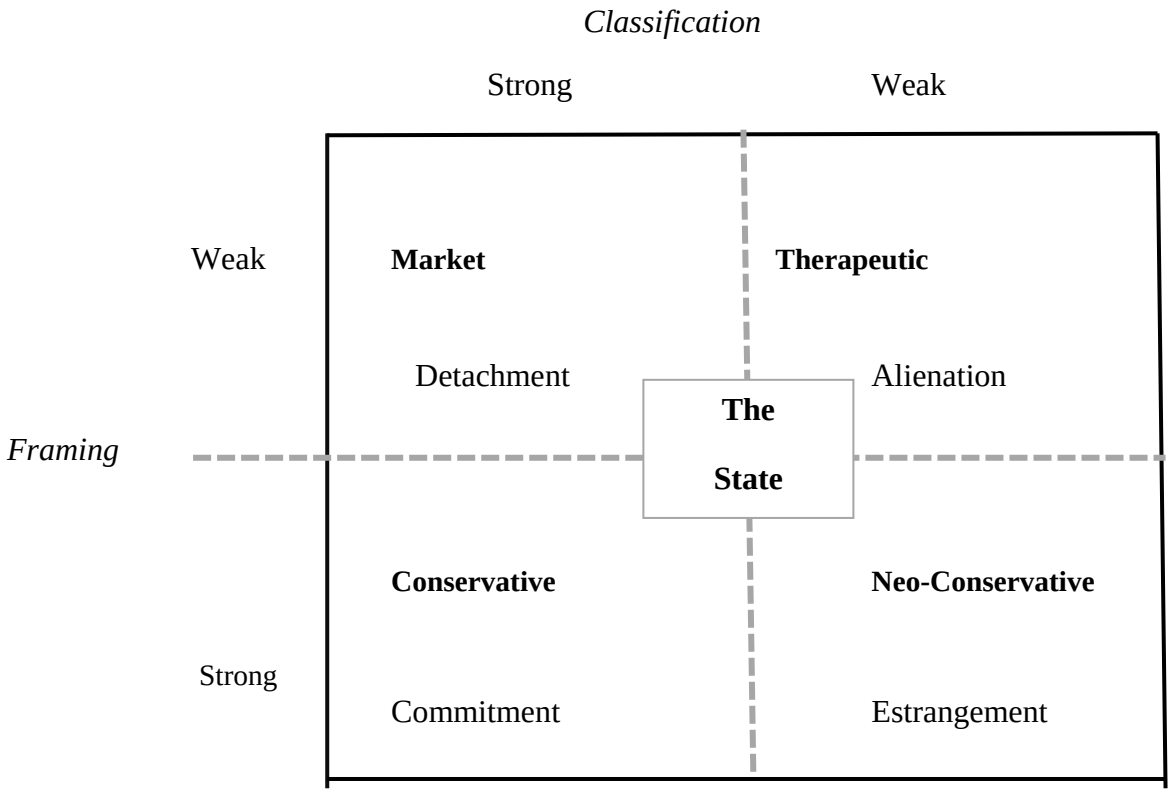

Figure 1. Bernstein's pedagogic identity and learner identity classes repositioned according to classification and framing properties.

It is this close link and connection between Bernstein's pedagogic identity categories and the pupil learner positions that provides us with exciting possibilities of investigating and relating the primary mathematics learner position and the pedagogic identity class in the South African curriculum reform context.

Research Method - Document Analysis

The data collection technique and strategy used for this descriptive qualitative study is document analysis also called content analysis (Best & Kahn, 2006). The main, primary and official sources of data analysed for this paper are the South Africa's Department of (Basic) Education's curriculum policy documents and statements. Thus the study analysed and scrutinised CAPS curriculum documents, primary mathematics education subject guidelines for the Foundation and Intermediate phase, the Foundations for Learning Campaign policy document and Annual National Assessment reports. Content analysis of official education policies and curriculum documents is the most suitable and relevant data collection strategy for interpreting and studying the official projected South African primary mathematics teacher and learner identities. Some studies cited in the literature review that have investigated notions of mathematics teacher identity and learner identity drawing on Bernstein's work have also analysed their respective national curriculum and policy documents (Graven, 2002;Parker, 2006; Johansson, 2010: Muller, 2000; Bourne, 2006; Morgan et al, 2002; Pausigere & Graven, 2013; Hempel-Jorgensen, 2013). These documents

spell out the official teacher and learner identities as perceived and intended by the Department of Education or the national government.

A deductive data analysis approach that is theory-driven was used to synthesise and make sense of data obtained from curriculum policy documents and statements and also in presenting our research findings (Best &Kahn, 2006). Thus the coding and exploration of data was theoretically guided mainly by Bernstein's (1975; 2000) pupil learner positions and the pedagogic identity model supplemented with Tyler's (1999) insightful interpretation of Bernstein's work. Bernstein's pupil learner positions and pedagogic identity model provides an analytic tool that serves as a template, to position the local primary mathematics learners and teachers in the current education reform and change context. Bernstein (2000) and Tyler's 1999, p. 277) typology of pedagogic identity also provides the "langue of reform" for describing and explaining firstly the officially projected primary mathematics teachers' identities and relating these to learner positions. Such structuring of data places learner and teacher identity at the centre and assists in explaining how primary mathematics learners and teachers are projected and constructed through the official educational discourse. The unit of analysis for this study is "Primary mathematics learner identity". I focus on how contemporary resources construct *who* South African primary learners are, with respect to the subject of mathematics (Bernstein & Solomon, 1999).

Discussion - CAPS' Detachment primary mathematics learner position and the Market primary mathematics teacher identity

In this part of the paper I discuss the primary mathematics learner identity projected by South Africa's most recent curriculum changes. I explain how the recent curriculum restructuring projects a Detachment learner position which relates with the Market primary mathematics teacher identity; both are interpreted in relation to framing elements and the classification principle.

The CAPS primary mathematics curriculum documents emphasise the need for learners to acquire key mathematical knowledge and deep conceptual understanding. The main focus falls on the first of the five content areas, "numbers, operations and relations", which makes up half of the foundation and intermediate phase mathematical content. The focus stems from the intention of ensuring that learners "secure number sense and operational fluency" and "develop more efficient techniques for calculations" (DBE, 2011a, p. 8; DBE, 2011b, p. 13). The importance of mental maths initially highlighted in the Foundations for Learning Campaign, launched in 2008, also features strongly in the primary mathematical curriculum, which promotes "number bonds", "multiplication table facts" and "calculation techniques" (DBE, 2011a, p. 8; DBE, 2011b, p. 35; DOE, 2008). The primary mathematics curriculum documents also highlight the need for learners to engage in problem-solving activities, thereby creating a context for the development of higher order mathematical concepts (DBE, 2011a; DBE, 2011b). South African primary mathematics education's focus on improving learners' number sense, operational fluency, mental maths and problem solving aligns with the influential and international primary mathematical studies that have identified these mathematical activities as central for developing learners' mathematical proficiency. The

resulting primary mathematics teacher and learner identity thus corresponds firstly with Bernstein's Market pedagogic position, which is strongly classified (Tyler, 1999) and the Detachment learner position under which the pupil is strongly involved in the instrumental order or the instructional discourse (Bernstein, 1975).

To understand the envisaged primary mathematics learner identity we also look at the depicted primary mathematics teacher identity in terms of the key instructional elements of "selection, sequence, pacing and criteria of knowledge" (Bernstein, 2000, p. 13). A strong instructional discourse or instrumental order is evident in the CAPS primary mathematics curriculum documents through its specification, clarification, timing and sequencing of content from grade to grade across the four terms of the year (DBE, 2011a; DBE, 2011b).In the curriculum strong pacing and sequencing is indicated through grade by grade "specification of content to show progression" (DBE, 2011a, p. 19; DBE, 2011b).Such sequencing serves to indicate the "progression of concepts and skills", how content can be adequately spread over time and give guidance "on the spread of content in the examination/assessment" (DBE, 2011a, p. 19, 11; DBE, 2011b).Bernstein's (2003, p. 206)elaboration that "with strong pacing, time is at a premium" is also illustrated in the primary mathematics curriculum documents' recommended distribution and allocation of mathematics teaching topic-cum-time schedules (DBE, 2011a; DBE, 2011b). Furthermore the CAPS primary mathematics school-based formal assessment tests and examinations(DBE, 2011a, DBE, 2011b), give rise to ordered principles of evaluation which emphasis that the pupil reveals relatively objective procedures and leads to a strong instructional discourse, especially on the criteria aspect of the discursive order (Bernstein, 1971; 2000).The listing of the school-based formal assessments recommended under the new curriculum and the explicit stating and timing of the mathematical concepts to be relayed and acquired at the primary level indicates strong instructional discourse elements or an explicit instrumental order. Foregrounding the instructional discourse resonates with the Market pedagogic identity which emphasises in this case deep conceptual mathematical knowledge typical of strong classification and relates with the Detachment learner who engages in the instrumental order.

Whilst the instructional discourse of CAPS primary mathematics is strong there is however indications that the regulative discourse of the CAPS curriculum carries mixed messages of a weak and strong social order. A weak regulative discourse is evident in the CAPS curriculum which, like the previous curricula, is founded on and retains allegiance to the principles of "social transformation… human rights, inclusivity and social justice" that were fore grounded in C2005 (DBE, 2011a, 3). Thus the curriculum still emphasises learner-centred approaches such as "small group focused lessons" or interactive group work sessions in which learners should be encouraged to "talk, demonstrate and record their mathematical thinking" (DBE, 2011a, p. 9; DBE, 2011b). The new primary mathematics curriculum policy documents encourage an active and critical approach to learning, under which teachers accommodate learners' computational strategies (DBE, 2011a; DBE, 2011b). This also concurs with Bernstein's (2003, 2000, p. 13) assertion that under an implicit social order the acquirer "struggles to be creative, to be interactive, to attempt to make his or her own mark". Such weak regulative discourse practices consequently impact on the instructional discourse which

in the local case, has resulted in the CAPS primary mathematics evaluative practices to monitor learners' daily progress through informal assessments, such as observations, discussions, practical demonstrations, learner-teacher conferences and informal classroom interactions (DBE, 2011a, 2011b). These informal evaluations of primary mathematics learners give rise to "multiple criteria of assessment" which emphasis the "inner attributes of the student" and points towards weak framing (Bernstein, 1971, p. 223, 224).A weak regulative discourse is also evident in the curriculum's subject guidelines which leaves room for primary mathematics teachers to "sequence and pace the maths content differently from the recommendations" in the policy documents (DBE, 2011b, p. 32). According to Bernstein (2000) the Market position radically transforms the regulative discourse of the institution as this affects its conditions of survival, resulting in both a weak regulative discourse and a weakly framed transmission (Tyler, 1999). Similarly CAPS did not forego the social transformation and political pedagogical intentions that initially set the groundwork for curriculum reform in South Africa and these are carried through. Such a weak regulative discourse both closely relates with the Detachment learner position which is apparently uninvolved in the expressive social order and the key feature of the Market teacher identity which is sustained in weak framing.

On the other hand there is also evidence that the regulative discourse of the primary mathematical curriculum is strong. The strong regulative discourse might be emanating from the CAPS' primary mathematical curriculum documents' emphasis on the need for learners to acquire key mathematical knowledge and deep conceptual understanding which indicates strong classification. Secondly the CAPS primary mathematical classroom teaching and learning practices also emphasis teacher-centred and independent activities that foreground mathematical concepts and skills. The whole class activity teaching approach is outlined as the main teaching strategy meant to consolidate key mathematical concepts, promote mental mathematics and independent activities (DBE, 2011a).The fact that the individual learners have to engage in independent mathematical activities closely relates with an explicit regulative discourse or conditions for a strong social order. The emphasis in the primary mathematics curriculum documents, of the whole class teaching approach and independent learner activities, indicates that the pedagogical relationship between the primary mathematical teacher and learner shows some hierarchical relations characteristic of strong regulative discourse. According to Bernstein (2003; 2000, p. 13) under such explicit rules of the social order the candidates for labelling the acquirer are such terms as "conscientious, attentive, industrious, careful, receptive".

Whilst the CAPS' instructional discourse elements are strong, the regulative discourse carries mixed messages of a weak and strong social order. Because of such mixed transmission signals the primary mathematical classroom teaching and learning practices, allow for both learner-centred and teacher-centred activities that foreground mathematical concepts and skills. This has an impact on framing which is a function of both the instructional and the regulative discourse; the latter is the dominant discourse which in the CAPS case shows both a weak and strong social base. In other words the strength of the frame is determined by the regulative discourse. Analysis of the primary mathematics curriculum documents using

Bernstein's work (1971; 2000) and Tyler's (1999) theoretical insights, indicates that the new curriculum's framing ought to be weak, so as to resonate with the Market pedagogic identity position which relates with the Detachment learner position that is negative towards the expressive order or the regulative discourse. However from both a theoretical perspective (Bernstein, 1971, 1975, 2000; 2003; Tyler, 1999) and an analysis of the primary mathematics curriculum documents there is evidence that the new curriculum's framing is strengthened and thus stronger than C2005's frame. The CAPS' strengthened frame results from the strong instructional discourse elements and some hierarchical pedagogical relations promoted in the primary mathematics' regulative discourse.

The strengthening of the frame under CAPS could also be a result of the type of mathematical knowledge supposed to be learnt in local primary classes, especially given the fact that the new curriculum puts emphasis on the learners' operational fluency. This argument emanates from Bernstein's (1971) assertion that the form of knowledge transmitted affects the nature of the framing. It logically follows that the strong CAPS content knowledge classification has resulted in a strengthened primary mathematics frame. It is also useful to view strengths of classification and framing along a continuum rather than simply as polar opposites of strong and weak classification and framing. Because the CAPS primary mathematics curriculum's framing is strengthened, the resultant primary mathematical teacher identity is orientated towards a strengthened frame and strong classification, a position that we argued for in our earlier work (Pausigere & Graven, 2013). The strengthening of the framing also impacts on the Detachment learner position whose expressive order has to align with this new development resulting in a strengthened expressive order. These findings add a new dimension and perspective to Bernstein's (1975) earlier work on the learner positions and to the pedagogic identity model (Bernstein 2000; Tyler, 1999). It also shows how the theory (Bernstein, 2000, 1975; Tyler, 1999) has illuminated my understanding of the local Detachment primary mathematics learner and the Market primary mathematics teacher identity positions.

There is a striking similarity between the Detachment learner position (Bernstein, 1975) and the Market pedagogic identity category (Bernstein, 2000, 2003) concerning their interest and high regard for (universal standardised learner) tests and examinations. This trend emerged locally in the form of a national roll out in 2011 of standardised tests that are aimed at ensuring that 60% of learners achieve 50% and above in literacy and numeracy by 2014 (DOE, 2008). The 2012 ANA national mathematics mean scores reveal that the Grade 1 and 2 learners have achieved above the set targets whilst the Grade 3 to Grade 6 scores are still far below the desired threshold (DBE, 2012). In fact performance tends to decline as one moves up the grades with 77.4% of Grade 1 learners achieving over 50% for mathematics reducing to 67.8%, 36.3%, 26.3%, 16.1% and 10.6% for grades 2 to 6 respectively. Under the new national monitoring measures all South African primary learners undergo Annual National Assessments (standardised tests) to monitor, track and improve the level and quality of their literacy and numeracy (mathematics) levels across Grades 1 to 6 and Grade 9 (DBE, 2008; 2011; 2012). Secondly, the ANA tests are meant to serve as a diagnostic tool for identifying areas of strength and weakness in teaching and learning, which can ameliorate

classroom assessment practices and inform the teaching and learning of literacy and numeracy (DBE, 2011; 2012). Thirdly, from an education policy management perspective, the ANAs provide credible and reliable information to monitor progress, and guide planning and the distribution of resources to help improve learners' literacy and numeracy knowledge and skills (DBE, 2011; 2012). Both Bernstein (2003) and Tyler (1999), argue that the periodic mass testing of learners enables centralised monitoring and the homogenisation of educational practices, thereby creating performance indicators for accountability, transparency and efficiency. The fact that the Detachment learner position "wants to do well; he is eager to learn and pass examinations" (Bernstein, 1975, p. 45) closely relates with the market pedagogic identity category whose focus is on enhancing learner performance in national standardised tests. In the same way the South African Detachment primary mathematics learner and the market primary mathematics teacher identity are both concerned with performing well in the ANA tests.

The South African primary mathematics detachment learner and market teacher identities have to meet the dual challenge of teaching and learning key mathematical concepts and improving their performance in the ANA tests. The teacher identities in this category must negotiate the tension between "satisfying external competitive demands" and "the intrinsic value of the discourse" (Bernstein, 2000, p. 71). In the same way the Detachment learner position is also strained by his "eager to learn and pass examination" and his negative attitude "towards the expressive order" (Bernstein, 1975, p. 45). Thus both the market pedagogic identity and the Detachment learner position are in a "Janus-schizoid position" characterised by conflicting or contradictory ideas (Bernstein, 2000, 2003). The market pedagogic identity category is "ideologically a much more complex construction" so is the Detachment learner position which is a "more interesting situation" (Bernstein, 2003, p. 213; Bernstein, 1975, p. 45). Both identities have revealed themselves in the South African primary mathematical education context in a slightly changed form; they thus currently both exist in strong instrumental orders, strong classification with a focus on tests - typical of the market and the detachment positions however their framing and the expressive order has been strengthened.

Concluding Remarks

This paper sought to investigate the type of primary mathematics learner identity portrayed by the current changes in the South African mathematics education as contained in curriculum policy documents. It also explains how the promoted South African primary mathematics learner identity can be linked to a particular teacher identity whose theoretical genesis is Bernstein's (1975; 2000)earlier work on pupil learner positions and the pedagogic identity model which are expressed as a function of classification and framing elements, following Tyler's (1999) elaboration of the pedagogic identity concept. My findings, which bear the influence of a particular methodological and theoretical lens, indicate that the new CAPS curriculum constructs a detachment primary mathematics learner position and a market primary mathematics teacher identity, which are both interested in the teaching and learning of fundamental mathematical concepts and partaking in national tests. We prophetically depict and picture the future South African primary mathematics learner and

teacher identities heeded towards a Commitment learner position which is strongly involved in both the expressive and the instrumental orders and the Conservative pedagogic identity, characterised by strong classification and framing. Whilst our key findings are applicable to primary mathematics learners they can also be extended and generalised to understand South African teacher and learner identities in the new curriculum dispensation and in the future. The pedagogic-learner identity model outlined in this paper can be used in other countries to investigate teacher and learner identities.

To conclude this paper I raise critical issues concerning learner and teacher identities, the teaching and learning of primary mathematics and curriculum and policy development. Firstly a critical issue raised by Hempel-Jorgensen (2009), which is applicable to the current local curriculum changes, concerns the focus on learner performance in national assessments which she argues compromises the development of learning disposition in schools. Similarly I argue that the focus on primary mathematics learner performance in the ANAs retards the development of a primary mathematics learner identity that embraces maths learning dispositions. Secondly the over-prescription of content in local primary mathematics curriculum subject guidelines can erode primary teachers' professional autonomy and responsibility, thus challenging their professional identity, a point also elaborated by Morgan (2005) and Hempel-Jorgensen (2009) in Britain's National Curriculum reforms context. Using Dowling's (1998) principles, Morgan (2005) argues that over-specification of content and the concern with assessment leads to specialising-proceduralising strategies that focus on the *procedure* required for the construction of legitimate texts for evaluation which distribute to learners and teachers "dependent" voices. What might be relevant for the local primary mathematics education are subject guidelines and policy documents that distribute specialising-principling strategies whereby the *understanding*, *competences and reasoning* behind the mathematics are required for the construction of the legitimate texts for evaluation. In other words the South African primary mathematics documents and policy statement must encourage the teaching and learning of mathematics to focus on the *how* and *why* which is generative, and not mainly emphasis on the *what*, as is the current situation.

Acknowledgements

This work is supported by the South African Numeracy Chair, Rhodes University; as usual author disclaimer conditions apply.

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