Learning to teach the National Curriculum Statement in schools: A desk review of teacher education in the Foundation Phase in South Africa

An Umalusi Report

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Acronyms

ACE	Advanced Certificate in Education
B Ed	Bachelor of Education
C2005	Curriculum 2005
CEA	Centre for Evaluation and Assessment
CPDE	Continuing Professional Development of Educators
CPUT	Cape Peninsula University of Technology
CUT	Cape University of Technology
DoE	Department of Education
FET	Further Education and Training
GET	General Education and Training
HEMIS	Higher Education Management Information Systems
HEQC	Higher Education Quality Committee
HEQF	Higher Education Qualifications Framework
INSET	In-service Education and Training
NCS	National Curriculum Statement
NPFTED	National Policy Framework for Teacher Education and Development
NPDE	National Professional Diploma in Education
PGCE	Post Graduate Certificate in Education
SAIDE	South African Institute for Distance Education
UKZN	University of KwaZulu-Natal
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNISA	University of South Africa
WITS	University of the Witwatersand

Executive summary

There has been a recent surge of interest, internationally and nationally, in the Foundation Phase of schooling, and the importance of establishing good foundations for better outcomes across all schooling levels. At the same time, recent local and international tests show that basic numeracy and literacy are in need of urgent attention in South Africa. Levels of numeracy and literacy are extremely low, for both learners and teachers. Teacher education is recognized as the primary factor in improving schooling outcomes; in South Africa teacher education has recently undergone processes of complex reform and fundamental change in the design and delivery of programmes. This report reviews the available research on the extent, nature, and quality of teacher education for the Foundation Phase level of schooling.

The overwhelming finding from this review is that there is in fact very little research into Foundation Phase teacher education. However, on the basis of research with very incomplete data, this report extracts a number of points that give some indication of what is (tentatively) known about Foundation Phase teacher education. These include the following:

There is limited capacity within the university sector to provide Foundation Phase teacher education, especially to speakers of African languages.

The different institutions instructing teachers in South Africa employ a range of approaches and apply a variety of models, particularly concerning teaching the design and delivery of programmes. This research found the links between phases in the design and delivery of programmes are inadequate, especially between the Foundation Phase and the Intermediate Phase. Teaching practice is beset by problems, and the depth and breadth of the teaching of subject knowledge varies. The quality of provision of both pre-service and in-service teacher education is generally unknown.

There is no clear curriculum for teacher education, which means that student teachers in different institutions are likely to be subject to very different contents in their courses. The articulation between the national curriculum and teacher education curricula (based on the *Norms and Standards for Educators*) requires further investigation. The extent to which the National Curriculum Statement informs the design of teacher education courses is variable, and unknown in most instances.

There is a shortage of African language students in Foundation Phase training, and those who do enrol often choose to be trained in English instruction. There is also a shortage of materials in African languages and of African home language Foundation Phase literacy experts. The teaching of phonics of African languages is particularly problematic.

The report concludes with a number of recommendations for further research

1. Introduction

There has been a recent surge of national and international interest in the Foundation Phase of schooling, and the importance of establishing good foundations for better outcomes at all schooling levels. The 2007 Education for All Global Monitoring Report (United Nations Educational, Scientific and Cultural Organization (UNESCO), 2007) is focused on Early Childhood Care and Education and advocates the laying of 'solid foundations' from an early age in pursuit of improved social and learning outcomes for students and the achievement of the *Education for All goals.* Nationally, 2008 saw the launch of the *Foundations for Learning* initiative by the Department of Education (DoE). Responding to the alarmingly poor results of South African primary school learners in international and national standardized tests, the campaign is focused on improving the reading, writing, and numeracy performance levels of all children in the Foundation Phase. This is to be achieved by monitoring learner progress, protecting time for learning, providing resources for teaching and learning, and providing additional stipulation of curriculum content for teachers (DoE, 2008b).

At the same time, Umalusi has embarked on a process of evaluation of the National Curriculum Statements (NCSs) for the General Education and Training (GET) band, starting with the Foundation Phase. It is common knowledge, however, that the curriculum and its stipulated content are only as good as the teachers who will implement it. Teacher education is usually recognized as the main factor in improving schooling outcomes. Consequently, a wide range of programmes has recently been initiated to support teachers. This includes large-scale teacher training programmes to upgrade the high number of unqualified teachers in the system, and the channelling of a large pool of donor money into teacher development (Parker, 2008). The quality of teacher education has also come under the spotlight. Questions were raised at a recent summit [1] on teacher education about the need to standardize teacher education curricula, and to monitor and hold teacher educators accountable for student outcomes. Teacher education programmes and initiatives have had limited measurable impact (Taylor, 2007) and there is limited knowledge of the nature of teacher development and education that is available.

The purpose of this review is to pull together current research knowledge on the quality and scope of teacher training for the Foundation Phase specifically. Given that the report has been commissioned by Umalusi, the report places an emphasis on issues relating to curriculum. This introduction to the report provides some context to Foundation Phase teacher training. The review then considers research in relation to a number of issues identified by Umalusi as crucial to our understanding of the current state of Foundation Phase teacher education.

1.1 Context: Learner performance

Until recently, the only national measure of the outcomes of the school system has been the matriculation examinations. The class of 2006 was particularly interesting in that it was the first post-apartheid cohort of learners to pass through the school system since 1994. Schollar (2008) reports that a total of 1 676 273 learners were enrolled in Grade 1 in 1995 - these learners were in Grade 4 in 1998, the year that outcomes-based education (OBE) was introduced in the form of Curriculum 2005 (herein after referred to as 'C2005').
He reports the following startling statistics:

1 Teacher Development Roundtable in preparation for the summit. 7 April 2009. Organized by the Educator Labour Relations Council and the Education, Training and Development Practices Sector Education and Training Authority. Documentation will shortly be available online.

- 528 525 learners (31,5%) wrote the matric exams in 2006
- 330 513 learners (19,7%) wrote the mathematics exam
- 25 217 learners (1,5%) achieved a pass at Higher Grade in mathematics.

Other standardized tests provide current data on the performance of South African learners at other levels of the education system. These include the National Systemic Evaluation of the National DoE, and three international comparative studies: Trends in Mathematics and Science Study, the Southern and Eastern African Consortium for Monitoring Educational Quality; and the Monitoring Learner Achievement Study.

All the tests show that around 80% of South African learners are performing below the minimum expected standard for their grade. The National Systemic Evaluation was graded on a scale of achievement in terms of the assessment standards of the NCS - again, over 80% of all learners were found to be performing well below expected minimum levels. Schollar (2008) further reports that when the National Systemic Evaluation mathematics results are analyzed by learning outcome it is clear that learners perform most poorly in the basic foundational skills dealt with in Learning Outcome One (numbers, operations, and relationships). Another clear finding from analysis of these tests is that learners are struggling to read, even at the higher grades of primary school (Reddy, 2005). Basic numeracy and literacy, the domain of the Foundation Phase, are thus areas in need of urgent attention.

1.2 Context: Teachers

Educational research has emphasized the absolute centrality of teachers in any efforts to reform or improve schooling (Taylor, 2007). Teacher quality, and especially their subject knowledge, is increasingly accepted as the most important factor in improving student outcomes. Internationally, Mourshed (2008) reports that in poorly performing systems, teachers are taken from the bottom percentage of students. In South Africa, entry requirements for teachers into training and the profession have for a long time been particularly low, especially at the primary school level. Students entering teaching have had very low schooling results. Hartshorne (1992:249) shows that in 1988, for example, 93% of the successful senior certificate group had 'F' aggregates (i.e., 33 - 39% of the total aggregate mark). This was the main pool from which student teachers were recruited. The quality of training received in colleges was also historically severely compromised. Finally, Foundation Phase teachers are the most under-qualified of teachers in the system.

It is increasingly clear that teachers' poor grasp of the subjects they are teaching is a major problem in South African schools. Taylor (2008) reports on a rural study that highlighted the low levels of knowledge that teachers have. Short tests in literacy and mathematics were administered to Grade 3 teachers. The tests were constructed by selecting items from tests designed to assess the knowledge of Grade 6 learners. The teachers performed poorly on the tests. Only one teacher scored 100% in mathematics, and in literacy only one teacher scored higher than 75%. These results have been replicated in schools across the country in language, maths, and science, in both primary and high schools. The problem of teacher knowledge arises at the training level. In 2005, the Ministerial Committee on Teacher

Education (DoE, 2005) reported that many students in initial teacher education programmes had very low levels of (print) literacy and numeracy. It is clear that most teachers do not have the basic knowledge the curriculum expects them to teach, and that teacher training is largely failing to address these low levels of basic knowledge amongst teachers.

1.3 Context: Teacher training

International education research literature points to the fact that the only way to improve student performance is to improve instruction, and teacher training can, in a very targeted way, have a positive impact on teacher quality. The quality of this training, however, matters hugely. The Ministry of Education has recently embarked on large-scale initiatives to upgrade teachers, in particular with the introduction of the National Professional Diploma in Education (NPDE). The Advanced Certificate in Education (ACE) has also been introduced to retrain teachers in specialist domains.

Teacher training has also recently been subject to policy and institutional reform. The *Norms and Standards for Educators,* published in 2000 by the DoE (DoE, 2000a), provide a set of criteria for the generation of qualifications and learning programmes, using an OBE approach. A four-year Bachelor of Education (B Ed) degree was introduced as the preferred pre-service training route. At about the same time, teacher education was relocated to the university sector, and approximately 155 state colleges of education were closed down. In 2003, a Ministerial Committee on Teacher Education was appointed to develop an 'overarching framework' for teaching education (DoE, 2005), to introduce coherence into the system. Two more recent initiatives in the attempt to streamline and improve teacher education have been a series of programme reviews carried out by the Higher Education Quality Committee (HEQC) of the Council on Higher Education, and the publication of the 2005 National Policy Framework for Teacher Education and Development (NPFTED) (DoE, 2006) based on the recommendations of the Ministerial Committee on Teacher Education. The latter clarified the qualification routes for teacher education, and affirmed the curriculum base of teacher education in the *Norms and Standards for Educators.* More recently, the introduction of a Higher Education Qualifications Framework (HEQF) is likely to lead to the revision or replacement of the *Norms and Standards for Educators,* and bring teacher education in line with the newly legislated qualifications framework. It is clear from this highly summarized overview that teacher education has recently been in a state of flux and intense reform.

Summary

The foregoing contextual discussion indicates that there is a crisis in teaching and learning in South Africa, and that this is felt acutely in the Foundation Phase. Teachers at this level are also most in need of training, and research would suggest that the improvement of teachers' subject knowledge is crucial in this regard. Teacher education has recently undergone processes of complex reform and fundamental change in the design and delivery of programmes. The remainder of this report focuses on what we currently know about the education of teachers at the Foundation Phase level.

2. Overall objective of the report

The overall objective of this report is to provide Umalusi with an informed position regarding the extent, nature, and quality of teacher education with specific reference to the Foundation Phase. This review provides supplementary information to the evaluation of the NCS for the Foundation Phase, Grades R–3.

The study entails a desk review of current available research on Foundation Phase teacher education. Given Umalusi's role in monitoring the standards of qualifications and their associated curricula, the report is particularly focused on the ways in which teachers are being trained to implement the national curriculum. The central question guiding the desk review is:

> What does recent research literature tell us about the current extent, nature, and quality of teacher education and development in the Foundation Phase in South Africa?

More specifically, the review aims to address the following issues:

- Background to the training of teachers for implementation of the NCS
- Location of teacher training within new university structures
- Currently available pre-service and in-service programmes
- Current structure of pre-service and in-service programmes
- Nature and range of pre-service and in-service programmes
- Dealing with home language instruction
- Research on the quality of current programmes
- The focus on curriculum in current teacher education and development
- The accessibility of teacher training for the Foundation Phase, and some indication of uptake by teachers and prospective teachers.

These issues frame the review that follows. Where relevant, reflections on teachers' preparation to engage with the NCS are made.

3. The state of Foundation Phase teacher education research

The overwhelming finding from this review is that there is in fact very little research into Foundation Phase teacher education. We know little about the specifics of teachers' training to become Foundation Phase teachers. In particular, there is a paucity of research into the module content of courses, the emphases of courses, and the extent to which teachers are being prepared to implement the NCS. The research that does exist is limited in two ways. Firstly, it often pertains to a limited and small number of institutions, making any kind of generalization difficult. These institutions are also more often the more privileged universities - not where the majority of Foundation Phase teacher education is taking place. Secondly, the studies that have been conducted often have a developmental focus, and are less concerned with strict adherence to scientific procedure for research. This challenges the validity and the reliability of this research.

The review nonetheless considers those few studies that do exist. In addition, broader teacher education literature is considered, and general points that apply equally to Foundation Phase are highlighted. Because of the scarcity of research in Foundation Phase teacher education, the review focuses on systematically presenting some of the major gaps in the field, and suggesting where the priorities for future research might lie.

Some of the key studies that inform this review are those by Kruss (2008), the South African Institute for Distance Education (SAIDE) (2009a and 2009b), and Zimmerman et al. (2008).

Kruss (2008) is an edited collection of case studies of curriculum change at five higher education institutions: the Cape Peninsula University of Technology (CPUT), North West University, the University of Zululand, the University of the Witwatersrand (WITS) and the University of South Africa (UNISA). The studies offer a valuable, in-depth analysis of pre-service curriculum revision in the context of institutional change (especially mergers), at a time of heightened policy change and the attempt to streamline and regulate teacher education. Some of the cases offer specific analyses of issues at the Foundation Phase level of teacher education, and these are drawn out in this review.

The SAIDE (SAIDE, 2009a and 2009b) study consists of a numeracy and literacy component. The aim of the research was to provide a collaborative research environment and resources to enable participant institutions to reflect on, understand, and improve/change institutional practice in relation to teaching reading and teaching numeracy to student teachers in the Foundation Phase. The project was conceived of as a participatory, developmental, action-reflection research process involving a group of Foundation Phase lecturers. Two draft reports emerged from this research process. Drawing on the HEQC review's concept of quality, research questions were generated for exploring the current situation, gaps, and recommendations for Foundation Phase numeracy and literacy.

The SAIDE (2009a) study on literacy had eight research questions guiding the study. Each question arose from "a fundamental assumption about what would constitute a quality programme for the preparation of teachers responsible for reading and writing instruction in the Foundation Phase" (SAIDE, 2009a). The institutions involved in the project were the Cape University of Technology (CUT), UNISA, WITS, and SAIDE. The research is also reported in Drew's

2008 work.
The numeracy project, entitled 'Teaching numeracy teachers to teach numeracy: A comparative review of curriculum in terms of methodologies, content and institutional context' comprised a group of institutions, namely UNISA, CUT, the University of KwaZulu-Natal (UKZN) and Stellenbosch University, with researchers/practitioners from each institution reporting on the Numeracy curriculum in the B Ed at all the participating institutions. The research was also organized around eight key 'quality questions' regarding the content and quality of courses[2].

The Centre for Evaluation and Assessment conducted a study of teaching reading to Foundation Phase teacher education students (Zimmerman et al., 2008). The available paper presents selected findings from a cross-sectional survey of the Foundation Phase literacy programmes for the B Ed degree content on Early Child Development/Foundation Phase teacher preparation programmes at a selection of South African universities. The survey is a branch of the Centre for Evaluation and Assessment's Teaching Literacy Education Project, which investigates pre-service and in-service training initiatives for literacy teaching in South Africa. The aim of the survey was to describe how Initial Professional Education and Training student teachers are currently being trained to teach reading literacy to South African Foundation Phase learners. A final report on this project is due out in 2009, which will include details on the content of literacy modules. This report was not available at the time of completing this review.

Finally, another report not available at the time of this review is that produced by the Council for Higher Education on the state of teacher education. The report is based on the series of HEQC reviews of education programmes, including those of twenty Foundation Phase teacher education programmes. This report is also due out in 2009.

2 At the time of writing this report, the final report was still in draft form. From the draft report a number of issues remained unclear, in particular issues around sampling—what data was used for analysis and detail on methodological approaches. The validity and reliability of the research could thus not be ascertained, and it appeared from the draft report that much of the research relied on the self-assessment of the participating lecturers. This also meant that the report was descriptive rather than being analytical or critical. With the proviso that the findings are unstable, some of the interesting preliminary issues arising from the research regarding the quality of Foundation Phase numeracy teaching are extracted in this review.

4. Current provision of Foundation Phase teacher education

Currently, twelve higher education institutions offer either pre-service, in-service, or both forms of training for Foundation Phase teachers. The qualifications are either a B Ed or Post Graduate Certificate in Education (PGCE) for pre-service training, and an ACE or NPDE for in-service training. **Table 1** below shows both those institutions offering training in Foundation Phase (shaded qualification block), as well as those that do not.

Table 1: Provision of Foundation Phase teacher education in universities

		B Ed	PGCE	ACE	NPDE
1	University of Cape Town				
2	University of Fort Hare	■		■	■
3	University of the Free State			■	
4	University of KwaZulu-Natal	■		■	
5	University of Limpopo				
6	North-West University	■	■		
7	University of Pretoria		■		
8	Rhodes University				
9	University of Stellenbosch	■			
10	University of the Western Cape				
11	University of the Witwatersrand	■		■	
12	University of Johannesburg				
13	Nelson Mandela Metropolitan University	■			■
14	University of South Africa		■		
15	University of Venda				
16	Walter Sisulu University for Technology and Science			■	
17	University of Zululand	■			
18	Cape Peninsula University of Technology	■			■
19	Central University of Technology				
20	Durban University of Technology				
21	Tshwane University of Technology			■	■
22	Vaal University of Technology				

Eight institutions currently offer a B Ed in Foundation Phase, and three offer a PGCE for Foundation Phase. Only ten out of the 22 higher education institutions offer pre-service teacher education for Foundation Phase. In relation to in-service training, six institutions offer an ACE for Foundation Phase. The major teacher upgrading diploma, the NPDE is offered for Foundation Phase teachers at four institutions.

It would appear that the capacity within the university sector to provide Foundation Phase teacher education is limited. This is possibly related to the incorporation of the teacher colleges into the higher education system in 2000. In the main, universities that did not incorporate a college of education appear not to cater for Foundation Phase teacher education; these institutions have not generally taken up the responsibility of

offering Foundation Phase teacher education programmes. Research into the expansion or contraction of provision for Foundation Phase teacher education would be very useful to education policy makers in South Africa. The research should investigate some of the reasons for changes in capacity within the sector. One possible avenue of investigation may be to consider whether the lack of provision is a demand problem (not enough students seeking entrance, or not being able to gain entrance given University academic entrance requirements), or a supply issue (for example, some universities may prioritize post-graduate teacher education, or particular phases). The issue of college incorporation is addressed further below.

5. The accessibility and uptake of teacher training for the Foundation Phase

Currently Higher Education Management Information Systems (HEMIS) data does not disaggregate teacher education enrolments in terms of subject/learning area level. Thus the number of students specializing in Foundation Phase cannot be derived from HEMIS. Data that was collected from the Deans' Education Forum (Morrow, 2006) in order to supplement the HEMIS data does provide some information on the level of subject/learning area specialization. Table 2 below shows data collected from Deans of Education at various schools and faculties.

Table 2: Overall teacher education enrolment in 2006 per gender, race, and phase

Total registration across all higher education institutions	Male	Female	African	Indian	White	Coloured	Foundation Phase	Intermediate Phase	Senior Primary	Further Education & Training
32 981	9 368	21 297	16 407	1 867	12 232	2 463	7 002	3 523	7 446	14 10

Source: Teacher supply data for 2007, registrations per gender, race and phase (Morrow, 2007)

Table 2 shows that an overwhelming number of teacher education students are female. The large majority are African, although there is also a large pool of white students. Students are concentrated at the Further Education and Training (FET) phase, with only 7 002 students at the Foundation Phase level. What the table doesn't show is that, in 2006, only 7% of the expected teacher graduates for the Foundation Phase were speakers of indigenous African languages (Morrow, 2006). This clearly has implications for the number of new teachers who would meaningfully be able to provide mother tongue instruction in an indigenous language. The 2005 NPFTED observed that "of the 6 000 new teachers likely to graduate in 2006, fewer than 500 will be competent to teach in African languages in the Foundation Phase" (DoE, 2006:12).

Paterson and Arends (2008) argue that the closure of the colleges of education had a significant impact on the enrolment of students in pre-service teacher education. Further, the colleges were the base from which young African women entered the teaching profession as primary phase teachers (Ibid.:114). Many of these student teachers were also drawn from rural populations. The researchers pose crucial questions relevant to the decline of the number of Foundation Phase teachers, especially African teachers: Were rural communities in the catchment areas of the former colleges left stranded once teacher education opportunities receded towards the towns? Why did the impetus of teacher training established in the hinterland of over 90 colleges not generate a secondary wave of education students who pursued teacher education opportunities in numbers after the closure of the colleges? Is the propensity to study teaching very sensitive to the impact of distance and cost on households? The Schools that Work report, based on a ministerial commission (Christie et al., 2008) suggests that recruitment into teaching also faces more

generalized problems around status.

Participants in the study pointed to a crisis in the teaching profession in South Africa, which they related to low salaries and status, and increasingly difficult classroom conditions. All the schools in the study highlighted the difficulties of attracting good new entrants to the profession and retaining good young teachers.

In considering the uptake of Foundation Phase teacher education, these crucial issues need to be investigated further.

6. Location of teacher training within new university structures

In 2000, a decision was taken by the Ministry of Education to incorporate the colleges of education into higher education institutions. The processes of incorporation are discussed in detail by Welch and Gultig (2002), Jansen (2002), and Kruss (2007). The rationale behind the closures was that the college sector was costly and inefficient, and that teacher education in South Africa constituted a fragmented sector. Hundreds of colleges of education were incorporated into universities. According to Parker (2008), many of the Foundation Phase lecturers in colleges were not adequately qualified for employment in higher education and went back into the provincial departments of education. Where colleges were incorporated, Foundation Phase teacher education did continue, but with reduced capacity.

Foundation Phase lecturers are typically drawn from the former colleges. Kruss's 2008 research found that some of these lecturers had difficulty, which bred resentment, with the change from small classes to a lecture mode of delivery, or from the "pastoral milieu" (Gordon, 2008:115) of the college to the more impersonal university setting.

Across the various research projects (Kruss, 2008; Zimmerman et al., 2008; SAIDE, 2009a and 2009b) are reports of Foundation Phase teacher educators finding an insufficient amount of time to cover the curriculum. In some cases, this is attributable to movement to a university setting, and the inclusion of more courses, especially theory-based courses. In other cases, the time taken to sufficiently induct students into the complexities of reading, for example, is simply judged insufficient (Drew, 2008).

The location of colleges in universities has also led in some cases to clashes between staff with a more professional, practice-based orientation (often former college staff), and those with a more academic, research-led orientation. Research shows that Foundation Phase lecturers felt that their professional identities were threatened, and that they were undervalued and patronized by academic staff traditionally from the university (Gordon, 2008; Hoadley, 2008). Some teacher educators, however, identified the positive aspects of moving from a college to a university setting, such as exposure to research and the opportunity to attend conferences and broaden their own communities of practice. The shift of primary teacher education from colleges to universities has created a further expectation of teacher-educators - to become researchers. This is a challenge for many, as the opportunity for primary school teacher-educators to engage in research has been largely absent up till now (Robinson and Christie, 2009).

What is clear from the research is that the shift from college to university location has placed the Foundation Phase in a subordinate position in university faculties, often lacking the necessary resources and staffing (Organisation for Economic Cooperation and Development (OECD), 2008).

7. Current structure of pre-service and in-service programmes

Pre-service training is offered either as an undergraduate degree, a B Ed or as a PGCE. The in-service programmes offered are the ACE and the NPDE. Following the *Norms and Standards for Teacher Education* in 2000 (DoE, 2000a), the B Ed, ACE, and PGCE were the new qualifications to replace all former teaching degrees, certificates, and diplomas. The NPDE was also introduced in 2000 specifically to upgrade teachers in line with the new qualifications framework.

7.1 Pre-service programmes

Currently, studies available on the design and delivery of teacher education are limited, although the Council for Higher Education's study is very likely to fill a gap in our understanding. Kaniki's (2007) survey of Initial Professional Education and Training, though incomplete, provides information on the design and delivery of teacher education in 17 of the 23 higher education institutions. The survey does not address the Foundation Phase directly. Its main finding is that the general pattern of Initial Professional Education and Training provision is similar across institutions, although there are indications of ways in which individual institutions are introducing greater flexibility as a way of increasing access to more diverse target groups. This is evident in the use of various combinations of entry requirements to programmes (including recognition of prior learning), use of part-time offerings, and the use of the learnership model.

7.1.1 Learning area and phase coverage

Precise data is not available on the structuring of pre-service teacher education programmes in relation to subjects. Some universities are likely to structure their programmes around cognate disciplines, some around learning areas, and some around phases, or combinations of phases. Different models will have implications for the delivery of programmes. The Foundation Phase in particular is likely to sit uncomfortably in programmes organized around traditional subjects (Parker, 2008). Learning areas at the GET level (Grades R–9) integrate various subject disciplines, in which teachers are expected to be adept. Kaniki (2007) found that nationally, nine out of the fourteen institutions for which she had complete data offer all eight learning areas found in the NCS. Four institutions offer between four and five learning areas, probably in line with the expertise of their staff.

Particular information is available relating to the structuring of the B Ed in the SAIDE (2009b) numeracy report, which was concerned with the organization of the programme into phase or subject specializations. This had an impact on the nature of the content that was taught. One institution reported, "The structure of the B Ed programme with students in different phase specialisations doing a selection of our modules has had a major effect on how we package the work. For example, whereas we might have spent a whole module developing ideas of computation, we now have to do a sprinkling of all LOs [learning outcomes] within each module" (SAIDE, 2009b).

Questions were also raised regarding the integration of methods or didactics and the learning area, and the integration or separation of numeracy and mathematics as subjects

taught. Again, these questions had implications for the nature of the content introduced, although this was not explored in the SAIDE report.

7.1.2 Links between phases

The fact that most South African learners are not achieving at Grade level makes it imperative to consider the links between different phases. It is likely that Intermediate Phase teachers will have to address skills and concepts not acquired by learners in the Foundation Phase. The DoE (2008a) indicates that most teachers teaching beyond the Foundation Phase are not trained to teach basic reading skills, and do not know how to help struggling learners. Further, the document states that many Foundation Phase teachers have not been trained to teach reading; the problem being exacerbated by C2005's de-emphasizing of texts and the direct instruction of reading.

Delivery of programmes focusing on the Foundation Phase alone, and those that combine the Foundation Phase and the Intermediate Phase will impact on the links between these different phases of schooling. The SAIDE study (2009a) looked at this matter specifically in relation to the teaching of reading; the study shows that children's literature, as a component of teaching reading, is offered as modules in the Intermediate and Senior Phases, but very little time, if any, is spent on the teaching of reading at these levels. Likewise, Foundation Phase students are not introduced sufficiently to children's literature, which, like Learning to Read, in reality straddles both phases.

7.1.3 Time allocation

Regarding the issue of time allocation, the SAIDE (2009a) report acknowledges that the NCS has defined time requirements in relation to the literacy curriculum, and it follows that teacher education programmes need to consider this in devoting sufficient time to the teaching of reading and writing. The study finds across institutions that not enough time is allocated for the teaching of theories and children's literature in a way that encourages real development of critical thinking and a sound knowledge of texts. Similarly, Zimmerman et al. (2008) found that many institutions find it difficult in general to adequately cover the volume and range of topic areas that need to be addressed.

Time allocated to numeracy within the B Ed programme was also raised in the SAIDE (2009b) numeracy report. Four of the institutions appear to have considered the time allocated sufficient. One institution highlighted the fact that only 10% of the total time of the programme was dedicated specifically to numeracy. The issue of curriculum overload was also raised in this study - this issue is taken up below.

7.1.4 Mode of delivery

Models of initial teacher education are often characterized according to how the entry route of a novice teacher into the profession is managed, or the qualifications on offer. Kaniki's 2007 survey found that South Africa's Initial Professional Education and Training programmes overwhelmingly comprise one to four years of full-time study towards a university B Ed or PGCE degree. Kaniki also found that, although there is a continuum of modes of delivery from contact to distance, all seventeen surveyed Higher Education institutions, except for UNISA, delivered the Initial Professional Education and Training programmes (B Ed and PGCE) by way of face-to-face contact sessions. She speculates as to the reasons for this. One is that there could be a lack of capacity of higher education institutions in terms of expertise in certain phases, and the capacity to produce materials for distance education. Another is

that it is a preferred mode of intellectual enquiry amongst academics, with frequent contact with students, on-site availability of well-stocked libraries, and other resources, facilities, and equipment.

There are also, however small, a number of learnerships in operation in institutions. Although it is not clear how many of these pertain to Foundation Phase student teachers, Kaniki's (2007) research identified 1 138 students in learnership programmes in eleven institutions. Further research is required to consider the implementation of learnerships and students' experiences of the programmes. Karlsson and Berger (2006) point out some of the benefits of this mode of delivery, including a "growing number of well-grounded and prepared new teachers, particularly of equity target groups and in certain subject and grade specialisations" (Ibid.:62), and enabling those who may not be able to afford to study to enter teaching.

7.1.5 Teaching practice

The SAIDE (2009b) numeracy report raised the issue of the nature, timing, and duration of teaching practice. The differences between the timing and nature of teaching practice in different institutions were not evident in the draft report. However, integrating teaching practice with course content in lectures formed part of the recommendations. The nature of the mentorship that students experience in teaching practice is also an issue that Zimmerman et al. (2008) raise - they note that, specifically in relation to reading, students often do not encounter the teaching of reading in schools.

Finally, a perennial problem in relation to teaching practice is that of the link between theory and practice, between the content of lectures and the school experience of students. This was raised in the research by Place and Joseph (2008), in the SAIDE studies, and in the Centre for Educational Assessment (CEA) research.

Place and Joseph (2008) describe the revision of the assessment of final year Foundation Phase students in their qualifying literacy course at the WITS. Students were placed in a challenging school context, with the support of their peers and their lecturer. Students' assignments revealed they had gained important insights about developing literacy as well as insights into time management, language issues, and constructive discipline strategies, some of the key areas of difficulty identified for student teachers. The project attempts to overcome the longstanding findings that teachers teach as they were taught, and that pre-service education has limited influence on the professional practice of teachers (Lortie, 1971).

Certain studies report on problems related to teaching practice. One is the time allocated and whether it is sufficient. The other is the amount of support and mentorship that is made available to student teachers in schools, especially those who do their teaching practice in the rural areas (SAIDE, 2009a). But, generally, the underlying issue is the question of transfer of knowledge from the teacher education programme to the classroom. Ensor's (2001) work on this is seminal.

Ensor argues that for students to both recognize and realise the generative principles of best practice requires the rules to be both spoken *and* shown (Ensor, 2001:180). Ensor likens this difference to the distinction between teacher education as apprenticeship and teacher education as relay. In an apprenticeship approach, a student becomes adept at practices through the clear demonstration of specialized practices. By contrast, the use of relay strategies displaces action from content and students do not become adept at

practices. Transmission through relay leads to impaired access to practices, and the process of acquisition of best practice is interrupted or denied (Ensor, 2001:181). The structuring of most teacher education courses entails a relay form of transmission, partly through strong separation between teaching practice and course work, and also through the absence of modelling of ideal practices in realistic contexts - ones that students are likely to encounter on teaching practice or ultimately when they enter schools.

7.2 In-service programmes

In 2000, 76 839 teachers (or 22% of the total teacher workforce) were identified as unqualified or under-qualified and in need of upgrading in terms of qualifications (Kruss, 2008). There has consequently been a huge expansion of in-service programmes at universities, with large amounts of funding being made available by provincial and national departments of education for teacher upgrading. Many of these unqualified teachers were at the Foundation Phase level. Hoadley (2008) provides an example of the scale and nature of these programmes at the Potchefstroom campus of North West University. North West University offered a total of sixteen ACE specializations and twenty NPDE specializations and had 32 learning centres throughout the country in 2006, staffed by facilitators and a centre co-ordinator. These 240 off-campus staff were trained by junior lecturers at the University. In 2006, 18 000 teachers were being trained through these Potchefstroom In-service Education and Training (INSET) structures. Student-lecturer contact time was minimal, with the NPDE offering three contact sessions per semester, and a combination of fax, email, and mobile phone messaging systems for student support.

The quality issues when managing 18 000 students in a programme as described above are crucial. Although there is much anecdotal evidence of the questionable quality of many INSET programmes, actual research has yet to be conducted to measure it. The Education Labour Relations Council commissioned an evaluation of the courses in 2004. Although it was not made available publicly, Breier et al. (2007) report on an anonymously authored document by SAIDE/Centre for Education Policy Development, which notes that the evaluation found:

- Widely varying curricula
- Widely varying quality of materials
- Gaps in curriculum provision (with certain learning areas not offered)
- Greatly varying amounts and qualities of student support
- Only four providers doing on-site assessment of teachers' practical teaching competence that counted toward the final mark (Breier, 2007:19)

Contact sessions were also found to be extremely limited, and the learning materials of some of the providers were extremely poor. Assessment of students in classrooms, though recommended, was severely limited (Welch, 2004).

The ACE qualification was introduced as a flexible qualification to upgrade teachers in specialist skills. The NPFTED, however, reports being concerned with the "undue proliferation of ACE programmes" (DoE, 2006). The DoE has also recently expressed concern with the number and purposes of the ACEs (DoE, 2008c). A concern with the quality of these programmes has led to their review by the HEQC, on whose recommendation they will or will not continue to be supported. The NPFTED also indicates a general concern with the fragmented and uncoordinated nature of INSET provision, with a lack of quality control mechanisms and low

returns to the large investments as read in persistent poor learner achievement.

No particular information on Foundation Phase–specific in-service programmes could be found for this review. This is an obvious gap in research given on-going teacher upgrading as well as reform and new initiatives being introduced into the system (such as the NCS, and more recently, the *Foundations for Learning* initiative). How well these in-service qualifications respond to broader initiatives as well as to what is happening in schools would be an important aspect of future research.

8. Teacher education curriculum issues

8.1 Models of teacher education curriculum design

There is no research that specifically reports on the models of teacher education curriculum design, although there are a number of theoretical models presented in the literature. Anecdotally, it is clear that differences exist between the models underlying different qualifications - between the B Ed and PGCE for example—and between different institutions. The location of teacher education - in former college structures or university structures - is likely to give rise to different models. The report of the Ministerial Committee on Teacher Education (DoE, 2005) provides a useful initial conceptualization of different models of teacher education curriculum design, which could provide a starting point for research into the Foundation Phase teacher education curriculum. Shown in **Table 3,** five models are defined in relation to their focus, purpose, and dominant theoretical basis, in line with distinct curricular traditions. In the report Morrow (2006) claims that the models are derived from a review of dominant traditions within initial teacher education, as they fit appropriately with the context of South African institutions. The typology, however, remains to be tested empirically.

Table 3: Models of teacher education

Model type		**Common descriptions**	**Focus**	**Continuing Professional Development of Educators (CPTD) purpose**	**Dominant theoretical basis**
A	Conceptual models	Master Apprenticeship model	Teaching as a craft	Ensuring transfer of exemplary competences	Behavioural modification
		Applied Scien-tist model	Teaching as a scholarly science (academic)	Promoting strong theoretical and disciplinary focused CPTD	Empiricism
		Reflective Practice model	Self inquiry	Developing opportunities for self-improvement	Interpretivism/ constructivism
		Critical Reflective Practice model	Power hierarchies and injustices	Campaigning towards a more socially-just education system	Critical theory/ Deconstruction

Model type		Common descriptions	Focus	Continuing Professional Development of Educators (CPTD) purpose	Dominant theoretical basis
B	Contextual models	Behaviouristic, traditional craft, personalistic, inquiry orientated	The school context (structure) and the autonomy of the individual (agency)	Identifying socially and contextually relevant choices of CPTD	Social constructivism
C	Managerial models	Performance-based models	Balancing accountability and support	Ensuring incentives, rewards, and sanctions for preferred actions	Varied depending on model of educational management
D	Collegial models	Action Learning models	Creating opportunities for learning. Establishing communities of practice	Developing networks of action	Constructivism (Radical constructivism)
E	Teacher Identity models	Force Field Model of Teacher Professional Development	Combination of internal and external frameworks impacting on teachers' identities	Developing teacher professional identities	Interpretivism Critical theory

A simpler distinction in curriculum orientation for teacher education is that between the academic and the professional. For professions that stand at the interface with practice, the selection of knowledge for programmes is often according to the demands of practice. But, students, especially those in education, whose primary tool is knowledge, need access to the knowledge of their discipline, as well as a disciplined understanding of their field. It is very likely that the overload of curricula referred to in some of the projects is a result of the attempt to meet the requirements of both a professional training, and an induction into specialized disciplines. Further research into this area would provide some guidance as to optimal mixes and ways of reducing overloaded curricula, which cover topics in breadth rather than engendering deep learning.

Ensor (2004) provides a useful categorization of teacher education modalities, which focuses on the different requirements of different types of knowledge. She argues that teacher education discourse (or professional discourse) is not only less specialized than the disciplinary

discourse to be acquired, but is also more dependent upon context for its elaboration. This, she argues, has important implications for pedagogy. She sketches out four modalities of teacher education that vary in terms of how explicitly, and in what settings, best practice is modelled. Derived from empirical research, this model could usefully be explored in a study of a range of teacher education curricula.

Finally Hoadley and Ensor (2009) call for further research into the models of teacher education based on a social class analysis. Concerned with working-class poor performance in school, they argue that teacher education has been at fault in the recent past in associating 'weakly-framed' or learner-centred pedagogic strategies with the key to academic success at school. They argue that the teacher education model, especially at the primary level, emulates a highly individualised, middle-class relation between mother and child. They cite research that shows that these types of 'weakly-framed' pedagogy widen the gap between working-class families and the schools that serve them. Weakly-framed, or 'learner-centred' pedagogies are not necessarily those recognized or deployed by teachers and students in working-class settings. Hoadley and Ensor argue for greater sensitivity to the social relations of the home and school in working-class communities, and how these might be aligned in ways that allow learners to be more readily inducted into school knowledge. Teacher education should take these social relations as a starting point, especially for primary school teachers (Ibid.:10). The question of how this might be done is a matter for further study.

8.2 Knowledge for Foundation Phase teacher education

The empirical research highlighting that the depth of teachers' subject content knowledge is of particular concern in the South African schooling system was mentioned in the introduction to this report (see also Taylor and Vinjevold, 1999). Adler et al. (2002) argue that it is difficult to work out exactly what counts as appropriate pedagogic subject knowledge, and to articulate the subject, pedagogic, and contextual knowledge, which together make up a teacher's conceptual knowledge in practice (Adler et al., 2002:137). Clearly, a broad and deep knowledge of the subject is important, but equally important is the teacher's pedagogical knowledge - to know how learners come to know their specific subject and how teaching and learning are shaped by contextual factors (Adler et al., 2002: 139). Achieving this balanced conceptualization is particularly challenging in the Foundation Phase, especially if one is to avoid hollowing out the conceptual bases of learning by concentrating too much on practice.

Hoadley (2009) identifies three kinds of knowledge central to initial teacher education courses in general: subject knowledge (content knowledge, of mathematics, phonics teaching, etc.), contextual knowledge (theory of education courses, such as psychology of education), and experiential knowledge (gained largely through teaching practice). Subject content knowledge is delivered differently in different institutions: some requiring students receive subject content knowledge in other faculties in the university, and some teaching the content knowledge within the education faculty. Foundation Phase teacher education presents a particular challenge in this regard, as these teachers require a sophisticated knowledge of subject matter *and* a wide repertoire of teaching strategies, particularly in contexts where the student composition is diverse with respect to culture and home background. In addition, teachers need to be familiar with learning theories, cognition, pedagogy, curriculum, and assessment, and have particular language training needs, given the transition from mother tongue to language of instruction in the Foundation Phase (Du Plessis and Louw, 2008).

A number of questions arise. Firstly, where do students best acquire this knowledge? Secondly,

at what depth should the knowledge be taught? Finally, how can balance and integration between theory and practice, and between academic and professional knowledge be achieved?

In relation to the latter question, both the SAIDE (2009a) and the CEA research begin to explicate in more detail the contents of courses. Both are focused specifically on reading. In the SAIDE case, the authors report that all institutions report having a theoretical and a practical component to the teaching of reading. The importance of theory to the quality of the programme is emphasized. The authors explain that student teachers need to understand what informs pedagogic approaches such as 'phonics', 'whole language' and the 'balanced approach', the latter being the official current approach of the NCS for the Foundation Phase that they will attempt to implement in their classrooms.

All the institutions in the studies report introducing students to a range of theories regarding reading and the approaches associated with the theories. The institutions all also assert the need to place more emphasis on 'socio-cultural theories', though why, and what these entail is not made explicit. Zimmerman et al. (2008) also consider the different approaches taken to the teaching of reading in different institutions, such as the balanced approach, or more eclectic approaches. More of this kind of research would be very useful to in relation to other learning domains. It would also be interesting to consider these approaches in relation to the NCS. Crucially, understanding the balance between theoretical knowledge and its application in practice needs further research.

In relation to the question of where it is best for students to gain this knowledge, Hoadley (2009) found in her case study of North West University that not enough school-specific knowledge was taught when the students were taught by faculties outside the education department, but that an insufficient depth of disciplinary knowledge resulted when the teaching was within the faculty of education. Compounding this problem is the question of what kind of knowledge Foundation Phase teachers need in order to teach. Hoadley (2009) shows in her case study that both the breadth and the depth of subject content knowledge of the B Ed curriculum at North West University was compromised by phase-driven teaching of numeracy. Firstly, this was because knowledge was taught by phase - so that a Foundation Phase teacher was taught mainly Foundation Phase maths, and up to a Grade 6 equivalent. In this way the *conceptual chain of subjects* was contracted. Secondly, *the depth of learning was reduced* by prioritizing integrated learning areas rather than focusing on particular subjects. Anecdotally there is a view that because the Foundation Phase is focused on teaching young learners, student teachers require less exposure to theory and subject knowledge. These notions need to be challenged through research. Parker and Adler (2005) argue that teachers need school curriculum knowledge for practice rather than extended access to mathematics at higher levels. The question of the breadth and depth of this knowledge, in relation to Foundation Phase student teachers in particular, however needs to be addressed further. The research also needs to take account of the social location of teachers entering teacher education and their academic capabilities. Teachers' academic capability is addressed in the next section.

8.3 Student teachers' levels of knowledge

A specific problem in relation to the Foundation Phase raised in the research is the levels of student teachers' knowledge, and their academic experience and capabilities. Adler and Davis (2006:270-296) argue in relation to mathematics students:

> Typically students entering the B Ed programme have not performed particularly well in

mathematics in school. If they had, and they were choosing to study further, it is more likely they would have entered the Faculty of Science and sought a Bachelors of Science. Because of this phenomenon, strong mathematical identities need to be produced and nurtured through the mathematics courses in the B Ed.

In the SAIDE (2009b) numeracy report, the major contextual challenge raised by the research was the subject knowledge of the students, which it was argued was low in many cases, and
very variable across cohorts. One of the researchers put it this way, "The generally poor mathematics ability of the students, and their reluctance to engage with the theoretical aspects, definitely encourages a shift in rigor and content. Institutional pressure for high pass rates does not encourage demanding modules!" (Ibid.:46)

Specific ways of dealing with the problem of student competence in mathematics were not reported. In one case the issue of student competence was a source of tension: "The classes are diverse as regards mathematical competence, which can cause tension. Students have to be brought to understand why a certain level of mathematical insight is required "even" by Foundation Phase teachers" (Ibid.:51).

Zimmerman et al. (2008) report a similar problem in relation to teachers' reading skills, where student teachers battle with their own reading literacy capabilities. The issue of teacher knowledge was referred to in the introduction to this report. Although we have limited information currently, assessments of teachers' knowledge are increasingly being developed and deployed. It is emerging that the problem begins at the training level , and the intake of students into teaching.

8.4 The NCS and the Norms and Standards for Educators in Teacher Education curricula

The poor training of teachers for the initial implementation of C2005 in 1998 in Grade 1 was widely documented (DoE, 2000b; Jansen and Christie, 1999). Subsequent training conducted in 2003 for the implementation of the NCS in 2004 was also shown to be inadequate. Training was too short (Chisholm, 2005), it focused on the ideological aspects of the new curriculum as opposed to emphasizing the changes in subject content of the new curriculum and there was a lack of on-going training (OECD, 2008).

Currently, it is not clear how teachers are prepared within teacher education institutions to teach the NCS. Further research is required into the relationship between the curriculum guidelines provided for teacher educators in the *Norms and Standards for Educators* and the NCS. Parker and Deacon (2006) comment on the lack of alignment between the *Norms and Standards for Educators* and the NCS, but do not comment on where the misalignment lies. Teacher education curricula must align with the national curriculum for schools; equally, the national curriculum needs to provide clear signals for teacher education (especially in terms of content specification). This is a crucial area for future research.

The absence of a clear curriculum for teacher education alluded to in the introduction to this report (see also Hugo and Wedekind, 2009) means that student teachers in different institutions are likely to be subject to very different contents in their courses. Zimmerman et

al. (2008) report this finding in relation to the teaching of reading: wide discrepancies exist amongst institutions regarding the exposure students are given to teaching reading. Papier (2009) reports on significant disparities in teacher education curricula, which seem to be shaped by institutional histories and contexts rather than national curriculum policy. The parallel to the effects of the under-specification of C2005 on schools without the capacity to generate their own content is striking. It would seem that the *Norms and Standards for Educators* has affected universities in the same way. Where there is limited or no capacity in institutions to generate content for courses, students are at a distinct disadvantage. The *Norms and Standards for Educators* provides very little specific guidance to remedy such a situation.

The SAIDE (2009b) research provides little detail on the content of the numeracy modules at different institutions, although it is claimed that the content covered in the modules was informed by the NCS documents. The *Foundations for Learning* documents were also referred to. The SAIDE researchers expressed a need for academics to develop a 'critical approach' to the official curriculum documents. Although the research reports that the NCS is used differently in different institutions, and coverage of the school curriculum is uneven, no detail is provided.

Some of the institutions in the SAIDE (2009a) research report that sequencing is strongly aligned with a grade-consecutive teaching practice model and the NCS. At CPUT, all first-year students teach Grade R and proceed to teach in higher grades each year across the four years. The content of the reading teaching course is, consequently, largely associated with grade-specific classroom contextual issues.

In relation to the question of what informs the decisions and selections made around the curriculum design of the broader B Ed curriculum, the *Norms and Standards* was cited alongside the NCS and *Foundations for Learning*. In a number of cases, the seven roles of educators guide the structuring of teacher preparation courses (Kruss, 2008). Certain teacher education programmes, such as UNISA's, are explicitly organised around the seven roles

Hoadley's (2008) research shows in the North West University case how aligning curricula to the *Norms and Standards for Educators* and the requirements of the HEQF leads to the development of generic programmes, where the academic rationale is not retrievable from its expression in terms of the *Norms and Standards for Educators* roles and HEQF outcomes. Subject content knowledge is backgrounded, and there is an absence of sequence and progression in the curriculum stipulations. Thus, gains made in revising the NCS to address issues of progression are not necessarily translated into improved teacher education curricula. This issue should be investigated across a wider number of cases.

Gordon (2008) in her case study of initial teacher education at CPUT also raises the issue of sequencing in Foundation Phase courses. She points out how, on different campuses, different logics inform the sequencing of numeracy topics. One lecturer sequenced content based on children's cognitive development, while another colleague bases her course on the 'logical progression of concepts' in the subject. Gordon shows how this affects the alignment of programmes required by mergers across different campuses with different emphases.

Robinson and Christie (2009) argue that although the *Norms and Standards for Educators* is useful as a guide for what teachers should be able to do once they have completed their training, there are a number of problems with it. One area of debate is the extent to which teachers are diverted from their subject specialist role (as mediators of knowledge) to an "inflated role" (Morrow, 2007:96), which includes pastoral and administrative responsibilities possibly more appropriately undertaken by other specialists. According to Robinson and Christie, "the seven roles give few guidelines as to the interrelationship of different components of a teacher education curriculum, and universities have had to make their own decisions about the key organizers of their curriculum" (Robinson and Christie, 2009:79). This underscores the issues flagged earlier around the relationship between depth and breadth of disciplinary knowledge for primary school teachers, or whether pedagogical practices are and should be geared toward an imagined context of small, well-resourced, middle-class classrooms (Hoadley and Ensor, 2009). The *Norms and Standards for Educators* does not provide a basis for the development of a strong academic logic and rationale to programmes. These kinds of descriptors and criteria are in fact unlikely to enable teacher educators and teachers to get a firm grasp on the internal goods of a practice (Shalem and Slonimsky, 1999). The intention of the *Norms and Standards* is that teacher-educators will be able to judge the value of a student's performance against its listed criteria (Shalem and Slonimsky, 1999). Shalem and Slonimsky argue that regardless of such criteria-measured performance, if the student does not know what kind of object good teaching is, then his or her agreement with the roles will remain essentially uninformed.

The revoking of the *Norms and Standards for Educators* by the new HEQF could open up a space to reconsider the way in which teacher education curricula are constructed, and avoid the mechanistic way in which the seven roles have been adopted in certain instances. This process of re-curriculation would greatly benefit from research addressing some of the concerns around knowledge introduced earlier. Further research is also required into how the NCS, and its weaknesses, is taken into account in developing teacher education curricula. The extent to which teachers are prepared to teach the official curriculum should also be investiaged.

8.5 Constructivism

Finally, a comment on the theoretical approach of constructivism is offered. All the institutions in the SAIDE research claimed to work within a constructivist paradigm in making decisions about curricula (SAIDE, 2009a and 2009b). Other research (reported in Kruss, 2008) has also indicated that constructivist approaches in teacher education, that privilege problem-based learning and a strongly learner-centred ideology, predominate in a number of other higher education institutions. What constructivism entails is, however, unclear from the SAIDE reports, and at different points is given different attributes, none of which clearly links to constructivism as a learning theory[3].

What constructivism in both the SAIDE and Kruss (2008) instances appears to refer to is an "ensemble of pedagogic techniques" (Davis, 2005:52) such as 'problem-based learning', 'sense-making', and 'a learning spiral'. A clear understanding of constructivism and the implications of the theory is not evident. There is also a certain amount of confusion in the SAIDE (2009b) numeracy document around the nature of mathematical knowledge - and a dichotomy proposed but not sustained between maths knowledge as 'given' facts, routines, and rules, and knowledge constructed by learners. This is arguably a result of the shift from

3 Hoadley (2009, forthcoming) offers a critique of the understanding, and Schollar (2008) and Ensor et al. (2009, forthcoming) of the pedagogical consequences of constructivist theory in education in South Africa.

C2005 to the NCS - it is clear that the confusion resulting from this process is far from resolved amongst those attempting to induct teachers into numeracy.

Research has shown that constructivism as a pedagogical approach (originally brought about through C2005) wreaked havoc in South African schools. Schollar (2008), Harley and Wedekind (2004), and Ensor et al. (2009, forthcoming) all show its devastating effects on the classroom practices of teachers, and although difficult to attribute directly to the curriculum, it is clear in many instances that teachers' practices were a direct result of a particular reading of OBE. For example, Schollar (2008) found in his research that memorization was regarded as a wholly negative activity, as was rote learning. Teachers in his study asserted that teaching should be conducted via discovery rather than direct instruction; and that telling students the answers was wrong, and correcting incorrect responses was wrong as well.

These teacher practices have implications for teacher education. The authors of the SAIDE (2009a and 2009b) reports acknowledge that teachers need to be trained in decoding and elaborating curriculum documents, so that their uptake and implementation is informed and critical. Although greater specification of content, and clearer methods for numeracy and literacy are found in the NCS, teachers still need help in the decoding of curriculum documents for particular contexts. Kruss (2008) points out the danger of compliance with 'intellectually fashionable' positions amongst teacher-educators. The theory and concepts of constructivism must be thoroughly understood before it is decided if it can and should inform South African curricula systematically and substantively.

It is clear that further research on the actual content of teacher education courses in the Foundation Phase is required. For Umalusi specifically, research aimed at clearing up some of the theoretical muddle surrounding the NCS would be very useful. Also, given the greater specification of content in the newer curricula, and the detailed specification with clear pacing guidelines in documents like the *Foundations for Learning*, research should be carried out to help clarify the preferred pedagogical approach/approaches for the teaching of this curriculum, especially for children in disadvantaged contexts.

9. Home language instruction

At the Foundation Phase level, school pupils are inducted into the language of teaching and learning, which is often different to their home language. In order to be successful in the schooling system in later years, 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). The link between language proficiency and academic performance, however, is not always well understood, and is not straightforward. Although comparative studies such as the 'Trends in International Mathematics and Science Study' 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':

1. Transfer theory and the density of unfamiliar words: The argument made here is that students should first master the de-contextualised 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.
2. Emotions of second language teaching: Probyn (2001) has identified stress and depression for second language learners.
3. Code-switching: Setati and Adler (2000) show how difficult code-switching is, and how in many mathematics classrooms the discourse of mathematics is affected by at tempts to code-switch. Code-switching and language translation also take a long time, which the pacing of the official curriculum may not make allowances for. In short, when used for improved learning, code switching is a sophisticated and strategy.
4. English language infrastructure: English language infrastructure relates to exposure to English in the school, community, and home, and in particular the difference in the respective amounts of this exposure between urban and rural schools. Urban learners have greater access to resources such as televisions, radio, and newspapers than rural learners, which impacts on their academic achievement.
5. Language and power: Fleisch's (2008) research shows how home language can become stigmatized in a school and lead to less than optimal teaching practices. Home language as opposed to English instruction also has a class dimension to it.

   The research thus locates the language of instruction within a social and political context and explores the implications.

Fleisch's 2008 overview of research is useful in that it alerts us to the possible issues, or generative mechanisms that may need to be considered in training teachers for multi-lingual classrooms. He also alerts us to the questionable nature of some of the research he reviewed, and the assertions about language that are based on questionable methodologies. The question of why, and by how much, language affects achievement remains open. An interesting question that emerges from Fleisch's summary of the language-research base in South Africa is how the 'generative mechanisms' are understood in Foundation Phase programmes in different universities.

Kaniki's survey of programmes in 2007 shows that in the seventeen institutions observed, at least one African language is offered in the B Ed and PGCE programmes, although it is not clear whether this is as an additional or home language. Two institutions (UKZN and CUT) made a distinction between mother tongue languages and non-mother tongue in terms of their African languages offerings, which, she argues, suggests that there is consideration given to the methods required for preparing students to teach in mother tongue and non-mother tongue settings. The move by the Western Cape Education Department, which requires all teachers to be proficient in all three official languages of the province is likely to promote the importance of languages as well as assist in getting institutions to produce students who can teach African languages as home languages.

Further insight is required, however, in relation to how institutions prepare their students for mother tongue teaching. Also, the quality of the English students are exposed to is important, and teachers' command of English is therefore important for improving learners' proficiency. According to De Klerk (2000), if learners are exposed to a less than ideal model of English, it may influence their acquisition of English negatively.

The language issue emerges strongly in the SAIDE (2009a) report on reading. One of the biggest problems referred to across all the institutions that participated in the research is the fact that language skills, such as phonemic awareness, are taught in English. The application of these skills to other languages is not dealt with in any substantial way. The WITS research team indicated that they deal with this problem by making sure that the underlying principles of good language teaching are in place and that students can apply them to other languages. But students have to do the application for themselves, which is not ideal given that English phonics is not easily transferred into other languages. The importance of the teaching of phonics of African languages is raised by the other institutions as well. However, all acknowledge a fundamental stumbling block in the issue of African home language teaching: there is a shortage of African home language Foundation Phase literacy experts. This limits the teaching of some of the more complex and sophisticated approaches to multi-lingual classrooms, such as code-switching. Further, there are limited opportunities for African home language speakers to see the application of theory modelled in Foundation Phase classrooms during teaching practice.

WITS also stresses that insufficient attention is paid to the challenges of multilingual teaching (SAIDE, 2009a). They emphasise the need to study home language contexts and family literacy in existing Foundation Phase courses. They also suggest forging stronger consultation links between the Foundation Studies team and other academic Language Departments. Students who are fluent in African languages should be encouraged to produce teaching apparatus in the language of their choice.
Another finding from the SAIDE (2009a) study regarding language is that the majority of African first language – speaking students chooses to teach in English. Zimmerman et al. (2008:10) raise this finding as well: "enrolled African student teachers do not always want to

learn skills for mother tongue teaching as they tend to gain employment at Model C schools after training." To meet the needs of home language teaching in African languages, the report argues that staff and curriculum change are required - especially when it comes to phonics in the various languages. At present, at WITS for example, students have the option to do Sesotho or Zulu at a first, second, or third language level as part of their academic courses. Zimmerman et al. (2008) assert that departments need to assist students with phonics in these two languages. They suggest that students possibly be used to translate learner support materials into African languages. And more generally, the authors express the need to find ways of increasing the number of African students pursuing a course in Foundation Phase teaching.

Zimmerman et al. (2008) also stress the multiple cultural contexts that feed into a child's ability to read and write. The 'emergent literacy approach' is held as important in this regard. According to the authors, reading programmes in schools must engage with these sources of linguistic and cultural diversity, and a good reading teacher must have some understanding of them and their implications for what he or she does in his or her Foundation Phase classroom.

We need more comprehensive knowledge of the language capabilities of Foundation Phase teachers. What emerges from the research reviewed for this report is that teaching English as a second language needs to form a substantial part of teacher training. English-speaking Foundation Phase teachers should ideally have competence in another language, or be trained to manage code switching with a teaching assistant. Foundation Phase teachers whose mother tongue is not English should have the opportunity to develop their English competency.

To return to Fleisch's (2008) points given earlier, further research is needed into the generative mechanisms between language and student achievement in order to design optimal programmes to cater for linguistic diversity in classrooms. This would entail research using experimental methodologies, so that the nature and extent of the contribution of language to student achievement can be empirically shown rather than ideologically asserted. This then would inform more systematic approaches to the training of teachers in multilingual approaches.

10. Conclusion

There is some consensus in the reviews of teacher education (for example, Parker and Deacon, 2006) that teacher education research tends to be descriptive, opinion-based, a-theoretical, and not well grounded on empirical data (see also Lewin et al., 2003 and Ensor, 2001). This is particularly so for Foundation Phase teacher education research. This review indicates clearly that there is a paucity of research on Foundation Phase teacher education. Little has been published or subjected to rigorous peer-review processes. Although research such as that of the SAIDE (2009a and 2009b) project is valuable, it tends more towards developmental goals and the development of programmes across institutions rather than the generation of scientific research. What the present report has attempted to do is to take the small amount of research, a sample of which is provided here, and generate research questions specifically for South African teacher education at the Foundation Phase level. These are presented in the recommendations below.

It is crucial that such future research entail methodologies that move beyond a reliance on teacher-educator self-report. There is a wide disparity between practices and principles espoused by teacher education institutions and those enacted in courses (Lewin et al., 2003). Analyses of the contents of courses and modules (the intended curriculum), observations of instruction in teacher education institutions (the enacted curriculum), and also the testing of student teachers on exit from programmes (the achieved curriculum) would provide more robust findings around the nature and quality of teacher education provision at this level.

In summary, and on the basis of very incomplete data, a number of points can be extracted from the report that give some indication of what is (tentatively) known about Foundation Phase teacher education.

- The capacity within the university sector to provide Foundation Phase teacher education is limited. Students are concentrated at the FET level. Only 7% of students in 2006 were speakers of African languages being trained for Foundation Phase teaching. College incorporation is one of the factors that appear to have affected the supply of Foundation Phase teachers.
- In the design and delivery of pre-service programmes, there is a range of approaches to subjects/learning areas/phases and a variety of models of teacher education in different institutions. Links between phases in the design and delivery of programmes are inadequate, especially between Foundation Phase and Intermediate Phase. The depth and breadth of the teaching of subject knowledge varies. The quality of provision is generally unknown.
- The quality of in-service training is unknown at the Foundation Phase level, but is generally regarded as questionable.
- Teaching practice is beset by problems, including time allocation, appropriate mentorship by schools and by teacher-educators, and a gap between theory (lectures) and practice (in schools). African home language speakers in particular lack opportunities to see the application of the theory taught on courses modelled in Foundation Phase classrooms during teaching practice.
- There is an absence of a clear curriculum for teacher education. This means that student teachers in different institutions are likely to be subject to very different

contents in their courses. The articulation between the NCS and teacher education curricula (based on the *Norms and Standards for Educators*) requires further investigation. The extent to which the NCS informs the design of teacher education courses is variable, and unknown in most instances.

- Constructivism as a theoretical approach is the preferred espoused approach to curriculum and pedagogy in most teacher education institutions but there is a lack of understanding of what this approach entails, its implications, and the trenchant criticisms that are currently circulating of it as a model for learning.
- There is a shortage of African language students in the Foundation Phase, and those who are often choose to be trained in English instruction. There is also a shortage of materials in African languages and of African home language Foundation Phase literacy experts. The teaching of the phonics of African languages is particularly problematic.

11. Recommendations for further research

- Further research on the supply and demand of Foundation Phase teachers is required, with particular attention to African language–mother tongue Foundation Phase teachers. It is imperative that accurate information on the graduate output of B Ed programmes, in terms of phase and subject specialization, and language competence is available so that the needs of the system can be addressed.
- Research is required into the structuring of B Ed programmes in relation to subjects, learning areas, and phases is needed. Attention should be paid to the links between phases, the consequences of organizing programmes in terms of learning areas and phases, and the optimal structuring for programmes in relation to the context of their delivery. Alternative delivery models of Initial Professional Education of Teachers for Foundation Phase teachers, such as distance provision and learnerships need to be further investigated.
- Research on the curriculum for Foundation Phase student teachers could usefully explore the tension between theory and practice, and between professional and academic learning. Different models of the programmes underlying the curriculum need to be examined, and research should focus on deriving the models that work best for children in disadvantaged contexts, working-class children and children in rural schools. For what schooling contexts are student teachers being trained to teach?
- Research into models of teaching practice, and their effectiveness is urgently needed given the lack of guidelines for teacher education institutions, and given the importance of teaching practice. Given the lack of internship in teaching, and the fact that a student teacher takes full responsibility for a class on exit from a programme, teaching practice needs urgent attention.
- An investigation into the quality of Foundation Phase INSET programmes is needed in order to ascertain whether these programmes are improving the quality of teacher practices at this level. In particular, the ways in which these programmes support the implementation of the NCS must be researched.
- The actual content and structure of Foundation Phase teacher education programmes need to be investigated with attention to issues of overload, coherence, and articulation with the NCS. The question of the breadth and depth of subject knowledge in relation to Foundation Phase student teachers in particular needs to be addressed.
  This research would usefully explore the social location of teachers entering teacher education, their academic capabilities, and requirements in terms of preparation to teach.
- Finally, this report poses many research questions pertaining to language. The generative mechanisms between language and achievement need to be explored further. In addition, more information is required on all aspects of African home language training for teachers in the Foundation Phase.

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Notes