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# A review of the research literature on teaching and learning in the foundation phase in South Africa

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## INTRODUCTION

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This document reports the findings of a review of research on teaching and learning at the Foundation Phase level in South African schools. The focus of the review is on Grades 1, 2 and 3<sup>1</sup>. However, the review's focus is broadened to the primary level more generally given that there is limited published research at the Foundation Phase level specifically. The review also pays particular attention to the teaching and learning of language and mathematics. As a background document to the 'Building evidence for policy making: Using available datasets to identify underlying causes of poor learner performance in Foundation Phase literacy and numeracy' Project, the purpose of the review is to draw together findings relevant to the Foundation Phase, and identify critical factors that have been shown to describe teaching and learning at this level, and factors that impact on teaching, learning and student performance at this level.

The report also locates the South African literature in the broader international context, especially developing country contexts. This part of the review is not comprehensive but rather serves to locate the South African literature.

The review draws on published and grey material in tabling existent findings on classrooms in South Africa. Many of these studies have significant methodological limitations, and are also limited by the small sample sizes of many of the research projects on which they are based. Nonetheless, cumulatively, they allow us to describe the nature of teaching and learning in classrooms, and also identify with relative confidence a number of classroom-level factors which impact on student achievement outcomes. School, and even more so classroom, effects have been difficult to discern in research, especially given the lack of longitudinal studies which are able to reflect the cumulative nature of learning that goes on in classrooms. We have yet to develop a stock of good studies in South Africa that focus on the factors that make a difference in classrooms, especially in studies that are generalisable to large populations. Nonetheless, given these limitations, South African research has generated a relatively clear picture of the dominant forms of pedagogy in Foundation Phase, as well as some of the factors that we might pay attention to in large-scale studies or analyses of existent data sets.

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<sup>1</sup> Although formally part of the Foundation Phase, Grade R does not form part of this review. For overviews of developments at that level, see Hoadley (2013). A comprehensive review is provided by SAIDE (2010). A significant study on the impact of Grade R on learning outcomes was recently completed by van der Berg et al (2013).

The report is structured as follows. Section 1 presents a brief and selective review of international research on teaching and learning in the Foundation Phase. The focus here is on developing country contexts, and considers the school effectiveness tradition as well as other research traditions. Section 2 provides a background to classroom-based studies in South Africa, providing a brief history of classroom-based studies, as well as some of the issues and trends that have emerged. Section 3 looks at South African large and medium scale studies within the school effectiveness and school improvement traditions. Section 4 looks at small-scale research at the primary level of schooling general. Section 5 considers research that has looked at Foundation Phase language literacy learning specifically and Section 6 reviews studies at the Foundation Phase level in mathematics. The concluding section draws together the cumulative findings from both large and small-scale studies relevant to primary schooling and Foundation Phase in particular. The concluding summary raises some of the cautionary points around methodology and validity that emerge in the course of the discussion of the research literature.

## SECTION 1: INTERNATIONAL CONTEXT

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Nag et al (2014) provide an excellent recent review of research focused on the teaching of literacy and numeracy in the early grades in developing countries. The review considers research published from 1990 to January 2013. The review included (a) reports of primary data arising from experimental methods or from observational studies using statistical, ethnographic or other qualitative descriptive methods of analysis, and (b) intervention studies employing randomised controlled trials (RCTs) or quasi-experimental designs (QEDs) with a sample size of above 32. It covers a wide range of developing countries in Africa, South and Central America, Central Europe and Asia. The focus is on language and literacy learning from early childhood to Grade 8 and on mathematical reasoning and numeracy learning up to Grade 2. The central findings of the review are useful in relation to the South African research. Much of what is presented is recognisable in our own context, and confirmed by smaller, less robust studies here. Further, the review provides a useful background for the distilling of contextually specific issues in the South African literature.

In terms of actual classroom practices the Nag et al (2014) review found from ethnographic studies a consistent picture across settings of dominant pedagogic practices across developing country contexts. Rote and surface learning dominated across classrooms. Chorus, copywriting and drill

were the most visible aspects of classroom instruction. The authors point out that there was variety in these practices, suggesting a more responsive approach to teaching in some cases. However, they don't elaborate on what these variations were.

The authors make the argument that a significant constraint on literacy and numeracy instruction in schools is the neglect to take into account individual differences in the skills children bring to school. They also argue that classroom methods generally neglect to make explicit what is required for competency in a particular area of learning (p. 14). This will be taken up below in relation to the identification of a 'communalising' pedagogy in the South African context, with weak evaluative practices in the pedagogic routines found here. Nag et al assert that lessons across developing countries are not interactive, or 'dialogic', rather "many teachers are entrenched in prescriptive/directive ways of instruction that are neither engaging nor effective" (p.29).

### 1.1 Classroom practices in literacy – ethnographic studies

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In language Nag et al make a number of observations around literacy teaching found to be common across contexts. The authors argue that there is reasonable consensus that, where possible, children's initial instruction should be in their mother tongue. Many of the developing country contexts under review have a policy of 'additive bilingualism' where students begin instruction in the early grades in their mother tongue and transition to the language of learning and instruction (LOLT) between Grades 4 and 6. But the authors go on to identify two critical issues in relation to this. Firstly, they argue that in many contexts, identifying a language that qualifies for mother tongue instruction is no simple matter. This is significant because of the strong effect on learning outcomes found when there is congruence between the home language and the LOLT. Secondly, a macro-level analysis of factors influencing Grade 6 reading achievement in 14 Southern African countries (SACMEQ 8 data, Hungi and Thuku, 2010) found that speaking the language of instruction at home was a significant predictor of reading success<sup>2</sup>.

Nag et al also highlight the different components and complexities in **decoding** in the teaching of reading. They report that synthesis of evidence from studies in 18 different languages shows that

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<sup>2</sup> However, an analysis of attainments of Grade 4 and 5 pupils in the 11 official languages of South Africa found varied effects in an analysis of the PIRLS data (Howie et al. 2007). The latter study argues that while familiarity with the language of instruction is important, its influence depends on other factors. We will return to this in specific reference to South African evidence.

children's phonological awareness, knowledge of the symbols of the writing system and/or knowledge of vocabulary are good predictors of individual differences in learning to decode text. However, they highlight the individual specificities of different languages, such that “despite the universal nature of many predictors [of successful decoding], language-specific characteristics determine the exact measure that will be sensitive to individual differences”. This pertains especially to languages with different orthographies, an issue very relevant to the South African context. The authors conclude that in high-income countries comparisons across alphabetic languages reveal just three predictors of individual differences in decoding (reading, spelling) ability: letter knowledge, phonological awareness and rapid naming (most important for fluency) (Caravolas et al., 2013). This finding holds for second language learners (Geva and Siegel, 2000). These skills, along with vocabulary knowledge, they contend are the strongest predictors of literacy development in relation to decoding.

The review then addresses the shift from decoding to **comprehension**. In this regard, they confirm through the studies reviewed that reading comprehension may be poor even when decoding ability and word recognition is high. The authors argue, drawing on the National Early Literacy Panel (2008), that oral language is an important predictor of later literacy achievement. **Oral language competences** crucially include grammar, listening comprehension, and a deep as opposed to simple vocabulary knowledge (e.g. understanding that words mean different things in different contexts, rather than simple word-picture matching).

Nag et al also point to the importance of the question of the transfer of phonological skills across languages. Developed country evidence suggests that this depends upon the phonological skills of individual children, and that the stronger the phonological awareness skills in one language the better students are able to transfer these skills to a second language. The review didn't find any papers investigating this issue in developing country contexts, however.

## 1.2 Classroom practices in numeracy – ethnographic studies

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Although the number of studies in numeracy reviewed was restricted, Nag et al identify common patterns across developing country early mathematics classroom contexts. In numeracy, the emphasis in classrooms was found to be the relaying of number facts through recitation and rote learning. Teaching of number concepts and of arithmetic strategies was neglected, as was

embedding problem solving in familiar contexts. Unlike the South African experience we will see below, there was a significant lack of the use of manipulatives and concrete strategies for teaching mathematical concepts. Rather, classroom discourse was abstract and removed from students' everyday experience. Again, in relation to evaluation and feedback, the authors show across studies the dominance of the teaching of number facts with little elaboration on the concepts underpinning early numeracy.

Important language dimensions in teaching mathematics are also drawn out in the review. There was a wide variation in the use of code-switching in mathematics in bi- and multi-lingual contexts as an important pedagogical strategy to assist students comprehension of the content. Whilst code-switching was widely used in lessons in Malaysian rural and urban classrooms (Neo and Heng, 2012) for example, in Zimbabwean classrooms, home language use was restricted to the non-formal parts of the lessons (Cleghorn et al., 1998). The issue of code switching will also be picked up specifically in relation to the South African context below. In general, and as in the case of language teaching, low spoken language proficiency in the language of instruction was found across contexts.

A desk review of teaching numeracy in pre-school and early grades in low-income countries by Atweh et al (2014) also presents some useful findings in relation to common practices in mathematics classrooms across different contexts that are schooling under conditions of poverty. Although focusing on best practice as derived from a reading of the literature, the review does provide some descriptive findings in relation to dominant classroom practices. One area of evidence is around concrete resources for early numeracy teaching. They point to problems in both the availability of resources and their use. The authors argue that current evidence provides some limitation about their usefulness. While these resources are considered very important at the introductory stages of learning, the need for a careful 'fading' of concrete resources linked to the increasing use of iconic and symbolic representations is advocated. Actual use is limited, and when concrete resources are used the connection to mathematical principles is often absent. In the South African context the use of concrete methods for solving problems endures into the upper primary grades.

Atweh et al (2014) also discuss in some depth the issue of teachers' knowledge. Their central argument is that while teachers' lack of content knowledge is detrimental to developing numeracy,

content knowledge per se is not sufficient. Additionally what is required is ‘pedagogical content knowledge’ that connects teaching to the context of the student and builds on their existing knowledge and level of performance.

Atweh et al (2014) also draw attention to critical issues around resourcing of mathematics classrooms. They assert that while the resource situation developing country classroom contexts shows some improvement, there is still a paucity of textbooks and workbooks (see Valverde and Näslund-Hadley, 2010, for a Latin-American overview). Further, broadening access has resulted in increased class sizes that leads to fewer learner resources spread across more learners. A number of researchers also consider the use of resources, in partuclar in relation to developing children’s mathematical understanding (Drews, 2007; Askew and Venkat, 2013).

**TABLE 1: DESCRIPTIVE FEATURES OF LITERACY CLASSROOMS IN DEVELOPING COUNTRY CONTEXTS DERIVED FROM ETHNOGRAPHIC STUDIES**

<ul style="list-style-type: none"><li>. Surface pedagogy and rote learning with little deep exploration of concepts</li><li>. Dominance of chanting, copy-writing and drill</li><li>. Insufficient emphasis on developing oral language skills</li><li>. Collectivised as opposed to individualised learning</li><li>. Difficulty of shifting from decoding to comprehension</li><li>. Multiple issues related to language, especially the transition from mother tongue to LOLT and second language teaching and learning</li></ul>
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**TABLE 2: DESCRIPTIVE FEATURES OF NUMERACY CLASSROOMS IN DEVELOPING COUNTRY CONTEXTS DERIVED FROM ETHNOGRAPHIC STUDIES**

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| <ul style="list-style-type: none"> <li>. Rote learning of number facts</li> <li>. Little exploration of number concepts and arithmetic strategies</li> <li>. Dominance of chanting, copy-writing and drill</li> <li>. Limited use of productive code-switching</li> <li>. Lack of teaching of problem-solving</li> <li>. Collectivised as opposed to individualised learning</li> <li>. Inadequate existence and use of resources</li> <li>. Low teacher mathematical knowledge and knowledge of how to teach mathematics</li> </ul> |
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### 1.3 Evaluation of interventions

Alongside the review of qualitative and naturalistic studies of literacy and numeracy instruction, the review by Nag et al (2014) also undertook a systematic review of randomised controlled trial (RCTs) and quasi-experimental studies (QES). They found relatively few robust evaluations of the efficacy of interventions. After excluding studies of low quality, eight RCTs and eight QED studies in early literacy and numeracy were reviewed.

Their review of RCTs found positive impacts of six different programmes for reading and/or numeracy. These were:

- A ‘31-day reading marathon’ (Aberberese et al., 2011), and a whole-class dialogic reading intervention (Opel et al., 2009) found positive effects on reading and on expressive vocabulary development respectively.
- For numeracy, a programme which included ‘hands-on’ mathematics activities (Opel et al., 2012) and a computer-assisted learning programme (Banerjee et al., 2007) were shown to be effective.
- Two programmes combining literacy and numeracy instruction found evidence of positive effects. One was four months’ exposure to an educational multimedia intervention

(Borzekowski and Henry, 2011) and the other a remedial intervention using young women from the local community as teachers (Banerjee et al., 2007).

In the QEDs the review found a number of interventions with a phonological/phonic basis to be effective. Only one intervention focused specifically on developing children's phonological awareness (Nag-Arulmani et al., 2003). This study evaluated a three-week intervention for multilingual 7-9 year old children. Children receiving the intervention showed greater improvement in reading when compared to a low-intensity language intervention focusing on vocabulary building.

The review raises some key points in relation to these studies. One is the importance of systematically investigating the factors critical to the success of the interventions (i.e. the 'moderators' or factors that affect their success). This was generally not done in the studies reviewed. Second, and relatedly, they argue that it is important to recognise in resource-poor settings that it might be relatively easy to bring about immediate gains. It is critical that the mediators are understood in order to assess the potential and actual longer-term impact.

The review makes specific recommendations regarding language interventions. The first is that their review found some evidence that reading interventions with a phonological basis are effective. They recommend that programmes that target specific skills (e.g. phonological training, morphological training) need to go together with those that target broader skills (e.g. oral language proficiency, inference making). Crucially, the optimal intensity and duration of these needs to be a focus of attention, and is difficult to quantify given the extant research.

Secondly, the authors make a strong, headline recommendation that oral language skills known to underpin literacy development need to be targeted. These include most notably phonological awareness and comprehension of spoken language which includes a grasp of grammar and deep definition of vocabulary.

The table below shows in summary form examples of the studies that were found to show positive effects. These included interventions evaluated using quasi-experimental designs (QED), randomised controlled trials (RCT) and research designs which combine qualitative and quantitative methods (Mixed). The studies were undertaken in Bangladesh (B), Ethiopia (E ),

Costa Rica (CR), India (I), Kenya, Uganda, Zanzibar / Tanzania (KUZ), Philippines (P) and Turkey (T).

**TABLE 3: EXAMPLES OF STUDIES SHOWING POSITIVE EFFECTS (FROM NAG ET AL, 2014:4)**

Intervention	Study (Country code, design & quality rating)	Example of activity	Emergent literacy	Oral language	Reading skills	Increase in motivation / educational success
Emergent literacy	Malmberg <i>et al.</i> (2011) KUZ, QED, ↑	'to use locally available low-cost material for children to select, explore and experiment with...' p. 125	✓	✓		
	Kağıtçıbaşı (1997) T, QED, ↑	'...read the storybooks to their children, discussed them (e.g. asking and answering questions)' p. 71	✓	✓	✓	✓
Oral language inputs	Bekman <i>et al.</i> (2011) T, QED, →	<i>Circle time</i> : 'To promote thinking about a topic, sharing ideas, and seeing the cause-effect relationships between events.' p. 415	✓	✓		
	Moore <i>et al.</i> (2008) B, Mixed, ↑	<i>Morning News session</i> : 'to encourage more free verbal expression from the children' p. 120	✓	✓		
Dialogic reading & shared book reading	Opel <i>et al.</i> (2009) B, RCT, ↑	'Some questions asked about ... the causes and consequences of events (e.g., What happened when Kutus fell from the boat? How was he rescued?)' p. 15		✓		
	Abeberese <i>et al.</i> (2011) P, RCT, →	Students also write their thoughts about the stories in reading notebooks. p. 7			✓	✓
Phonological games	Nag-Arulmani <i>et al.</i> (2003) I, QED, ↑	'...making <i>'silly sentences'</i> by stringing words with similar initial phonemes into unusual sentences (e.g. "Swinging swarms of sweets swore they saw Swathi swimming up the swelling river")' p. 55		✓	✓	
	Rolla San Francisco <i>et al.</i> (2006) CR, RCT, →	Work on syllables ... (a salient unit in the Spanish language)' p. 193		✓	✓	
Reciprocal teaching	Cianca (2012) E, Mixed, ↑	Preparation for shared book reading: '...choose a book you find interesting, read the book many times to become an expert on your book, determine the meanings of words and phrases you do not yet understand, and most of all, relax and enjoy your book.' P. 400		✓		✓
	Mwaura <i>et al.</i> (2008) KUZ, QED, ↑	'... to foster more interactive and shared thinking between children and teachers' p. 240	✓	✓		

The small sample of interventions reviewed makes it difficult to make any broad generalisations regarding effective interventions, however, the studies reviewed do suggest the importance of more dialogic approaches to teaching reading, including shared reading and story telling, and the importance of phonological approaches, the possibilities of early literacy interventions in the home, and some evidence of support through the provision of lesson plans.

**TABLE 4: CLASSROOM FACTORS SHOWN TO HAVE EFFECT ON STUDENT OUTCOMES IN CONTROLLED STUDIES OF INTERVENTIONS**

<ul style="list-style-type: none"><li>. Phonological approaches to reading instruction</li><li>. The development of oral language skills</li><li>. Dialogic approaches to teaching reading</li><li>. Support with lesson plans</li></ul>
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Country-specific studies add more meat to the review reported on above. For example, Adekola (2007) summarises the findings across a range of national studies of classroom teaching and learning in Nigeria, identifying major areas of concern in teaching-learning processes and the dynamics of classrooms and schools. Notably, across all classrooms three major impediments to positive learning experiences were noted: an ineffective use of instructional time, a lack of textbooks and texts, and a poor use of both Nigerian and English languages in instruction. In relation to the teaching of literacy in particular, the study found an unstructured mix of languages in the classroom, a narrow pedagogical repertoire amongst teachers in the teaching of reading specifically, no active participation on the part of learners, the lack of ability to construct and manage ability groups and poor on-going monitoring and recording of student learning in the classroom. These and other findings accord with those in the South African context.

Space constraints mitigate a full reporting of a broader range of studies, but the reading for this review concludes that there is consistency across studies of teaching and learning across developing country contexts around what is going on in classrooms, and there is great similarity in relation to the pedagogic forms found. There is some but very limited evidence around interventions that work in these contexts.

#### **1.4 A note on pedagogic forms in developing countries**

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While Nag et al focus specifically on the early years of schooling, the broader literature on pedagogy in developing countries is of interest in locating South African research and debates. Generally, across developing countries pedagogy is described as ‘teacher-centred’, where students speak very little and pedagogy relies strongly on collective chorusing and chanting of surface

knowledge introduced in the classroom. The effect of this communalised pedagogy is summarised by Taylor (2014) in relation to the South African case thus:

Children in these classes are steadily being socialised into passive recipients, subservient to whatever the teacher provides. They are not being developed into inquisitive, independent seekers of knowledge, but are taught to wait patiently while the authority figure doles out the most meager quantities of activities to stimulate their interest (p.38).

But although we have relatively robust descriptions of what classrooms look like, the evidence of what forms promote more student learning is meager. In a recent comprehensive review by Westbrook et al (2014), 489 classroom studies were reviewed, and 54 of these considered in-depth. They were mostly descriptive and none of the studies evaluated the impact of interventions/reforms using control and treatment schools. A small number of studies used inferential statistics to correlate specific practices with student cognitive attainment; however they missed details of pedagogic practices. Studies were not directly comparable, with different aims and research methods and a variety of outcome indicators to assess effective pedagogic practices.

Despite any solid evidence base, an abiding concern in the literature is with more learner-centred approaches, and there is substantial advocacy of progressive pedagogic forms with an emphasis on student-centred approaches, and constructivist and active learning strategies. These are proposed as an alternative to the teacher-centred approaches that dominate classrooms in developing countries, the most negative consequences spelt out by Taylor (2014) above. Westbrook et al (2014) report that the evidence on the effectiveness of learner-centred pedagogies is in fact mixed, the number of studies in their review reporting positive findings, slightly outnumbering those reporting negative findings. The authors acknowledge, however, that this finding may partly reflect the fact that the authors reporting the interventions had frequently been involved in implementing them, as well as possible publication bias towards publishing positive findings in preference to negative ones. In this regard it is also interesting to note that more positive findings existed in the studies focused on reforms and policies, whereas those that looked at existing conditions were more negative. Very few studies reported on successful practices using structured pedagogy and direct instruction. Although some studies reported on a small number of

effective interventions based on structured pedagogy with marginalised poor and rural children, these interventions were not properly evaluated.

Tabulawa (2003) argues that learner-centred proposals are political interventions preferred by international aid agencies. He argues that although the efficacy of the pedagogic proposals are often couched in cognitive/educational terms, they are essentially ideological. Nonetheless the uptake of these forms of pedagogy can be seen in the adoption of outcomes-based and competency-based curricula and learner-centred pedagogies in a large number of developing countries.

What is the outcome of these policy proposals to implement more student-centred forms? There are a number of researchers who point to the superficial uptake of these forms of pedagogy in context. In their review, Westbrook et al (2014) argue that in many cases, the outward mechanics of the practice were enacted without the underlying principle being observed, for example, putting students into groups but allowing interaction only between the teacher and student, or making superficial links between students' experiences and the subject content (p.24). This is a phenomenon identified in the South African case in the teaching of reading (Hoadley & Galant, 2014) and mathematics (Brodie, Lelliot and Davis, 2002). What is seen is the 'mimicry' of outward forms of proposed pedagogy (Mattson & Harley, 2002) and adoption of the rhetoric of policy without substantive change in the practice of teaching. In Sfard and Prusak's (2005) terms it leads to "ritualised learning" rather than "substantial learning".

Barriers to the implementation of learner-centred 'constructivist pedagogies have also been identified as resource-constraints, low teacher knowledge, and teachers' deeply held (cultural) ideas around teaching and learning and especially the appropriate relationship between adult as authority and student as learner. As a result there has been some shift in a few countries (including South Africa), to highly structured, sequenced and paced curriculum approaches, and in interventions scripted approaches to shifting practice. Although internationally there is some evidence to suggest this approach is proving effective in improving outcomes, the evidence again is weak.

All of this underscores the need for research designs that involve larger populations, that draw on a combination of qualitative and quantitative methods and that have baseline and post intervention measures to consider reforms and interventions. The Westbrook et al (2014) review calls for more longitudinal designs and RCTs to yield more precise findings around what works. This is both to provide an evidence base for policy-making, but I would argue also to move beyond political / ideological positioning regarding preferred practices.

In the meantime, in relation to developed country contexts there is now a critical mass of randomised control studies in different countries that give some firm evidence as to what classroom variables matter the most. Hattie's (2009) synthesis of 800 meta-analyses relating to student achievement to classroom practices highlights **feedback** as the most critical aspect of pedagogy that makes a difference to student learning. Feedback can be equated to 'evaluative rules' in Bernstein's terms, which I will return to later in the review. Hattie also draws out interactive strategies such as reciprocal teaching, peer tutoring and student verbalisation which make children's learning **visible** to the teacher and hence amenable to appropriate diagnosis, assessment and intervention. 'High quality classroom talk' is emphasised across recent literature on pedagogy in more developed contexts (see Coe et al, 2014). I will return to this later in the review, but in the absence of robust findings in developing contexts, it is clear that we need to shift from the teacher-centred / learner-centred dichotomy to consider less ideologically-laden forms and also to draw from developed country context understandings of what classroom features impact student achievement.

### 1.5 School effectiveness research

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Finally in this section I briefly address the school effectiveness literature. This research takes as its independent variable student achievement and attempts to identify those factors associated with better results, in other words the relative effectiveness of different variables in producing improvements in student test scores. This tradition has been less prevalent in South Africa, given the general lack of student achievement data until recently.

Beginning with Coleman in the 1960s, one of the most enduring findings from this research is that home background makes the biggest difference to students' learning outcomes and these findings have remained one of the most stable in school reform research. Once SES is controlled for, school

effectiveness research attempts, largely through input-output production functions, to identify those school level factors that do make a difference to student outcomes.

There have been a number of reviews of the many school effectiveness studies that have been published in recent years which summarise the classroom and teacher variables associated with higher achievement, the most well-known being those of Creemers (1996), Scheerens (2001), Scheerens (2004) and Reynolds and Teddlie (2001).

It is clear from the reviews that there is a vast array of factors impacting achievement. What emerges strongly is that teachers and teaching do make a significant difference. However, the research has generally been unsuccessful in determining what it is precisely about successful teachers and teaching (such as classroom interaction patterns, teachers' professional expertise, etcetera) that increases student achievement (Kain, Hanushek & Rivkin, 1998; Bryk and Schneider, 2002; Kyriakides, 2002). Some inventories and lists have narrowed down which sets of factors make the most difference, and some progress has been made particularly in between-school studies. However, the challenge of studying classroom level process factors remains, particularly in developing countries (Scheerens, 2001:357). Although it is unclear what precisely does make a difference to student achievement outcomes after taking background into account, Coleman et al's (1966:316) finding, which highlights teacher characteristics, has endured.

Rowan et al (2002) present an explanation for the wide variance in the results of studies into school and teacher effects. They show that differences in the claims of different studies can largely be attributed to differences in the methods used to estimate effects, and differences in how the findings are interpreted (p. 1536). Further, as pointed out by Brophy and Good (1986), teacher effects persist in varying greatly across grade level, subject and types of pupils, and this variation is exacerbated by the fact that teacher effects are additive and cumulative, and generally not compensatory (Darling-Hammond, 2000).

Nevertheless, there are four features that emerge in developed country contexts as significant from this literature: Time; textbooks; teacher training; and opportunity to learn (this is explained further below). In addition, teachers' subject knowledge (Scriven, 1994), teachers' general knowledge of pedagogy (Fennema & Loeffer-Franke, 1992), and pedagogical content knowledge (Shulman, 1987) are all widely perceived as factors affecting teacher effectiveness. Borich (1992) points out, however, that teachers' prior achievement, regardless of how it is measured, has rarely correlated



strongly with classroom practice and student achievement. Darling-Hammond (2000) also shows that the teachers' measured knowledge and the performance of their students have little or no relationship.

The school effectiveness tradition generally remains committed to the social justice goal of providing 'equality of educational opportunity' and optimising opportunities for learners within the 'circumscribed possibilities for improvement schools had to begin with' (Muller, 2000). Not all would agree with this interpretation. The school effectiveness tradition has been criticised for having anti-democratic tendencies in areas such as school leadership, teacher professionalism, curriculum and pedagogy, especially within the context of an accountability regime in Britain (Wrigley, 2003). It is also argued that, although it provided an antidote to the pessimism and fatalism of the 1970s, school effectiveness research is deficient in that it places too much emphasis on the notion of progressive [school](#) management as the dynamic of change. It fails to take full account of the characteristics of the education system as a whole, shows little regard [for](#) issues of social class and it has little to say about issues of curriculum content and pedagogy (Chitty, 1997. See also, Slee et al, 1998). In short, the school effectiveness tradition gives us very little insight into what goes on inside classrooms, and how teaching works.

The tradition has been very influential in development debates, however. Its approach to teaching and learning has strongly influenced the frameworks adopted in the EFA agenda. Alexander (2014) comments on the EFA reports (particularly of 2005 and 2014) that the approach to teaching and learning is informed by 1960s US process-product research "transmuted into 1990s transatlantic school effectiveness research and domesticated by international agencies like the World Bank" (p. 15). He argues that this approach atomises rather than synthesises, includes only what can be easily measured, views teaching as simple transmission and so concentrates much more on the teacher than the learner. He goes on to argue that in the EFA mould, culture is treated "not as an all pervasive feature to be handled with care, sensitivity and humility but as just another variable to be confidently factored and crunched" (ibid.).

## 1.6 Summary

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This section has provided a selective overview of classroom-based studies internationally, focusing especially on developing country research. It has identified a number of central features of studies of classrooms, including some of the methodological issues and empirical findings. There is a high level of similarity in the features of classrooms across developing country contexts. There are few quality intervention studies which show within an experimental design the efficacy of particular interventions in early grade language and numeracy teaching. The evidence base for what works in classrooms in developing country contexts is weak. The school effectiveness literature, which informs some of the global initiatives to improve teaching and learning, fails to satisfactorily understand what actually goes on in classrooms and what teaching and learning is all about.

In the next section of the review the South African literature is considered in more detail, and an attempt is made to gain as comprehensive a picture as possible regarding the empirical findings relating to early primary classrooms that have proved to be consistent over a number of different research studies.

## SECTION 2: INTRODUCTION TO SOUTH AFRICAN CLASSROOM STUDIES

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The tradition of empirical classroom-based research in education in South Africa has been limited. In the early 1990s, Chisholm (1992) argued that, at the school level, there was very little research that probed educational problems with any sophistication (p. 158). This was partly explained by the legacy of apartheid, which generated hostility towards educational researchers on the part of education departments and school management, and resistance on the part of teachers. This made access by researchers to schools difficult. Muller's (1996) review confirmed that there was a paucity of empirical, school-based sociological enquiry prior to 1996. Of the relatively insubstantial work in the sociology of education in South Africa up until this time, most had concentrated on policy studies.

Insights around classroom practices prior to the 1990s were therefore generated largely from accounts from in-service teacher education projects, or gleaned from reports of school inspectors (Bot and Schlemmer, 1986; Thembela, 1986). These early studies were able to characterise

prevalent teaching styles and forms of interaction in black classrooms, summarised by Chick (1996) as "... teachers adopting authoritarian roles and doing most of the talking, with few pupil initiations, and with most of the pupil responses taking the form of group chorusing" (p. 21). Many of the early classroom studies sought explanations for these classroom interaction patterns and fell broadly within the sociolinguistic approach referred to above.

One of the most notable early studies was the Threshold Project (MacDonald, 1990), a 3-year project that followed a 1985 pilot study examining the nature of the language and learning difficulties that black standard 3 (Grade 5) children in South Africa experience when they change from their mother tongue of Sepedi to English as a medium of instruction and learning. Essentially this study focused on the problems experienced by learners when they were expected to cope with the demands of suddenly 'crossing the threshold' to learning all their subjects through the medium of English. The study was conducted in the then apartheid homeland of Bophuthatswana. The study showed how learners had about 700 words at most in English but that the curriculum required at least 7000. However, what also made it impossible for students to read with meaning or learn effectively was that they did not have a sufficient grasp of the linguistic structure of the English language. The sudden transition resulted in most learners resorting to rote learning content which they did not understand. MacDonald argued that students experienced a loss of meaning – "The children are likely to be alienated by what they have to learn, and only dimly perceive the implications and linkages between the concepts they are presented with" (p. 143). The study made connections between this pedagogical experience of learners and the very high drop out rate of learners at the Grade 4 level at the time.

Another early socio-linguistic study was that of Chick (1996) who made the argument that the chorusing and rhythmic chanting in classroom, and absence of individual, evaluated performances (what he terms 'safe-talk') was a strategy to mask both teacher's and students' poor command of English and their lack of understanding of academic content. In a sense it represented a form of learning that enabled them to hide the absence of substance.

Although also broadly located in discourse analysis, the study of Muller (1989) attempted to relate communicative routines or classroom interaction to social arrangements. In his analysis of two science classrooms he eschewed the notion that drill and rote procedures in classrooms are rooted in culture or personal preference, but rather that these related to the former restricted learning of

teachers. Black teachers, he argued, had little opportunity to ‘internalise the grammar of science’ to teach it appropriately. Thus rote-learning routines were an “exigency resorted to by people operating within a particular communicative contract” (p. 320). Muller also attempted to link authority relations in the classroom to particular ways in which knowledge was treated, and which derived in part from an analysis of the social set up under apartheid.

Walker (1989) conducted a significant amount of action research at the time, related teaching practices to teachers’ own schooling and training and their socialisation into their practice. On the basis of her research she argued that

...African teachers will have internalised a particular understanding of teacher behaviour which they then act out themselves in their own classrooms. So the dominance of transmission teaching with its concomitant emphasis on teacher-talk, drill and practice and rote learning continues to hold sway and few questions are consciously posed by teachers regarding what and how they teach, and in whose interests’ (1989:20).

After the transition to a democratic state in 1994, and the implementation of a post-apartheid curriculum in 1998, there was further press to understand what was going on in classrooms, especially given anecdotal reporting of an on-going ‘breakdown in the culture of teaching and learning’. In an attempt to address the lack of classroom-based research, a project entitled the President’s Educational Initiative (PEI) was undertaken in 1998, which aimed to interrogate issues of teacher practice, curriculum, and the use of teacher and learner materials. The results of this initiative, which consisted of 35 small-scale studies, were reported in Taylor & Vinjevold (1999). The authors claimed convergence in these studies around a number of issues, most importantly around teachers’ extremely poor conceptual knowledge. They also found that teachers lacked the knowledge base to interpret the new Curriculum 2005, and were unable to ‘ensure that the everyday approach prescribed by the new curriculum will result in learners developing sound conceptual frameworks’ (Taylor & Vinjevold, 1999:230). Many of the research projects conducted for the PEI Report also showed that little reading and writing was being done in classrooms, and that reading and writing was constrained by a lack of textbooks use. Researchers found that, although teachers were implementing forms of ‘learner-centred’ practice and co-

operative learning, very little learning was taking place. This was confirmed by some of the PEI studies which assessed learner achievement.

These studies were problematic, conceptually and methodologically (Taylor et al 2003; Ensor & Hoadley, 2004). Nonetheless, they foregrounded a range of issues in classroom-based research as a field of study and provided valuable insights and training for researchers in subsequent investigations in this area. Since the PEI project there have been a number of small and large-scale projects focused on classrooms. Small-scale qualitative studies have predominated, however, there have been a growing number of larger-scale studies. An overview of these studies is presented below.

## SECTION 3: MEDIUM AND LARGE SCALE SOUTH AFRICAN STUDIES

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### 3.1 School effectiveness studies

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The South African school effectiveness tradition of research is relatively new. It is, however, growing with the broadening and availability of data from standardised systemic testing of student performance. As in the international studies, the central significance of home background has been confirmed in several large-scale South African studies (Anderson et al, 2001; Crouch and Magoboane, 2001; and van der Berg and Burger, 2002). However, Van der Burg and Burger (2002) and van der Berg (2002) have been able to show the effect of school-level factors on student performance. Van der Burg and Burger (2002) show very similarly poor schools serving poor communities performing almost across the full range of variation in matriculation results. Although suggesting the importance of management factors, these studies have as yet not been able to distinguish between school and classroom level factors and their effects on student performance. Thus what it is precisely about schools and especially classrooms that makes the difference remains elusive in this form of multiple regression study.

The availability of large-scale student test data at the grade 3 and grade 6 levels has led to the possibility of conducting school effectiveness studies in primary schools in the South African context. Although there have been few of these studies which have looked at classroom level variables, those that exist offer some insights into the dominant factors. One of the first studies was the Pupil Progress Project (PPP), a cross sectional study undertaken in a 90 primary school

stratified random sample in the Western Cape. Looking at three levels – the home, the school (management) and the classroom (teacher practices), the study was unable to identify teacher effects in the research. Taylor (2008) offers the following reason for this which he attributes to a more general methodological problem in measuring the effects of pedagogy:

since children's learning is subject to a new set of teachers every year, demonstrating teacher effects empirically requires time series data, which relates the teaching practices of a particular teacher to any learning gains exhibited by her pupils over the time period in question (p. 13).

The PPP had only one point of data collection. There are also more general problems in production-function studies with showing the effects of variables on performance, especially when these are multiple as they are at the level of the classroom (Van der Berg, Burger and Yu, 2005). We have some way to go before we are able to establish the appropriate construct for the accurate measurement of classroom effects on student achievement.

Though not a classroom variable but one related to the home, the PPP confirmed language as the most powerful influence on learning, after poverty: children are severely disadvantaged when the home language and the language of instruction do not coincide. This is a well established finding in South Africa (see below, and Taylor et al, 2003 for a summary). In the home, the PPP found that learning is enhanced when parents speak to their children in the language of instruction, and where children read and do homework frequently. In relation to classroom factors specifically, the PPP was unable to show any significance of any of these variables.

In a smaller study of 24 poor schools, also in the Western Cape, Reeves (2005) and Reeves and Muller (2005) show that their particular construct of 'opportunity to learn' – a composite of content coverage by cognitive demand, content exposure as well as curriculum coherence and pacing – held a significant positive relationship to achievement in mathematics at the Grade 6 level, whereas teaching style, learner-centred or teacher-centred showed no such relationship. Teacher feedback on student responses showed a significant positive correlation with improvements in learner scores.

Taylor (2007) summarises the classroom factors from these studies which have been shown to optimise student learning: pace, and its differentiation; curriculum coverage; and providing feedback to learners, i.e. on-going assessment for learning.

In 2013 the National School Effectiveness Study (NSES) was published which sought to address a gap in the South African research literature: the use of national testing data to produce generalisable findings using a nationally representative sample on the contribution of management and teaching practices to student learning (Taylor et al, 2013). 268 schools were sampled across all provinces except Gauteng. For the first time, a longitudinal design was used in order to relate specific teacher characteristics to learning. The longitudinal design allowed gain scores for any one learner over any one year to be related to the characteristics of the teacher. The overarching question of the study was: which particular activities in the home, school and classrooms augment or diminish mastery of abstract knowledge. At the level of the classroom, ‘opportunity to learn’ measured teacher knowledge (subject knowledge) and teacher competence (curriculum coverage; frequency of reading; quantity and quality of writing; and frequency and nature of assessment). Teacher knowledge was measured through testing and teacher competence was measured through interviews and analysis of learner books. Learners were tracked from Grade 3 (in 2007) to Grade 4 (in 2008) to Grade 5 (in 2009). The aim was to try and find those processes of schooling that optimise the acquisition of high levels of numeracy and literacy for those learners disadvantaged by social circumstance. The level of detail for the indicators measured was a first in a large-scale study in South Africa.

At the teacher level, a positive effect in both literacy and mathematics was obtained for schools in which a curriculum plan for the whole year could be produced. Schools where more than two English marks were seen in teacher assessment records scored better on the literacy test. Similarly, where the quality of assessment records was very poor, scores on the mathematics test were worse than where records were both present and up-to-date. Teacher scores on the literacy test were not strongly associated with learner performance in literacy, but a significant effect of teacher knowledge was obtained in the model for numeracy, although this was only apparent for learners whose teachers scored 100% on the mathematics test.

There was also a reasonably large, positive, and significant effect in mathematics associated with having covered more than 25 curriculum topics as identified in student workbooks. A large and

statistically significant negative impact on literacy scores occurred when no paragraph length writing had been undertaken over the year, while a positive effect was found for schools in which more than 27 writing exercises of all types were counted in students' English workbooks.

One of the more disturbing findings of the study was the number of books in which no paragraph writing at all was done over the year, a phenomenon seen in 44% of Grade 4 and 32% of Grade 5 classes. The absence of opportunity to practice extended writing is confirmed in smaller scale studies reported below.

In mathematics the research interest was in the mathematical topics learners were exposed to over the course of the year. To this end the writing books of the best learner in each mathematics class in Grades 4 (in 2008) and 5 (2009) were analysed. The study found that on average, only 24% of the specified official curriculum topics were covered in both Grades 4 and 5. 88% of teachers had covered no more than 35 (40%) of the 89 topics specified in the Grade 5 mathematics curriculum, and 58% had covered no more than 20 topics in Grade 4, which make up only 22% of the curriculum.

In summary, at the classroom level, the NSES study found that “good assessment practices, teacher commitment and planning, teacher knowledge and effective curriculum coverage vary substantially across South African schools and are strongly linked to educational achievement” (p.93). Coverage was the strongest finding to emerge from the study that linked pedagogic practice and student outcomes. In other words, just doing more in classrooms and covering more of the curriculum could improve student learning.

### 3.2 School improvement studies

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Unlike school effectiveness studies, which have been few in number, there have been a plethora of school improvement projects in South Africa. Although relatively few of these projects have been properly evaluated, Nick Taylor has done extensive work on identifying the elements of successful programmes (Taylor, 2007; Taylor, 2008). Rather than looking for causal relations, the emphasis has been on establishing statistically significant relationships between various interventions and an improvement in test scores. A number of these projects give some insight into the classroom factors that make a difference in the South African context. Two of the largest



projects evaluated at the primary level were the Imbewu project and the Learning for Living project. Imbewu encouraged a change in teacher practices consistent with those stipulated by Curriculum 2005 – learner-centred methods and progressivist tenets of outcomes-based education teaching. Schollar (2001) showed that despite teachers' greater understanding of Curriculum 2005, no learning gains in reading, writing and mathematics were registered, confirming that differences in teaching style have little measurable effect on student performance. The Learning for Living project was a focused reading intervention, involving training in teaching reading as well as the provision of reading resources. This project did show gains in reading when project and control schools were compared (Schollar, 2005).

The Khanyisa Education Support programme (Taylor and Moyane, 2004) baseline study looked at 24 primary schools in Limpopo province, randomly selected from two rural districts, generating a number of interesting insights into classroom practices, and generally confirming findings elsewhere in the literature. Classroom observations were undertaken in all 24 schools of literacy and numeracy lessons at Grade 3 level. 39 teachers teaching three lessons on consecutive days were observed. Forms of classroom interaction approximating chorusing, low levels of cognitive demand, weak forms of assessment, slow pacing and the poor quantity and quality of reading and writing were aspects that were known but confirmed in this larger sample of classrooms, at the Grade 3 level.

One of the most startling findings of the Khanyisa project was that in only 3% of literacy classrooms and in no mathematics classrooms did students interact individually with books. Not unlike practices in the past, and consistent with other studies, the most common form of reading consisted of the teacher writing up three or four sentences on the board and the students chorusing these after the teacher. Similarly very little writing was done in these classes, and when writing was done it generally consisted of writing lists of isolated words rather than sentences.

The Bitou 10 project, a much smaller project working in seven primary schools in the Western Cape, showed gains in reading at the Grade 3 level through an intensive emergent literacy approach involving explicitly tying reading and writing and providing students with extensive opportunity to practice both skills. Like the Learning for Living project, the focused nature of the intervention has shown significant gains in student reading scores, although the project is of too small a scale to make any broad claims regarding its representivity or replicability.

A number of the initial medium-scale studies constituted base-line studies for various classroom interventions (for example, Khulisa, 2001). These studies, often based on self-report or poorly defined conceptions of ‘good practice’, suffer serious challenges to their reliability and validity. Nonetheless, they have generated a number of insights around existent classroom practices that have been explored in a deeper and more theorised way in small-scale studies. The factors that emerge from the school effectiveness and school improvement studies conducted in South Africa are summarised in Table 5 and Table 6 below, identifying those factors that describe the average classroom, and those associated with improved learning outcomes for students.

### 3.3 Randomised control trials and quasi-experimental designs

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The use of randomised control trial research designs is new in education in South Africa, as are quasi-experimental designs. There have, however, been a number of studies that have initiated a move towards these designs in order to determine the effectiveness of interventions. Perhaps one of the best publicised and most promising was the Gauteng Literacy and Mathematics Strategy (GPLMS) (see Fleisch and Schoer, 2014). From 2011, this initiative of the Gauteng Department of Education worked with schools that performed particularly poorly on the Annual National Assessmentss (ANAs). The GPLMS model drew on four key elements:

- Supporting teaching and learning through the use of trained coaches and provision of lesson plans and materials.
- Supporting the use of school-based assessment and ANAs to improve learner performance.
- Providing a programme of extra school support, particularly for homework assistance.
- Offering school management support to district officials and members of school management teams.

One of the main aims in the GPLMS was to use lesson plans to address the issue of slow pacing, and to provide remediation to learners who had fallen behind the curriculum. The programme unfortunately could not be properly evaluated given the lack of reliability in the tests and testing procedures. Nonetheless, the project held some valuable lessons. One was the targeted nature of the intervention. With a clear focus, population and desired outcome, the programme was potentially amenable to measurement. Good controls, and evenness of the programme across

different contexts, however, hampered efforts to measure effectiveness. The other learning from the GPLMS was around the possibilities of using scripted material. Although not beyond criticism, scripted lesson plans were positively received in schools, in particular where teachers were previously unsure of what to teach and what resources to use on a daily basis.

One of the few properly evaluated studies that did find positive effects on student learning was the Systematic Method for reading Success (SMRS) project (Piper, 2009; Hollingsworth, 2009). It represented a very structured and incremental text-intensive programme, and included a strong student motivation component. The SMRS comprised a total of 55 scripted lessons of 30 minutes each. Progression was key to the programme. The lessons were carefully sequenced to begin with letter and sound recognition and word recognition, building up to reading a simple passage and answering comprehension questions about the passage. Carefully developed readers were also critical to the programme design. The SMRS was implemented in Grade 1 classes in 30 South African schools spread over three provinces in 2009. Using a pre-test/post-test treatment/control group design to assess the effects, the evaluation found a large impact on student reading outcomes in letter sounding fluency, word identification fluency, oral reading fluency and reading comprehension after only four months of implementation. No information was found as to why the programme was discontinued and not scaled up, but it would appear worth returning to.

The final study reported on in this section in the Reading Catch Up Programme (Fleisch et al, 2015), that designed an RCT based on a component of the GPLMS. The intervention, which was implemented in 40 treatment schools at the Grade 4 levels in a district in Kwa Zulu-Natal province, aimed to provide learners with a programme that focused on reteaching Foundation Phase English First Additional Language skills and content to learners in underachieving primary schools. The intent was to provide learners with an opportunity to master the basics of English-language literacy. The catch-up programme contained three key elements: scripted lesson plans, additional graded reading booklets and instructional coaching provided on-site through visits by coaches about once every two weeks. A control group of 57 schools was selected to provide a valid estimate of the counterfactual to the intervention.

The central question of the study focused on the extent to which learners' achievement in English

literacy improved as a result of exposure to the Reading Catch-Up Programme. The research found that the overall impact on literacy test scores was negligible, although a statistically significant modest impact was observed on the spelling and grammar components of the literacy test. There is also some evidence that initially better performing learners benefited more from the programme than learners with very weak English literacy proficiency. There was also suggestive evidence that the impact of the programme may depend on who is doing the coaching and on the extent to which teachers participate in training opportunities and actually enact the prescribed lessons. The researchers concluded that “The core hypothesis that Intermediate Phase learners’ literacy proficiency could be ‘caught up’ across a ‘subsystem’, using a well-designed ten-week intervention, is simply not supported by the evidence from this randomised control trial (Fleisch et al, 2015: 29). The study, however, holds a number of valuable lessons for this kind of intervention.

The first is that there were in fact statistically significant improvements in both treatment and control groups for spelling and language structure. Had the study used a simple pretest-posttest design, the evaluation would have produced a false positive, namely that the intervention was highly effective. In this way the study demonstrates the value of counterfactual research (Fleisch et al, 2015:32). Two further learnings for studies that focus on improving literacy specifically are valuable for future research. One, was that the research found groups that the vast majority of the learners scored below 20% on the pretest. This raised concerns about a possible ‘floor effect’, which may have had the unfortunate effect of making it harder to identify improvements in learning at the bottom end of the distribution. The very low levels of literacy need to be borne in mind when developing tests, and ways need to be found to develop tests that measure not only literacy skills but some of the pre-literacy competences (that may predict later reading competence). The second finding relevant to literacy study is that the researchers found differences in student outcomes depending on the coach they were assigned. The study concluded that the success of an intervention that uses coaches to support teachers may depend on the particular person doing the coaching. This is important in a field that is progressively recognising the value of in-class coaching for improving literacy instruction (see Pretorius, 2014).

### 3.4 The NEEDU reports

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A central function of the National Education Evaluation and Development Unit (NEEDU) is to “identify approaches and strategies necessary for achieving equality in the provision of quality education” (Taylor, 2014:1). To this end in 2012 the project visited 133 urban schools across 15 districts, focusing on Foundation Phase. In 2013, 219 rural schools in 17 different district from those of 2012 were visited. These included mono- and multigrade schools, and the focus was on Intermediate Phase and reading. Though not drawing on nationally representative samples, the NEEDU 2012 and NEEDU 2013 reports present findings on visits to a large number of classrooms. Both reports present invaluable accounts of what is going on in schools and classrooms across provinces in South Africa.

In 2012, 211 Grade 2 classrooms were visited in order to observe reading lessons. The study found a predominance of lessons that concentrated on the sounds and pronunciation of between 5 and 10 words. “Teachers were observed saying the words, writing the words on the board, reading them, getting the whole class to read the words in chorus, getting individual learners to read them, and finally, getting learners to suggest similar words” (p.38). The very low cognitive level of content taught in classrooms was emphasised by the research. The study also found this to be the case in the texts being used in the classroom. In reading the management of group guided reading was identified as a problem, where most learners sat and waited while the teacher worked with individual groups. Hoadley & Galant (2014) confirm this finding in their study of 46 classrooms, and also show the limitations of actual instruction in these groups. Rather than being used to individualise reading instruction and deepen understanding of text, the group method contributes to a restricted form of instruction focused on the definition and pronunciation of individual words. NEEDU 2012 concludes in relation to reading that teachers “...pursue low level shared reading activities and are not leading learners towards higher levels of fluency and comprehension” (p.39).

NEEDU 2012 found very few instances of independent reading, and in general a severe shortage of readers in classrooms visited. The research estimated that Foundation Phase learners require about 30 different readers a year, and approximately 7 copies per title in a classroom. They found very few classes visited that met this requirement. Most had three or four titles for the year.

The NEEDU 2013 report on rural schooling similarly reported a paucity of reading materials in

classrooms. The report also cites the work of SAIDE (2012) and Katz (2013a; 2013b) that shows that current African language readers are problematic in that many of them are straightforward translations of readers from English into African languages, not taking into account the structural features of African languages. What often happens in this process of translation is the element of grading in a reader is lost. Simple English words and sentences when translated into African languages result in long, often complicated words, or even phrases, made up of many letters and syllables in the African language.

Both NEEDU reports also found very low levels of writing, with very little extended writing at all the primary grade levels. This was confirmed in a systematic consideration of writing in the NSES study by Dechaisemartin (2013).

For NEEDU 2013 researchers visited 114 multigrade rural classrooms across the nine provinces. The question of knowledge differentiation for learners at different levels was of significant interest these classrooms. The study found evidence of effective differentiation in only 11% of classrooms. This means that most teachers observed made no attempt to provide different learning experiences, appropriate to each of the respective grade levels incorporated into the class. The same material and exercises were presented to learners regardless of their age and grade level. Little practical assistance is available to teachers who teach in these complex and difficult circumstances.

### 3.5 Teacher knowledge

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Although beyond the classroom, teacher knowledge is regarded as a crucial variable and since the PEI studies has gained prominence in explaining poor classroom outcomes. Although understood as absolutely crucial to successful teaching and learning, research is limited in establishing the relation to student learning. Whilst there has been strong union opposition to testing teachers in the past, progressively more studies have constructed tasks that resemble tests to assess what teachers know, and more recently, have measured teacher knowledge on relevant grade level curriculum content.

Early studies of teacher knowledge measured teachers' knowledge on mathematics and language on Grade 4 to 7 level items with small samples of teachers (Taylor and Moyana, 2005; Mabogoane and Pereira, 2008). These studies showed very low levels of teacher knowledge of grade-level curriculum content. A case study in Gauteng (Carnoy and Chisholm, 2008) provided evidence of a positive relationship between teacher knowledge and student performance. However, stronger positive effects were estimated for quality of teaching, opportunity to learn and teaching institution attended.

A study by Carnoy and Arends (2012) exploited a natural experiment based on the geographical closeness of South-eastern Botswana and the North West (NW) Province in order to estimate the contributions of classroom and teaching factors to student gains in mathematics. Teachers from the NW sample were found to have less content and pedagogical knowledge than their Botswana counterparts. Teacher knowledge was found to have a strong positive relationship to ratings of teacher quality and opportunity to learn in the NW schools.

Utilising the NSES panel data, Taylor (2014) found substantial gains in student learning when teacher knowledge was combined with time on task. However, this was only found at a very high level of knowledge, indicating a non-linear relationship between teacher knowledge and student performance. Further, the shortness of the teacher tests conducted under the NSES (English teachers were given a comprehension test comprising of 7 questions, and mathematics teachers a 5 mark test) means that this survey provides limited, and potentially noisy, measures of teacher knowledge.

Recent analyses of SACMEQ data explore the levels of teacher knowledge and relationship to student outcomes in bigger samples. The teachers at schools that participated in the SACMEQ study of 2007 and 2013 were tested in mathematics and language. Spaul and Venkat (2014) show from an analysis of the test data of 401 teachers, that 79% of Grade 6 teachers possess content knowledge levels below the grade 6/7 band. The weak relation to student outcomes found in these analyses is comparable to similar international findings on the relationship. The explanation as to why the relationship is complex to establish is that it is difficult to isolate teacher content knowledge within a whole range of variables that affect student performance. Shepherd (2015) using a different methodology shows that teacher content knowledge is significantly related to

student outcomes, but a causal relation cannot be established, and it is not clear by how much it matters. The implication is that raising teacher knowledge on its own is unlikely to shift outcomes – teachers need to know how to translate that knowledge for effective learning in the classroom.

**TABLE 5: DOMINANT DESCRIPTIVE FEATURES OF PRIMARY SCHOOL CLASSROOMS FROM MEDIUM AND LARGE-SCALE STUDIES**

<ul style="list-style-type: none"> <li>. Low levels of teacher knowledge</li> <li>. A lack of print material in classrooms, especially textbooks</li> <li>. A lack of opportunities for reading and writing (oral discourse dominates)</li> <li>. Classroom interaction patterns that privilege the collective (chorusing)</li> <li>. Low levels of cognitive demand</li> <li>. Weak forms of assessment and lack of feedback on students' responses</li> <li>. Slow pacing</li> </ul>
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**TABLE 6: CLASSROOM FACTORS ASSOCIATED WITH LEARNING GAINS IN MEDIUM AND LARGE-SCALE STUDIES**

<ul style="list-style-type: none"> <li>. Teachers adjusting pace to pupil ability</li> <li>. Greater curriculum coverage, including teacher knowledge and planning for and coverage of curriculum standards</li> <li>. Teacher commitment and planning</li> <li>. Teacher knowledge</li> <li>. Greater opportunity to learn (content coverage by cognitive demand, content exposure as well as curriculum coherence and pacing)</li> <li>. More appropriate assessment and providing feedback to learners</li> <li>. A focus on reading and writing text</li> </ul>
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#### **SECTION 4: SMALL-SCALE SOUTH AFRICAN STUDIES**

The descriptive and empirical findings identified above have been deepened and theorised in a number of small-scale studies. Following on from the PEI study, efforts to investigate teachers and



teaching in small-scale studies continued and notwithstanding the problem of their generalisability, these studies provide useful and illuminating insights into classroom practices. Several of the studies and their findings are reviewed in Taylor et al (2003). Significant work in the interrogation of theories of pedagogy which guide the exploration of classrooms is also being undertaken in education departments in various institutions, notably the University of Cape Town, University of the Witwatersrand and University of KwaZulu-Natal. This concerted effort by a number of researchers asserts the importance of classroom-based research, while recognising the complexities of conducting that research. In a sense, this effort expresses Ensor's (2002) concern that

...irrespective of epistemological commitment, the challenges we face in making robust claims about pedagogy remain shared. At issue are the steps we take to produce and analyse classroom data in order to make trustworthy claims about pedagogy. Trustworthiness ultimately is a matter of rigour, and the establishment of clear criteria of worth (p. 10).

In other words, the need to theorise classroom practice more carefully persists. Similar to the international context there is a need to avoid atomisation and to consider the relatedness of classroom variables. There are a number of crucial aspects to the classroom environment that emerge from smaller scale studies that are beginning to be developed at a much greater level of theoretical sophistication, and which would merit further investigation at a larger scale and using alternative methodologies. These include the issues of time, language and knowledge in the classroom. We report on these below, before considering the few Foundation Phase-specific, descriptive studies that enhance our understanding of what is going on in classrooms at this particular level.

#### 4.1 Time

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Many of the small scale studies focused on time concentrate on the crucial variable of pacing. A number of studies have reported on the extremely slow pace at which learning happens in classrooms. Ensor et al (2002) conclude that classroom pacing is strongly affected by school management practices such as time management and macro curriculum pacing.

In considering the use of instructional time in a social class comparison of schools, Hoadley (2003) also found that pacing in working class classrooms was extremely slow, and was also undifferentiated. In other words the class generally worked at the pace of the slowest learners. Ensor et al (2002) confirmed this finding in their study of the use of textbooks in classrooms. They were struck by the extremely slow pace of learning, which they hypothesise may be linked to the weak specialisation of time, by which they mean “the strict partitioning of the school day into units set aside for engagement with the formal curriculum, for play and for other activities”. Ensor et al (2009) and Schollar (2008) find similar patterns in classrooms in their studies – a lack of differentiation and an extremely slow pace of learning.

Slow pace crucially is detrimental to coverage of the curriculum. But coupled with a more general erosion of instructional time, it makes this coverage unlikely in many schools. The qualitative dimension of the Educator Workload Project focused on ten teachers, shadowing them across a school week and documenting in detail how time was spent. Focusing on academically engaged time, the study showed the ways in which instructional time was eroded, both by official and unofficial school activities. In summary, the study showed that time spent on actual instructional activity ranged from a low of 6% to a high of 56% of the total official school time available.

Large-scale studies of time use place these findings in context. Although many of these findings are derived from teacher and principal reports and consequently limited, they are consistent across studies and revealing. The Educator Workload Study conducted in 2005 and drawing on a nationally representative sample of teachers, showed that teachers by their own account spend only 41% of allocated time teaching. The PIRLS study shows very little time spent on reading in South African schools compared to other countries (Howie et al, 2007). Van der Berg and Louw (2008) in their analysis of the SACMEQ data revealed high levels of teacher absenteeism, especially in poorer schools.

The issue of time is especially pressing when one considers the implications for students coming from poor homes. Because there is in general less learning and less support for learning in these homes, the school as a site for learning becomes more crucial, and more time is required for these children to master the curriculum. Time wastage and slow pacing in poor schools is thus even more problematic given that the amount of time allocated to the task of enhancing these children’s educational outcomes is already too little (see Shalem and Hoadley, 2009).

## 4.2 Language

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At the Foundation Phase level, school pupils are inducted into the language of teaching and learning, which is often different from their home language. In order to be successful in later years in the schooling system, pupils need to be taught the language of teaching and learning from the Foundation Phase, within a context of Home Language instruction. Thus Foundation Phase teachers, for the majority of schools, need to understand multiple languages. In the majority of cases, this would entail knowledge of English and an African language.

The importance of language to student performance has been raised consistently in the research literature (Taylor et al, 2003; Fleisch, 2008, for example). A number of studies have looked at the strong relationship between student performance on standardised tests and exposure to the test language at home (Howie et al, 2007; Reddy et al, 2005). The ‘causal’ nature of the relationship is, however, far from conclusive. The link between language proficiency and academic performance is not always well-understood, and is not straightforward. Although comparative studies such as TIMSS indicate that there are factors other than language that contribute to lower test scores, language is regarded as one of the key determinants of student success in schooling. Fleisch (2008) is concerned with identifying the ‘generative mechanisms’ or the actual causal links between school language practices and academic performance. From the research literature he elicits five different ‘generative mechanisms’. These are all derived from classroom-based studies.

The first generative mechanism relates to ‘transfer theory’ and the density of unfamiliar words: the argument made here is that students should first master the decontextualised discourse of schooling in their home language before transferring to a second language. Heugh (2005a and 2005b) suggests that teachers focus on low level cognitive tasks as a way of managing children’s lack of mastery of language, an argument similar to the one made in the Threshold Project. The conclusions drawn from the Threshold project by MacDonald (1990) and Heugh are, however, markedly different as Fleisch (2008) points out. Whereas Heugh uses the findings to argue for protracted mother-tongue instruction, MacDonald’s recommendations focus on improved teaching of English.

A second generative mechanism concerns the emotions of second language teaching. Probyn (2001) has identified stress and depression for second language learners as contributing to poorer performance. Thirdly, code-switching is a factor: Setati & Adler (2000) show how sophisticated

the act of code-switching is, particularly in mathematics classrooms where teachers not only have to switch between language codes but between different discourses of mathematics as well (notably procedural and conceptual). Code switching and language translation also takes a long time, which the pacing of the official curriculum may not make allowance for. In short, when used for improved learning, code switching is a sophisticated and difficult strategy.

As part of the same classroom-based research study, English language infrastructure was also investigated (Setati et al, 2002). English language infrastructure relates to exposure to English in the school, community and home, and in particular the difference in amount of this exposure between urban and rural schools. The study found that urban learners have greater access to resources such as television, radio and newspapers than rural learners, which impacts on their academic achievement. A number of other studies have considered how print-rich the classroom environment at Foundation Phase level is; working from the assumption that exposure to print-rich environments facilitates literacy acquisition. Finally, the relationship between language and power is identified as a fifth generative mechanism in the relationship between poor performance and language. Braam's (2007) research shows how home language can become stigmatised in a school. Home language as opposed to English instruction also has a class dimension to it. The research thus locates language of instruction within a social and political context and explores the implications.

This overview of the research on language is useful in that it alerts us to the explanations for the relationship between language and student performance that exist in the research literature. The overview also indicates that the understanding around language and student performance is far from empirically robust or conclusive. Fleisch (2007) alerts us to the questionable nature of some of the research, and the assertions about language that are based on questionable methodologies. The question of why, and by how much, language affects achievement remains open. Finally, he makes the important observation that it is very likely that the use of English as the language of instruction is likely to have different effects across different groups of learners, especially in relation to social class and those in rural and urban areas.

A point around which there is growing consensus (as there is in the international research literature) is that additive bilingualism is the optimal approach to the issue of the language of learning in South Africa. In this approach learners learn in their home language for the first three years of schooling, are introduced to the LOLT (generally English) in these years, and then

transition to the LOLT in Grade 4. Although the learning affordances are recognised, there are significant practical impediments to this approach in schools. Two of the main obstacles to implementing an additive bilingual approach are the prevalence of a number of home languages in a single classroom and parental pressure for English instruction. The NEEDU 2012 report provides examples of 5, 6 and 11 different home languages in a single classroom. This makes selecting a home language suitable for instruction difficult, and schools often revert to English, or to the majority language spoken in the classroom. The other obstacle to beginning schooling in students' home language and shifting to the official LOLT at a later stage is that there is significant pressure from parents for schools to teach their children English from the start. In turn, schools that are competing for students recognise that English instruction is more attractive to parents and thus tailor their language approach in accordance. Nonetheless, a recent study by Taylor and Coetzee (2012) uses longitudinal data and fixed effects modeling and find that mother tongue instruction in the early grades significantly improves English acquisition, as measured in grades 4, 5 and 6. The significance of this study is twofold. Firstly, it illustrates the power of school-fixed effects to estimate causal impacts of educational interventions. Secondly, it is the first South African study (and one of a very few international studies) to bring robust empirical evidence to the policy debate around language of instruction.

Finally, a crucial argument in this debate is one taken up by Murray (2002), who argues that divided opinions over the language of instruction issue have masked the issue of poor literacy teaching per se as is evidenced by low home language literacy levels amongst learners. Of concern is the evidence that learners do not have competence in literacy in any language. To a certain extent, in other words, debates around language deflect attention from the quality of instruction, irrespective of the language of instruction.

#### 4.3 Knowledge and cognitive demand

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A review of the research literature shows that in South Africa there have been a number of studies focused on classroom interaction and on teaching styles. Some of this research has importantly identified that these teaching styles are related to pupil performance. For example, the work of Schollar (2008) and Taylor (2008) argues persuasively that the loss of emphasis on memorisation, and the idea of discovery learning and that children cannot be wrong are at the root of much learner

under-achievement. There has been an important focus (as in the broader literature on developing countries) on the negative effect of teaching styles based on constructivist theories of learning and 'learner-centred' classroom practices. At a more general level, a number of research studies have addressed the issue in terms of the nature of the evaluative criteria (Bernstein, 1996) and making these explicit. Morais et al. (2004) usefully explain what is meant by 'making the evaluative criteria explicit' which consists of 'clearly telling children what is expected of them, of identifying what is missing from their textual production, of clarifying the concepts, of leading them to make synthesis and broaden concepts and considering the importance attributed to language as a mediator of the development of higher mental processes' (p. 8). Essentially control over these by the teacher, and the explicitness of teaching is a significant factor in considering effective teaching practices. This was highlighted in relation to the international research literature earlier, and what is referred to there as the importance of 'feedback'.

The tendency in large-scale research has been to atomise practice in the identification of variables for measurement. Some of the more recent research above has attempted at both to theorise classroom practice as a structured process consisting of inter-related dimensions. Researchers in South Africa working within the framework of the sociologist Basil Bernstein, have theorised pedagogy as a structuring of time, space and text, and have explored the relatedness of classroom features in a way which considers both the organisation of knowledge and its transmission. This work has drawn attention to a number of features crucial to successful teaching and learning experiences, especially for working class students. Countering the teaching styles research which advocates either teacher-centred or learner-centred approaches (or in the US terms, traditional and reform or progressive pedagogies), this research has shown empirically the effectiveness of a mixed model of pedagogy, containing features from both types (see Hoadley, 2007; Hoadley and Muller, 2009; Reeves, 2005, for example).

What is neglected in this research, however, including that which attempts to draw out the effectiveness of direct teaching approaches, is the question of knowledge. Increasingly researchers are beginning to look at the question, although thinking through how to conceive of knowledge for teaching and how to measure it is still in development. What we do know from systemic tests is that there is a very low level of cognitive demand in classrooms. Some research has begun to explore what this means.

Hoadley (2007) considers the question in relation to the kind of knowledge made available, drawing attention to the distinction between school knowledge and everyday knowledge, and the equity implications for how these knowledges are differentially distributed. Her study shows how “students in different social-class contexts are given access to different forms of knowledge, that context-dependent meanings and everyday knowledge are privileged in working-class contexts, and context-independent meanings and school knowledge predominate in the middle-class schooling contexts” (p. 682). On this basis she makes arguments about students’ differential access to school knowledge.

The low prevalence of reading and writing in classrooms and the low level of conceptual demand is a further knowledge-related factor identified in a number of studies (Schollar, 1999; Vinjevold and Roberts, 1999; Adler et al, 2002; Setati et al, 2002; Deschaisemartin, 2013). The Khanyisa project, looking at Grade 3 mathematics and language teachers observed across three days in 24 schools, found that students engaged very little with books, and reading consisted predominantly of sentences being written on the board and chanted by the class as a whole.

Ensor (2009) in the context of the COCA study combines a consideration of time use, and pacing in particular, with cognitive demand in a concept she develops called ‘semantic density’. ‘Semantic density’ refers to the specialisation of texts and time, or more specifically, the distribution of text across time. In other words the more specialised the text (i.e. the more abstract its rendering) and the more concentrated the periods of time across which the text is distributed, the higher the semantic density. This is a novel contribution to thinking about pedagogy as a related system, rather than atomised dimensions such as pacing and cognitive demand. The COCA study found that the predominance of concrete apparatus (such as counting beads, blocks, etcetera) in teaching undermined both the specialisation of text and time in classrooms. “In general the use of apparatus anchors experience in the local and particular and explicit specialising strategies are needed to facilitate the move to abstraction’ (Ensor et al, 2009: 22). Students are engaged in very concrete methods for solving problems rather than being given access to more abstract algorithms and means for solving problems. Thus, low specialisation of text coupled with very few computations over time (i.e. very slow pacing) led to the conclusion that classrooms exhibited very low semantic density – i.e. a low conceptual level and low rate of learning.

Reeves (2005) found that teaching style (i.e. child-centred versus teacher-centred) did not matter as much as certain features of pedagogical practices. Most important amongst these in her study included aspects related to knowledge and its explicit transmission. The pedagogical practices associated with better achievement gains over time were teachers making explicit the criteria by which any knowledge display is evaluated – and in particular correcting pupil errors; and engaging pupils at relatively high levels of cognitive demand with respect to both principled and procedural knowledge.

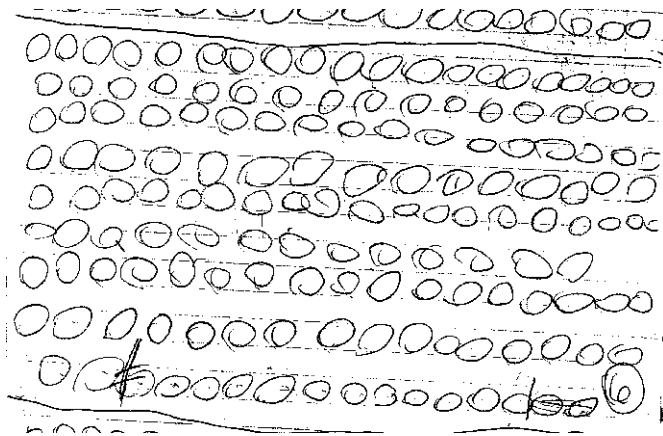
Schollar's (2008) work on the Primary Mathematics Research Project also deals with explication, arguing that clear criteria for assessing performance need to be made explicit. His work, like that of Hoadley's below, also problematises the dominance of certain understandings of constructivism in classrooms and of concrete methods for solving problems. Two figures from the work of Hoadley (2007) and Schollar (2008) respectively show how students at Grade 3 and Grade 6 solve problems.

FIGURE 1: FROM SCHOLLAR (2008) GRADE 5 CALCULATING STUDENT'S WORKING OUT





**FIGURE 2: FROM HOADLEY (2007) GRADE 3 210+14**



The question of the movement from the concrete to the abstract (especially in mathematics) has been taken further by the work of the Count One Count All (COCA) project as described above, and also in the work on mathematics knowledge in schooling by Davis (2010). Davis uses the notion of ground to describe the ontological decisions of teachers and learners as they make references to mathematical objects in order to regulate the production of mathematics. Ground in this work serves to expand the dichotomy which exists between procedural and conceptual ways of coming to understand mathematics through the generation of four categories, taking iconic, propositional, procedural and empirical (trial and error) aspects into account. Although initial and undergoing development in relation to empirical data, the work signals a deeper focus on the specificities of subject-specific knowledge in the pedagogic context.

#### 4.4 Zero pedagogy

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Before going on to discuss the research findings relevant to the Foundation Phase specifically in small-scale studies, in this section I draw out a more generalised debate in relation to knowledge and pedagogic forms. The debate has evolved in South Africa (Hoadley, 2006; Hugo and Wedekind, 2013a; Zipin, 2013, Hugo and Wedekind, 2013b) and has been expanded to consider pedagogic forms in developing countries more broadly (Guthrie, 2015). In Hoadley (2006), I compared classroom practices in lower working class and upper middle class settings in order to consider how social class differences are reproduced through pedagogy. In that study, looking at the practices of one particular teacher, I questioned whether the absence of any evaluative rules

constituted the absence of pedagogy. Evaluative rules, following Bernstein, are at the heart of pedagogy, they are that which is to be learnt, setting the what, or the purpose of pedagogical activity. If we take multiple definitions of pedagogy, from Bernstein through Alexander, there is a considerable agreement that a defining aspect of pedagogy is that there is something to be learnt and some change intended or produced in the learner. If in a pedagogic encounter there is no evidence of learning or intended or actual change in the learner, then is this pedagogy? Does a collapse of the evaluative rules mean a collapse of the principles for establishing selection, sequence and pace as well?

Crucially, pedagogy entails the transaction of knowledge (an instructional discourse, following Bernstein, 1996), but it does so within a set of social relations, or is embedded in a set of social norms or culture if you like (what Bernstein calls regulative discourse). Both are crucial to an understanding of the social form of pedagogy and the transmission of content. When Hugo and Wedekind (2013a) enter the discussion with the notion of zero pedagogy, they are fundamentally interested in the issue of knowledge transaction. This is how they (correctly) read evaluative rules. And they draw the conclusion that absence of one dimension of the pedagogy (knowledge transaction or instructional discourse) translates to the absence of pedagogy or ‘zero pedagogy’. They thus pick up on Hoadley’s zero ascription to evaluation and generalise it to pedagogy as a whole: “are there subject specialists; is there selection of knowledge or is it a heap; is there sequencing or is it a jumble; is there pacing or are the learners standing still or jogging on the spot? Are the teachers even there? (p. 151)”. They identify the first crucial issue to deal with is whether there is teaching going on at all, and only then what type of teaching. What they don’t attend to is the distinction between instructional and regulative discourse, and so the zero is applied to the social relations, norms etcetera, which they possibly don’t intend as emerges in Hugo and Wedekind (2013b).

Zipin’s (2013) concern in his critique of Hugo and Wedekind (2013a) is the way in which they mobilise Hoadley’s argument in order to make widespread claims about pedagogy. He is correct that my claims are limited to the evaluative criteria, and I resist making generalisations on the basis of a single case to imply ‘a widespread if not all-pervasive ‘absence of pedagogy’, comprising the entire range of pedagogic variables, in less-developed contexts’ (160) as he claims Hugo and Wedekind (2013a) do. Two points are pertinent here. On the one hand yes, Hugo and Wedekind

do not provide evidence of this and their stretch of my arguments to all pedagogic variables is too sweeping (see comments on instructional and regulative above). But if one is to consider learning outcomes, to take the South African example as pertinent, data suggests that this does not pertain to a small number of cases. To take a small example that goes beyond the oft cited results of abysmal performance on systemic tests, the NEEDU 2013 report shows that in reading while the norm for Grade three for fluency should be 70 words completed per minute (WCPM), the average for the Grade 5 sample tested was 46 WCPM, with 10% of the sample not being able to read a single word. The National School Effectiveness Study showed, relatedly, that learners in Grade 3 had written an average of 37 exercises in their language books, mostly comprising single words, by the end of August. This average conceals the incidence of a number of classes where only 3-4 exercises were written in their books over an extended period of schooling (Dechaisemartin, 2013). How widespread a 'zero' pedagogy might be is not established empirically, but data on learner outcomes suggests it is not confined to a small number of cases.

But where Zipin fundamentally parts company with Hugo and Wedekind (and with Hoadley) is in the privileging of specialised knowledge in the pedagogic relation over everyday knowledge. He identifies privileging of specialised knowledge as a 'Euro-cultural imperialism' suppressing debate around whose knowledge is represented. If we maintain the distinction of instruction and regulative discourse, I would argue that much of Zipin's argument is relevant to regulative discourse, to affirming the cultural background of learners and taking heed of the socio-ethical purposes of teaching. But this focus should not displace the need for children, especially children from disadvantaged backgrounds, to be given access to formal specialised school knowledge. Zipin states that "rich cultural resources in the lives of both learners and teachers are what is un(der)valued in the prime stress on 'specialised' knowledge" (162). I would argue that these should be seen relationally. These regulative dimensions of teaching – that which students bring, should be both a resource for the development of specialised knowledge in the instructional discourse and a basis for understanding how specialised knowledge may optimally be taught. Or, as Dowling (1998) puts it, the everyday is a 'portal to the esoteric'. Everyday knowledge and specialised knowledge should be seen relationally rather than dichotomously. The end point should, however, be learning to read, not endlessly circulating ideas and feelings about reading or everyday notions of how text might work especially where there is little exposure to text in the everyday lives of learners. As the 10% of learners who are unable to read in Grade five attests to,

it is possible in relation to specialised knowledge (reading) to begin and end in zero. And this is not a function of neglecting the everyday knowledge of learners, but neglect of a specialised pedagogic practice that gives access to the formally-acquired skill of reading.

In relation to teachers, Hugo and Wedekind argue that while teachers do bring funds of knowledge to the classroom, this does not qualify them as teachers. “What does qualify them as teachers is precisely the specialisation of their consciousness and practice into the logics and forms of curriculum, pedagogy and assessment” (173). Privileging learners’ existing funds of knowledge will not assist them in accessing specialised knowledge of schooling if the end game (evaluative rule) – say, how to read – is not the main purpose. Hugo and Wedekind’s response is that they and Zipin differ on the ‘ordering principles of pedagogy’ For them it is specialisation, for Zipin ‘deep everyday knowledge of a community’. I argue with Hugo and Wedekind, and Young(2014) that it is the former that is the distinctive function of schooling (and hence formal pedagogy). Hugo and Wedekind acknowledge that Zipin does not deny the validity of specialisation, and assert that they do not deny the validity of deep everyday knowledge. Rather, it is a question of what principle does the ordering (170). This is a crucial move, linking thinking around knowledge to how we think about pedagogic forms and thus delineating the crux of the debate. But here we are in the territory of instructional discourse. And it is useful to maintain the distinction between instructional and regulative discourse in order to parse our concerns.

Guthrie (2011; 2015) points out in relation to the regulative discourse that we need to find social forms of pedagogy that are attuned and recognisable to teachers working in developing country contexts, taking into account their own cultural (and I would add class cultural, see Hoadley and Ensor (2009)) backgrounds. Alexander (2013) has made a similar point and Hugo and Wedekind (2013b) agree. But these arguments miss the point that whatever the nature of the regulative discourse, the substance or ordering principle is what is contested. The proliferation of everyday knowledge to the exclusion of specialised, codified knowledge is one that has long characterised the South Africa and other developing country contexts, often in deriving from ‘learner centred’ curriculum reforms. This is not an a-historical perspective as Guthrie names it. The absence of evaluative rules denotes a fundamental pedagogic breakdown, which has its roots in a failed system, a historical impoverishment of what schooling entails under apartheid, a poorly educated and trained teaching force and a lack of clear professional parameters guiding practice. These are

not about accumulated cultures, home community or otherwise, but about exclusion from induction into a culture of schooling that leads to learning.

Guthrie (2015) enters the debate by challenging the mode of argument of Hugo and Wedekind, as one focused on ‘disciplinary induction’, which according to him reflects “a Northern, continental European academic tradition that is highly contestable in the South and, in their version, denied indigenous culture unless filtered through Eurocentric disciplinary induction” (164).

The argument as to why disciplinary induction and a focus on knowledge specialisation should be the preserve of Europe or the North is not made explicit. Guthrie takes us back to a question of teaching styles, and his argument is that the “intended outcome is identification of teaching styles grounded in particular cultures that can be a focus for improvement of the effectiveness of classroom practices, teacher education and curriculum design” (167). Sometimes, sometimes not. It depends on which practices are conducive to learning and which fundamentally inhibit it (corporal punishment is an obvious example of a practice culturally embedded but not necessarily conducive to learning).

But Hugo and Wedekind have taken the debate beyond the question of teaching styles to the question of knowledge and the ordering principles of pedagogy. Hugo and Wedekind seek to link the instructional discourse (knowledge) with the regulative (teaching styles or pedagogic forms). It is in relation to the instruction that they identify the absence of specialisation underpinning in what goes on in classrooms. This is not to cast in deficit what teachers bring, or what cultural forms should be recognised in deriving appropriate pedagogies, but rather to privilege knowledge and its access over social relations and norms and their affirmation. Or rather, to use the latter in service of the former. Guthrie appears to dismiss the necessity for access to specialised formal knowledge in labeling it ‘Eurocentric’, or at least elides the distinction between what is intended to be learnt and how it is learnt. The subordination of the formal knowledge of schooling to particular pedagogic styles or forms has been radically experimented with in the South African case in the first apartheid curriculum, Curriculum 2005, demonstrating clearly the damage of not recognising the school as the only site through which most children will access formal knowledge. This knowledge is not the preserve of the North. It is an entitlement which as educators in the South we must honour. The deficit lies not within the ways in which it is transmitted, but when it is not

transmitted at all. Guthrie's progressive / formalist distinction recasts teacher centred / learner centred arguments, and this dichotomy is one we have begin to transcend in a search for appropriate pedagogies for children in developing country contexts (see also Westbrook et al, 2014 and Hoadley & Muller, 2009).

Guthrie's arguments run the danger of marking developing country children off as somehow culturally differently disposed to the learning of disciplinary knowledge than their Northern counterparts. In a global, mobile world, we want to affirm and acknowledge but not restrict learners to their inherited, local context and experience, which if we are talking developing world, is for the majority, impoverished. Not culturally, but in relation to the riches that reading and the worlds of meaning of formal learning yield. If the developed world has moved to much more concerted attention on feedback and high level conceptual exchange in the classroom as key to learning (Hattie, 2009; Coe et al, 2014), why can't we?

'Zero pedagogy' refers to the collapse of the instructional discourse in pedagogy. It is not a disavowal of the teachers and students who come with lived everyday knowledge and experience to the classroom, with particular social norms and understanding of the relationship between adults and children. The question rather is how we think about this regulative discourse in relation to instructional discourse, and how we work to understand everyday knowledge as providing a conduit to specialised knowledge.

#### 4.5 Summary

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From the small scale studies we have a relatively clear picture of what is happening in classrooms in primary schools, and many of the factors resonate with those found in larger scale studies and in the international literature. While much of the debate in classroom- based studies has focused on teaching styles (predominantly learner centred/teacher centred), a focus on knowledge takes us beyond this distinction to consider optimal pedagogies in relation to the knowledge to be transmitted. The debate around zero pedagogy that has recently emerged draws out some of the key issues in relation to how we think about pedagogic forms for students in developing country contexts. The features of classrooms drawn from small scale studies are summarised in Table 3 below.

**TABLE 7: DESCRIPTIVE FEATURES OF PRIMARY SCHOOL CLASSROOMS DERIVED FROM SMALL-SCALE STUDIES**

- . Low levels of cognitive demand
- . Everyday, context-dependent knowledge
- . Teaching practices which often undermine explicit, direct instruction
- . Lack of opportunities for reading and writing (oral discourse dominates)
- . Slow pacing
- . Collectivised as opposed to individualised learning
- . The erosion of instructional time
- . Multiple issues related to language, especially second language teaching and learning
- . Lack of differentiated teaching, especially in multigrade classrooms

In the two sections that follow we consider a small number of studies that have focused on Foundation Phase specifically. As stated above, there are very few systematic studies of classrooms at this level, however, the studies largely confirm the findings above and allow us more confidence in making generalisations about South African primary school classrooms.

## **SECTION 5: FOUNDATION PHASE LITERACY STUDIES**

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A study conducted by the HSRC in Limpopo province entailed observations in twenty schools in Grade 1 to 4 classrooms. A total of 77 classrooms were observed for the first two hours of the school day, 26 comprising Foundation Phase classrooms where the teaching of reading was specifically investigated. The study showed that very little reading took place, and that very few texts were in evidence in classrooms. In 12% of classrooms no reading was taught. When it was, teachers' predominant reading activity was to read aloud to the whole class. Teachers did not model or demonstrate how learners should treat, handle and care for books, nor did they reference punctuation, page numbers, or even the left-to-right approach to text.

Learners were mainly involved in reading isolated words rather than continuous text. Most of the Limpopo teachers (78%) never or hardly ever cued or drew learners' attention to main ideas in

extended text when this was read during classroom observations. Rather than the practice of making sense of text (including stories), the most common approaches were to involve learners in discussing or responding to pictures and illustrations, or in using pictures/illustrations as clues for understanding. In 18 (69%) of 26 recorded cases teachers seldom or never unpacked or elaborated on learners' responses. This was a pervasive practice (cf. e.g. Macdonald, 1990) - when a child made a mistake, the teacher simply passed over it.

The authors conclude that not much direct or explicit literacy teaching is taking place in most of the Limpopo classes. They argue that the teachers did not know and follow appropriate steps to develop literacy. The data also indicates that the scale of exposure to vocabulary (even pedestrian vocabulary) and text falls way below what should be expected at each grade level observed.

Hoadley's (2008) research into literacy practices at the Foundation Phase level confirms the lack of feedback on student response, and on making explicit to students what constitutes an appropriate performance, especially in reading. Reading aloud as a class, or chorusing text after a teacher were common strategies. In other words the pedagogy is strongly communalised. Hoadley (1999) in a small number of Grade 1 classrooms also shows how the reading and writing of single words in the Foundation Phase predominates.

From the descriptions of research into early literacy in classrooms, what teachers deploy approximates an audiolingual approach to literacy, a behaviourist approach focused on oral drill sequences. This appears not to have changed from the findings of the early studies in classrooms. This early research into reading had reported a strong reliance on the more technical decoding skills. The little research that existed argued that learners in poor schools could often decode text (i.e. pronounce sounds and words) but had little understanding of what they had read (MacDonald, 1990; Flanagan, 1995). This formed part of the aversion to the teaching of phonics in curriculum revisions post-apartheid. Research also indicates that the struggle with reading and literacy is not only in English but in African languages as well (Taylor and Vinjevold, 1999; MacDonald 2002). The formal and appropriate teaching of phonics, especially in poor schools, is an area of dire neglect.

Pretorius and Machet (2004) considered five disadvantaged schools in Kwa-Zulu Natal, looking at teaching of reading in Grade 1 classrooms. The authors found an emphasis on 'sound-centred readers', where the focus was on decoding rather than making meaning from text. This decoding



related largely to single words, so that performance by learners dropped radically from reproducing single words to reading a paragraph. Comprehension was found to be extremely poor. Interestingly, the authors relate practices to the teachers' own social context. Many of the teachers are located in communities with deep oral cultures and are not in the habit of reading themselves. The lack of reading resources, and libraries in particular, was identified as an additional barrier.

Another study that considered literacy in the early grades, also in a small sample, was that which aimed to investigate the reasons for underperformance in Literacy in Grades 3 and 6 in selected national quintiles 1, 2 & 3 schools in the Western Cape (Hill, 2009). This qualitative research project considered urban and rural sites, isiXhosa-medium and Afrikaans-medium schools. Some of the factors identified as potentially affecting learners' performance negatively were the high proportion of teaching and learning time that was wasted; the lack of homework; and a lack of appropriate reading resources. The research found that the 'literacy half-hour' promoted by the government campaign 'Foundations for Learning' (modelled on the British literacy strategy) tended to be interpreted as free time for learners and teachers. The researchers also found that levels of cognitive challenge were very low. Although based on a very small sample, the findings confirm those of other studies (such as Hoadley, 2008; Pretorius and Matchet, 2004 and Reeves et al, 2008).

Pretorius (2014) describes some of the difficulties involved in attempting an intervention at Grade 4 level to assist learners in accessing English texts. In the school in which she was working, the intervention had to be redesigned in order to go back to the basics of initial English learning. And despite intensive work with learners, and gains being made, the intervention was limited in the extent to which it could assist learners in 'catching up'. The gap between where the learners were at the beginning of Grade 4 and where they should have been was simply too wide to address for most. Like a number of international studies (for example, Bannerjee et al, 2007), improvement was seen more in basic decoding skills, whereas higher order comprehension skills took much longer to develop. Given the difference in different learners' starting and ending point, Pretorius suggests the need for remedial programmes such as the one described to be differentiated. Pretorius ascribes the gains in the intervention to making reading and writing activities the focus of classroom teaching. As she states pithily, "only reading develops reading" (p.71). In the article, Pretorius asks two useful questions which speak to much of the research presented above. The first

is why so much catching up is needed, and the second is what can we do to prevent falling behind? In response to the first question Pretorius lists the following factors as impacting on learners falling behind:

1. An oral orientation to schooling / education
2. Absence of systematic teaching of phonics and ad hoc development of decoding skills
3. Absence of meaning making

Point 1 is particularly interesting in relation to the earlier review by Nag et al (2014). Pretorius offers a counterpoint to their stress on the development of oral language proficiency: the relationship between oral language proficiency and written text is not one-directional:

Although it is generally recognised that oral language proficiency helps children learn to read, research in the past four decades has consistently shown that it is through reading that children acquire a wide vocabulary, increase their general knowledge, acquire more complex syntactic structures and become familiar with the conventions of various genres of text. The same applies equally to learning an L2: a great deal of language learning occurs through reading (Feitelson, Goldstein, Iraqi & Share, 1993; Vivas, 1996; Cunningham & Stanovich, 2001). Exposure to written language forms helps to reinforce oral proficiency (p. 70).

Pretorius argues that early and sustained exposure to text is required to assist learners who are struggling to read. Much of the predominantly oral culture of the classroom (especially such practices as choral chanting) mitigates against learning to read and write.

In order to prevent children falling behind, Pretorius suggests an integrated approach to literacy. At the classroom level she asserts that five necessary conditions need to be obtained in order for literacy to develop:

1. Phonics needs to be taught;
2. Children need to be constantly motivated to read;
3. Children need easy access to books;
4. Children need plenty of opportunities to read in and outside the classroom; and
5. Classrooms need knowledgeable teachers.

I have given a fair amount of detail on this particular paper as in some ways it provides a synthetic view of literacy learning refracted through a specific case study of an attempted intervention in a school. It then offers with clarity and economy both reasons for difficulties in literacy learning and how to address these.

From the literacy studies described above we can further our characterisation of classrooms, by tentatively arguing that in the majority of language classrooms we will see the features listed in Table 4 below.

**TABLE 8: DESCRIPTIVE FEATURES OF FOUNDATION PHASE LITERACY CLASSROOMS**

<ul style="list-style-type: none"> <li>• Students have limited opportunities to handle books and bound material</li> <li>• Students mainly read isolated words rather than extended texts</li> <li>• Learners mainly write single words and single sentences. There is very little writing of extended text.</li> <li>• Focus is on decoding texts rather than comprehension and reading for meaning</li> <li>• There is little or no elaboration on learner responses</li> <li>• Learning is largely communalised</li> <li>• There is virtually no vocabulary and spelling development</li> <li>• There is little systematic teaching of phonics and decoding skills</li> <li>• Oral discourse predominates</li> <li>• There is a lack of (good) print material in classrooms</li> <li>• There is a shortage of sufficient texts at a range of reading levels, both ‘big books’ and graded readers</li> </ul>
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## SECTION 6: FOUNDATION PHASE MATHEMATICS STUDIES

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Few small-scale studies focused specifically on numeracy at Foundation Phase level were found for this review. Ensor et al (2009), as part of the Count One Count All (COCA) project, analysed classroom observation data collected in eighteen Foundation Phase classrooms in three different schools serving poor communities. What the study found was that classroom strategies for mathematics focused predominantly on concrete strategies for solving problems, thus inhibiting

students' potential for grasping the symbolic system of mathematics and more abstract ways of working with number (2009:5). The focus on mathematical knowledge in this project is elaborated on above. The study also found that teachers provided students with minimal feedback on their responses, particularly on errors. There was extremely weak pacing and it was clear that teachers lacked the knowledge of how students learn numbers.

Hoadley (2007), looking at four working class classrooms compared to middle class ones, also found that in poorer schools there was an extremely slow pace, and that teachers provided little response to student error. In addition, everyday knowledge predominated in these classrooms such that the principles, concepts and procedures for mathematics were not systematically taught. Both this dominance of everyday knowledge, and the concrete methods referred to above result in a very low conceptual level in the classroom (confirmed in Schollar's 2008 study of Grade 6 classrooms, where concrete methods for solving problems persisted).

One of the few experimental studies in South Africa and considers the impact of two different interventions in numeracy in the Foundation Phase (du Toit and Rosenberg, 2009). In a sample of 12 schools, classes were randomly allocated the South African curriculum and textbooks while the other half of the sample was allocated the Singapore curriculum and Singaporean textbooks. The study showed improvement in all schools, but greater improvement in the schools allocated the Singaporean curriculum and materials. Most interestingly, the research showed how a programme could overcome some of the problems associated with poor teacher subject knowledge. Those teachers in the Singapore programme scored well below the South African programme teachers, and yet their learners showed much greater improvements. The precise nature of what in the programme could account for the difference had not yet been identified. The research has also to date not been subject to proper peer review. Nonetheless, at the very least it highlights the need for more experimental studies in classrooms to complement and strengthen the findings of the school effectiveness studies and the very small scale studies on offer.

Finally, there are two researchers who have conducted significant work in Foundation Phase mathematics classrooms that have deepened the specific nature of mathematics knowledge and pedagogic practice at this level – Hamsa Venkat and Zain Davis. Davis, cited above, has worked to consider the nature of school mathematics knowledge at this level. In Davis (2010) the focus is on the learning of addition in Grade 1 classes. Through intricate analysis, Davis attempts to explain

why students fail to grasp basic arithmetic operations adequately. He argues that this is because the connection between basic counting and the cardinality of numbers is not connected to the teaching of basic operations. What is interesting about Davis' work is that he focuses on the constitution of mathematics in pedagogic situations, rather than leading with particular pedagogic styles or components. As referenced earlier, he deepens the focus on the specificities of subject-specific knowledge in the pedagogic context

In a series of papers, Venkat has also deepened our understanding of how mathematical knowledge functions in Foundation Phase classrooms. Venkat and Askew (2012) considered teachers' use of abaci and hundred squares in three episodes of Grade 2 teaching drawn from observations of 32 teachers. In using the apparatus, teachers made no reference to or use of the 10-based structure of both the abacus and the 100 square. The authors found that structured resources were being used in unstructured ways, or in material ways that did not make a connection to the mathematics 'ideal' intended in their construction. The researchers acknowledge the issues of content knowledge and pedagogical content knowledge at play, but they also argue that these resources were not previously a part of the socio-cultural setting of the classroom. In other words, the mathematical structure of the resource that might be apparent within certain sociocultural settings (including those of the policy makers) was not necessarily a feature of the sociocultural setting of these schools. The researchers suggest the need to move beyond simple provision of classroom artifacts for learning mathematics, "towards longitudinal teacher support based on the use of artifacts in ways that build on their form and relate to the meanings of number, operations and problem-solving" (72). The argument is interesting in relation to some of the earlier points raised in this review around what teachers bring to the classroom, and the regulative discourse at play in these pedagogic contexts.

In Venkat and Naidoo (2012) the authors focus on the issue of coherence in pedagogy. In this paper, they argue that in their sample, random selection and sequencing of exercises militate against meaning making in the classroom, working against connected learning of number concepts. Drawing on systemic functional linguistics, they describe how the use of 'co-references', 'co-classifications' and 'co-extensions' give rise to weak coherence within practices and what they term "extreme localisation" and 'a-historicity'. The study is interesting in that the authors give conceptual framing to the fragmented and disconnected practices seen in many Foundation Phase

classrooms. They explain ‘a-historicity’ as “each time a new example enters the scene, the past appears to vanish (including the methods and answers that might have been generated in the very recent past) (p.31). There is no reference to prior learning and no obvious future trajectory. Taking a more linguistic frame, Naidoo and Venkat (2013) consider coherence by comparing a number sense activity taught by a project leader and a number lesson taught by a Grade 2 teacher in a suburban school. In this paper they further draw out the implications of incoherence in lessons, as well as what this might mean for teacher education.

Venkat (2013) extends her work on temporality in an article on ‘temporal range’. Here she identifies two temporal dimensions in the teaching of mathematics. The first is a mathematical temporality that relates to “mathematical ideas, their precursors and horizons” (p.31). The second is a mathematical learning temporality in which “what students say and do at particular moments in time provides the “ground” on which future learning can be built” (ibid.). She identifies the reliance on concrete counting methods in Foundation Phase classrooms as a lack of attention to temporal range. While these methods are helpful and can produce correct answers in the early stages of learning, the persistence of these strategies into later stages means that students “remain saddled with highly rudimentary strategies for working with number” (ibid.). Offering an extremely incisive review of South African research on number, Venkat concludes that the emphasis on the ‘present’ and on ‘localisation’ evident in the findings across this range of studies. Venkat argues that teaching as characterised in these studies often either accepts, or produces, the answer to the immediate problem without attention to the broader understandings and longer term efficiencies needed for autonomous student work with similar and related problems. This production allows lessons to progress without any need for learning to progress within them”.

Some of the general points related to mathematics that emerge from these studies include the findings listed in Table 9 below:

**TABLE 9: DESCRIPTIVE FEATURES OF FOUNDATION PHASE MATHEMATICS CLASSROOMS**

- . Teachers do not demonstrate a clear theory of how children learn number
- . The use of apparatus and concrete methods for solving problems dominates classrooms
- . Everyday knowledge in many instances obscures the learning of mathematics;
- . Learning occurs at an extremely slow pace
- . There is a very low conceptual level of instruction
- . There is an ‘a-historicity’ in the ways in which knowledge is introduced in classrooms, and in the understanding of the development of mathematical understanding.
- . There is a lack of feedback – very often Initiation and Response, with no Feedback

## **SECTION 7: CONCLUSION AND SUMMARY**

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One of the problems in classroom-based research thus far has been the limitation of research to show the impact of teaching and learning on learner achievement, relative to other factors such as management and teacher professionalism. The latter two factors have gained prominence in thinking about how we might improve schools. The danger is that we may lose the key point of leverage for improving students’ educational opportunity in this way – by understanding what goes on in the classroom and trying to make an intervention there. In both international developing country and local research our knowledge around the impact of different forms of teaching and learning on students’ outcomes is limited.

Much of local and international developing country classroom research tends towards descriptions and prescriptions of teaching styles. These are often polarised into more learner-centred approaches versus traditional ones (or in the terms of the US literature, reform versus direct instruction). These discussions only take us so far, because as Alexander reminds us “it is now generally accepted that cognitively demanding interaction is a fundamental condition for all successful teaching of young children, however it is organised” (2001:394). A range of research and debate has begun to take us beyond these simple dichotomies. Hoadley & Muller (2009)

suggest a mixed pedagogy. Reeves (2005) shows curriculum coverage and opportunity to learn far outweigh the effects of a learner centred or teacher-centred pedagogy. Arguments around ‘zero pedagogy’ draw attention to the relationship between knowledge and teaching style. Westbrook et al (2014) in their comprehensive review confirm that working in these dichotomies has outlived its usefulness.

The limitation of the research reviewed here points to the need for studies that involve larger populations, that draw on a combination of qualitative and quantitative methods and that have baseline and post intervention measures to consider the effects of reforms and interventions. More longitudinal designs and RCTs are also likely to yield more precise findings around what works. Finally, we should not discount the importance of findings in developed country contexts around critical pedagogic features, and their relevance to developing country contexts need to be interrogated.

Given the limitations of the research base reviewed here, however, we are able to derive from a range of studies a number of classroom variables at the primary level which on the one hand describe what is going on in classrooms and on the other relate these to differential student outcomes. It is the consistency of findings over a number of relatively small and medium scale and large-scale studies that allows us to report with some confidence that the following factors are those which need to be most crucially explored in further research. Such research would usefully take heed of some of the methodological shortcomings of current studies identified in this review, as well as take seriously the interrelatedness of classrooms, schools, communities and systems and the deep historical embedding of classroom practices within particular socio-political contexts. These descriptive and achievement-related factors are listed in the final tables below. The notions of discourse, knowledge, time and values (broadly based on Alexander’s (2001) and Bernstein’s (1996) conceptualising of pedagogy) are used to summarise and organise the factors.



**TABLE 10: DESCRIPTIVE FEATURES OF SOUTH AFRICAN PRIMARY SCHOOL CLASSROOMS**

<b>Discourse</b>	<ul style="list-style-type: none"> <li>. Oral discourse dominates – there is a lack of opportunity for reading and writing</li> <li>. Classroom interaction patterns that privilege the collective (chorusing)</li> <li>. Weak forms of assessment and lack of feedback on students' responses - very often the pattern is Initiation and Response, with no Feedback or Evaluation</li> <li>. Little explicit, direct instruction</li> </ul>
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>. Low levels of teacher knowledge</li> <li>. Low levels of cognitive demand</li> <li>. Little use of textbooks or strong texts</li> <li>. Everyday, context-dependent knowledge predominates</li> <li>. The use of apparatus and concrete methods for solving problems dominates classrooms</li> <li>. Lack of focus on written text, reading and writing</li> <li>. Limited coverage of the curriculum</li> </ul>
<b>Time</b>	<ul style="list-style-type: none"> <li>. Slow pacing</li> <li>. The erosion of instructional time</li> </ul>
<b>Values</b>	<ul style="list-style-type: none"> <li>. Learning is largely communalised</li> <li>. Students are socialized into passive recipients of knowledge</li> </ul>

**TABLE 11: SOUTH AFRICAN PRIMARY SCHOOL CLASSROOM FACTORS ASSOCIATED WITH STUDENT LEARNING GAINS**

<b>Discourse</b>	<ul style="list-style-type: none"> <li>. More appropriate assessment and providing feedback to learners</li> <li>. Initial instruction in learners' home language</li> </ul>
<b>Knowledge</b>	<ul style="list-style-type: none"> <li>. A focus on reading and writing text</li> <li>. Higher teacher's proficiency in the language of instruction</li> <li>. Greater amount of reading and writing extended text</li> </ul>
<b>Time</b>	<ul style="list-style-type: none"> <li>. Teachers adjusting pace to pupil ability</li> <li>. Greater curriculum coverage, including teacher knowledge and planning for and coverage of curriculum standards</li> <li>. Greater opportunity to learn (content coverage by cognitive demand, content exposure as well as curriculum coherence and pacing)</li> </ul>

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