

*All the cattle in the kraal*  
*An overview of Umalusi's research*  
*2003-2011*



**UMALUSI**



Council for Quality Assurance in  
General and Further Education and Training

# All the cattle in the kraal

## An overview of Umalusi's research

2003-2011

PUBLISHED BY



Council for Quality Assurance in  
General and Further Education and Training

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# Foreword

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In the year of celebrating its anniversary, Umalusi has seen it fit to publish an overview of its research activities called, *All the cattle in the kraal*. In Nguni culture, *umalusi*, the herder, knew each and every one of his beasts by its colour, markings on its hide and the shape of its horns. In much the same way, Umalusi Council uses its research to know and intimately understand the nature and quality of the qualifications under its care. This research is integral to maintaining, developing and enhancing the standards of all general and further education and training qualifications. This publication, which draws together the research done to date, allows Umalusi to take stock of what has been achieved so far.

This third Council of Umalusi has been privileged to see the educational wealth increase - instead of just one Senior Certificate, there are now two, the National Senior Certificate as well as the National Certificate (Vocational). The National Certificate (Vocational) is offered in FET Colleges as an exit level qualification comparable to the National Senior Certificate for young people with a natural and strong practical inclination.

Furthermore, though this is not the subject of research as yet, Umalusi has proposed two new qualifications for adults which, we hope, will enhance the educational system in years to come.

It is hoped that this overview will provide readers both in South Africa and abroad with an insight into how seriously Umalusi takes its custodial role of education and deepen and enhance national discussions on improving the quality of education in our country.



Dr Sizwe G Mabizela  
Chairperson: Umalusi Council

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# 1. Introduction and objectives

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Umalusi is mandated to set and monitor educational standards in General and Further Education and Training in South Africa (SA), to conduct or commission and publish research on issues of importance to the development and implementation of its sub-framework, as well as to advise the Ministry of Education on any matter relating to the improvement of the quality of education in the country. This mandate is carried out by, amongst other measures, conducting various types of research in areas that relate to the key functions of Umalusi. The findings that flow from such research contribute significantly to the discovery of ways to continually improve the quality of education in the General and Further Education and Training (GENFET) sector. Equally important, these findings are used to inform critical policy decisions that relate to the mandate of Umalusi in a strategic manner. To date, Umalusi has conducted several research studies to inform its practices and policy.

This document provides a meta-analysis of all the research undertaken by Umalusi from 2003 to 2010. It includes summaries of the main findings and the recommendations from reports produced by Umalusi during the period under review.

Table 1 provides a chronological list of Umalusi Research Reports from 2003 to 2010

**Table 1 Chronological list of Umalusi Research Reports from 2003 to 2010**

(2010) Comparing the Learning Bases. A comparative evaluation of African Languages Foundation Phase curricula in South Africa, Botswana, Lesotho, Swaziland and Zimbabwe.
(2010) Evaluating the South African National Senior Certificate in relation to selected international qualifications: A self-referencing exercise to determine the standing of the NSC. Research undertaken jointly by Umalusi and Higher Education South Africa (HESA). <b>Subject reports:</b> Geography, Life Sciences (Biology), Physical Sciences (Physics and Chemistry), Mathematics, English First Additional Language.
(2010) Evaluating the South African National Senior Certificate in relation to selected international qualifications: A self-referencing exercise to determine the standing of the NSC. Research undertaken jointly by Umalusi and Higher Education South Africa (HESA). <b>Overview report.</b>
(2010) The 'F' in NC(V) Benchmarking common subjects in the NSC and the NC(V).
(2010) Comparing the Learning Bases. An evaluation of the Foundation Phase curricula in South Africa, Canada (British Columbia), Singapore and Kenya.
(2010) 2009 Maintaining Standards Report (Accounting, Business Studies, Economics, History) <b>Overview.</b>
(2009) Concept paper: The relationship between knowledge and practice in curriculum and assessment. J. Gamble.
(2009) Learning to teach the National Curriculum Statement in schools. A Desk Review of Teacher Education in the Foundation Phase in South Africa. U. Hoadley.
(2009) 2008 Maintaining Standards Report (English 1st additional Language, Geography, Life Science, Mathematics, Mathematical Literacy and Physical Science). From NATED 550 to the new National Curriculum <b>Part 3 Exam Paper Analysis.</b>
(2009) 2008 Maintaining Standards Report (English 1st additional Language, Geography, Life Science, Mathematics, Mathematical Literacy and Physical Science). From NATED 550 to the new National Curriculum. <b>Part 2: Curriculum Evaluation.</b>
(2009) 2008 Maintaining Standards Report (English 1st additional Language, Geography, Life Science, Mathematics, Mathematical Literacy and Physical Science). From NATED 550 to the new National Curriculum. <b>Part 1: Overview.</b>

(2008) Inspecting The Foundations: Towards an understanding of the intended and examined curricula for the General Education and Training Certificate for Adults.
(2008) Signalling performance: An analysis of continuous assessment and matriculation examination marks in South African Schools. S. van der Berg, D. Shepherd.
(2008) The role of IRT in selected examination systems. S. Howie, C. Long, V. Sherman, E. Venter.
(2008) Learning from Africa. Individual subject reports for Mathematics, Science, Biology and English, comparing syllabuses and examinations in South Africa with those in Ghana, Kenya and Zambia.
(2008) Learning from Africa: Umalusi's research comparing syllabuses and examinations in South Africa with those in Ghana, Kenya and Zambia.
(2007) Making educational judgements: Reflections on judging standards of intended and examined curricula.
(2007) The 'f' word: The quality of the 'fundamental' component of qualifications in general and further education and training.
(2006) Apples and Oranges: A comparison of school and college subjects.
(2004). Investigation into the standard of the Senior Certificate examination. A Report on Research Conducted by Umalusi.
(2004). Approaches to quality assurance in the GET and FET bands: Umalusi discussion document. M. Young, S.M. Allais.



## 2. Background to Umalusi research reports from 2003 to 2010

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This section provides a brief background to each of the Umalusi studies conducted from 2003 to 2010. Section 3 will provide an overview of the main findings and recommendations of each of these reports.

As the new national agency responsible for ensuring quality in the General and Further Education and Training (GENFET) sector in 2001, the legacy of the apartheid past posed particular problems for Umalusi. In its approach to quality, Umalusi needed to take into account the different histories and existing provision of education in schools and Further Education and Training (FET) colleges, the emerging provision for Adult Basic Education and Training (ABET), as well as the new dispensation's proposals for reform such as a new FET college curriculum, the General Education and Training Certificate (GETC) and the National Curriculum Statements (NCS) for the Further Education and Training Certificate (FETC) (General), as well as Sectoral Education and Training Authorities (Seta) funded unit standard-based programmes. Given the fragmentation in South African education and its poor quality in many areas, Umalusi felt the need for a discussion document focusing on mechanisms which would encourage a shared sense of the meaning of quality. The 2004 document ***Approaches to quality assurance in the GET and FET bands*** explored strategies that Umalusi could adopt in fulfilling its role. A key concern was how to ensure that quality, and not merely procedural compliance, was monitored.

Initially, Umalusi's research studies focused on establishing and understanding the standard of the South African matric. After 1994, the old schooling system, with its different education systems for different population groups, was replaced by a common national examination for all Grade 12 learners, the Senior Certificate (SC) (NATED 550 curricula). Umalusi was responsible for the quality assurance of the external examination and the school-based continuous assessment (CASS) which led to the attainment of the SC. Its quality assurance activities included moderation of question papers, monitoring of the conduct of examinations, moderation of marking, standardisation of results, and verification and moderation of school-based continuous assessment. ***Investigation into the Senior Certificate Examination, 2004***, also known as ***the 2004 Matric Research***, investigated whether or not standards in the SC examination had declined. This research was designed at a moment of public outcry against what was perceived as a lowering of standards—a perception based partly on a very high pass rate in 2003, and partly on ongoing criticisms from higher education institutions of the calibre of learners entering these institutions. Subjects for the school qualification were generally offered on two levels: Higher Grade (HG), which was intended to be more cognitively challenging, and Standard Grade (SG), designed as an easier alternative. The research focused on the level of cognitive demand of the SC examinations, which were compared over a period of ten years from 1992-2003, to determine whether the standard of the matric examinations had in fact declined, remained constant, or improved over time.

In 2005, further research, ***Apples and Oranges, 2006***, also known as ***the 2005 School/College Comparison***, was undertaken to compare the standards of courses at FET (technical) colleges and school subjects to establish whether college courses were in fact equivalent to school subjects at SC Level. South Africa's new National Qualifications Framework (NQF) had

been created specifically to find a way of stating formally that courses at a certain level were in some way equivalent. At the time, college qualifications were seen as the equivalent of the school SC qualification, but at Standard Grade level. However, as the body responsible for monitoring standards, quality assuring external examinations and issuing certificates, it was crucial that Umalusi developed a method of establishing whether the courses were 'different but equal'. Understanding what equivalence meant in reality—comparing apples with oranges—as well as understanding whether or not courses designated as equivalent were in fact so, required an in-depth examination of the actual courses (syllabuses).

In 2006, a further study, **Learning from Africa (2007)** also known as the **2006 African Comparison**, compared the syllabuses and examinations of Ghana, Kenya, South Africa and Zambia in order to ascertain the standards of South Africa's courses in Mathematics, Physical Science, Biology, and English in comparison to the same subjects at Senior Secondary level in these countries. In 1996, the new SA government had introduced an outcomes-based curriculum to the primary and junior secondary school system. The NATED 550 curriculum for the Senior Certificate (SC) was being replaced by the National Curriculum Statement (NCS) for Grades 10-12 (Further Education and Training/FET phase) as the curriculum underpinning a new National Senior Certificate (NSC) qualification. At the time of this study, the old curriculum and examinations were still in use in secondary schools, but the new curriculum was being phased in, with the first cohort of Grade 12 learners due to write the new NSC in 2008. In order to contribute to improving the intended and examined curricula in the FET band, it was valuable for Umalusi to compare both the old (SC) and the new (NSC) curricula and examinations in South Africa with those of other countries which faced similar challenges.

As these research projects (i.e. Investigation into the standard of the Senior Certificate examination; Apples and Oranges; and Learning from Africa) were conducted, the brief provided to the evaluators became more specific, until the process of the development of the instruments used in Umalusi's research itself became the focus of self-reflection in the **2007** report, **Making Educational Judgements**. This report presented a review and an analysis of the methodology used in the three Umalusi research projects conducted between 2004 and 2007, and considered the implications of Umalusi's work in making judgements about intended and examined curricula.

While continuing to conduct evaluative research into the new NSC and NCS, Umalusi began to widen the extent of its research focus. Since 2001, programmes that have fallen under Umalusi's auspices have included Department of Education-approved programmes offered towards the Senior Certificate (SC), the National Senior Certificate (NSC), the General Education and Training Certificate (GETC) (for adults) (i.e. NQF Level 1/ABET Level 4) and the Aseca (A Secondary Education Curriculum for Adults) courses. The inclusion of so-called fundamental subjects – Mathematics or Mathematical Literacy and a language (generally taken to be the language of learning and teaching) – was a compulsory requirement determined by the South African Qualifications Authority (SAQA) as a basic principle of qualification development and registration for NQF Levels 1 - 4. In 2007, Umalusi was one of the quality assurance bodies that accredited providers of language and mathematics courses offered as part of the compulsory 'fundamentals'. It issued certificates for qualifications that had an external assessment component of at least 50%, and the accreditation of providers of these courses was directly linked to participation in external assessments. However, by 2007, private provision of new NQF qualifications designed for specific occupations was an emerging sector, and the assumption behind the NQF's unit-standards model of qualifications was that providers could develop their own curricula, through which learners were to achieve the outcomes stipulated in the unit standards. Thus, within these qualifications, individual providers were developing courses using the

prescribed language and mathematics learning outcomes, or reworking their existing courses to comply with the learning outcomes. No syllabus or curriculum framework was centrally prescribed. Rather, the specifications of the qualifications were intended to describe the standard to which the curriculum should be taught and assessed. The courses were assessed on a decentralised basis by assessors registered with the Sectoral Education and Training Authorities (Seta, set up to support education and training in different sectors of the economy), Education and Training Quality Assurance bodies (ETQAs) and quality assured by the Seta ETQAs. The Seta ETQAs relied primarily on the internal assessment conducted by providers. The language and mathematics courses offered against unit standards had already been the subject of debate from the point of view of quality assurance. Because Umalusi quality assured and certified only specific courses based on examinations and prescribed curricula, it refrained from quality assuring courses that were designed, offered and assessed according to unit standards alone. However, Seta ETQAs felt that they were not the appropriate bodies to quality assure courses in the 'fundamental' learning areas, arguing that they were sector experts, not language or mathematics experts (SAQA 2005). It was against this background that Umalusi decided to conduct research on language and mathematics courses offered as part of the compulsory 'fundamentals'. This research is reported on in ***The 'f' word: The quality of the 'fundamental' component of qualifications in general and further education and training (2007)***.

Continuous assessment (CASS) formed an important part of the evaluation of students at matriculation level. Umalusi was responsible for the quality assurance of the external examination and the school-based CASS which led to the matric results. However, CASS marks were determined at school level, based on tasks that were not standardised across schools but varied in terms of number, level of difficulty, and accuracy of marking. Teachers with poor subject knowledge were more likely to assess inaccurately. Thus it was decided to compare the school-based continuous assessment (CASS) with the externally set, marked and moderated matriculation examination. The report ***Signalling performance: An analysis of continuous assessment and matriculation examination marks in South African schools (2008)*** provided an analysis of CASS data compared to examination data and illuminated the severity of the problem of inaccurate CASS marks.

Umalusi's research report, ***The role of IRT in selected examination systems (2008)***, was intended to support the process of maintaining and improving examination standards in the transition from the SC to the NSC. At the time, the moderation of school marks was achieved through what is termed a social moderation or professional ratification process. This method of moderation, though little understood by the general public, was regarded as valid and had been perfectly acceptable in the past. However, it was essential to maintain confidence in the matriculation system among schools, the public and tertiary systems. This research explored the use of psychometric approaches such as Item Response Theory (IRT) to determine whether they could provide additional information and allow Umalusi to report more meaningfully on standards in education.

***Inspecting the Foundations: Towards an understanding of the intended and examined curricula for the General Education and Training Certificate for Adults (2008)*** investigated the standards of the General Education adult curricula/GETC for adults (for NQF Level 1) offered and examined by the Department of Education (DoE) and the Independent Examinations Board (IEB). Umalusi assured the quality of these examinations and verified the moderation of the portfolios of evidence. What made the national qualification different from the Seta qualifications reported on in the 2007 report, *The f-word*, was that there were central examinations, offered through the DoE and the IEB. Whilst private providers (under the auspices of the IEB) offered parts of the GETC, the whole qualification was offered by the DoE through Public Adult Learning Centres (PALCs). The GETC was intended to provide

general education and training for adults, and potentially to lay the foundations for FET. It required that candidates wrote public exams set by the assessment bodies and produced portfolios which were marked on site and moderated by the assessment body, with selected verifications of the process undertaken by Umalusi. Because the internal or site-based assessment (SBA) component of the GETC constituted 50% of the final mark, Umalusi also verified that the SBA was of an appropriate standard. In line with Umalusi's policy of assuring quality and certifying specific courses against examinations and prescribed curricula, it became evident that further insight into how these curricula prepared adults for Further Education and Training was essential. However, no curricula were formally attached to any of the ABET Level 4 (NQF 1) qualifications because these were unit standards-based; the assumption behind the unit-standards model of qualifications was that providers developed their own curricula. In the case of the GETC: ABET, originated by the Standards Generating Body GET/FET Language and Communication, a range of supplementary documentation was available to help represent the intended curricula. However, these documents varied across provinces and PALCs. **Inspecting the Foundations** undertook a review of the qualification and the curricula underpinning the GETC: (ABET).

Most large-scale examination systems include measures to ensure consistency in learners' performance over periods of time. In 2008, the first cohort of learners following the new curriculum for the NSC qualification reached matric level, but there were no historical norms for the new national examination results. In order to ensure the integrity of their results, Umalusi required a clear understanding of the quality and levels of cognitive demand of the new curricula and exams relative to those they had replaced. During 2008, therefore, Umalusi conducted research which compared the NSC curriculum and exams (exemplars and the first 2008 papers) to those of the SC, both HG and SG, from 2005, 2006 and 2007, in order to gain an understanding of the quality and levels of cognitive demand of six gateway subjects - **Mathematics, English FAL, Physical Science, Life Science, Geography and Mathematical Literacy**. The purpose of **Maintaining Standards (2009)** was to ensure continuity of standards between the old and better known qualification and the new qualification; a bridge between the two qualifications was required. In 2009, the 2008 **Maintaining Standards** study was extended to include an additional four subjects, **History, Accounting, Business Studies and Economics**. The earlier research had proved extremely useful to Umalusi's Standardisation and Assessment Committee. It had evaluated the first NSC examinations in the absence of any historical norm for standardisation. *Maintaining Standards* also fed into Umalusi's other internal work by contributing to and strengthening quality assurance processes and instruments.

The Umalusi research studies up to this date had focused on further education. In order to fulfill its mandate of monitoring the standards and appropriateness of curricula in the South African education system, Umalusi identified a need to investigate the standards at levels below senior secondary school. The intention was to embark on a process of evaluation of the NCS for the General Education and Training (GET) band, starting with the Foundation Phase (FP). However, it is common knowledge that the curriculum and its stipulated content are only as good as the teachers who implement it. Teacher education is usually recognised as the main factor in improving schooling outcomes. Thus, in anticipation of a series of reports intended to provide insights into standards and the curriculum available to learners in the FP, the report **Learning to teach the National Curriculum Statement in schools (2009)** focused on the ways in which FP teachers were being trained to implement the national curriculum.

In 2007, Umalusi's *Making educational judgements* report had concluded that a tool for making judgements about levels and types of cognitive challenge of items in examinations was useful. The potential of instruments such as the 'content by cognitive demand' grid that

had been developed by the Science evaluators for Umalusi's *Apples and Oranges* research study had been considered to form the basis of measures that could be used across subjects. What was not clear, however, was the extent to which the practices developed in Umalusi's various research projects for assessing the intended and examined curriculum should form the basis for quality assuring practical school and FET college subjects and/or the practical component of subjects. A distinguishing feature of any curriculum that leads to a vocational or professional qualification is that it requires a mix of different types of knowledge, drawn from both non-empirical (conceptual) and empirical (situated in everyday life) domains. The strong emphasis on practice which characterised the college and practical school subjects quality assured by Umalusi might thus call for a specification which was different from the instruments and cognitive challenge grids that had been developed thus far. The concept paper, ***The relation between knowledge and practice in curriculum and assessment (2009)***, provided a theoretical model of types of knowledge that went some way towards clarifying the ways in which knowledge and practice combine. It set out conceptual tools for considering options for a framework for the assessment and quality assurance of curricula and assessment in practical school and college subjects.

Also in 2009, Umalusi undertook a research study of four of the new National Certificate (Vocational) [NC(V)] subjects – **English First Additional Language (EFAL), Mathematics, Mathematical Literacy and Physical Science**. This study was linked to previous research undertaken by Umalusi (*Apples and Oranges*, 2006) which had compared school and college subjects, as well as research which investigated the role of the fundamental component in qualifications in General and Further Education and Training (The 'f' word, 2007). The NC(V) was introduced in 2007, and was first examined at NQF Level 4 in 2009. Umalusi quality assured and certified both the new Level 4 qualifications, the NSC and the NC(V). Both these qualifications were designed for a specific group of learners (primarily 16 to 19-year-olds), but the NC(V) was a vocational qualification for those leaving school with a minimum of Grade 9 and, in practice, for those who were out of school but who wished to achieve an NQF Level 4 qualification. The purpose of the qualification was to equip students with practical competence in the mastery of a particular trade or technical skill required by the employment market, but the NC(V) was also conceptualised as an alternative route to Higher Education. The research reported in ***The 'F' in NC(V): Benchmarking common subjects in the NSC and the NC(V) (2010)*** examined the comparability of the NSC and the NC(V) in terms of their curricula and the standards set by the quality of the examinations in the individual subjects. For the fundamental subjects (Mathematics or Mathematical Literacy, and a language) in the NC(V), Internal Continuous Assessment was evaluated by means of a combination of theory and practical work in a portfolio and contributed 25% towards the final mark; external assessment contributed the remaining 75%. Although Life Orientation now formed a compulsory component and Physical Science had not formally been included in the definition of the fundamental component, the latter was included in the research reported on in ***The 'F' in NC(V)*** because of the critical, gate-keeping role it plays in access to further learning in technical fields.

While Umalusi was satisfied that it had established a clear understanding of the relationship between the NSC and the SC in both its HG and SG forms, its comparability with international qualifications at equivalent educational levels remained uncertain. As the Quality Council for qualifications in General and Further Education and Training, the next step for Umalusi was to ascertain the standing of SA's school exit qualification (the NSC) in relation to similar international qualifications. Such a study would also assist Higher Education South Africa (HESA) in an equivalence-setting exercise. HESA needed 'to establish whether a foreign qualification could be recognised as fully or partially comparable to the NSC, and the minimum requirements for admission to degree, diploma and higher certificate status in South



Africa' (HESA, 2008:1). The report ***Evaluating the South African National Senior Certificate in relation to selected international qualifications: A self-referencing exercise to determine the standing of the NSC (2010)*** benchmarked the NSC qualification, its curricula and exams in five key gate-keeping subjects, **English First Additional Language, Mathematics, Physical Sciences, Biology/Life Sciences, and Geography**, against the International Baccalaureate qualification at both Standard Level and Higher Level, the International General Certificate of Secondary Education (O-Level) and the Advanced Subsidiary Level, the A Level, offered by Cambridge International Examinations, to establish whether these international qualifications could be recognised as fully or partially comparable to the NSC.

Nationally, 2008 had seen the launch of the *Foundations for Learning* initiative by the Department of Education (DoE). Responding to the alarmingly poor performance of South African primary school learners in international and national standardised tests, the campaign focused on improving the reading, writing and numeracy performance levels of all children in the Foundation Phase (FP). However, the NCS remained the official statement of the curriculum for South Africa. The report ***Comparing the Learning Bases (2009)***, as part of Umalusi's process of evaluation of the NCS for the General Education and Training (GET) band, was intended to provide further insights into standards and the curriculum available to learners in the FP, and took place in the face of on-going criticism of the NCS and attempts to improve the SA national curriculum through a further review of the curriculum in 2009. The areas of **Literacy, Numeracy, Life Orientation, and English** were selected as fundamental areas for consideration in the first curriculum comparison, providing as they do the set of basic skills required by learners to progress through schooling.

The issue of home language (HL) was also central to the Foundation Phase research. Thus a second report, ***Comparing the Learning Bases. A comparative evaluation of African languages Foundation Phase curricula in South Africa, Botswana, Lesotho, Swaziland and Zimbabwe (2010, Final draft)*** formed part of the larger Umalusi research project aimed at conducting a detailed comparative evaluation of the learning areas making up the South African FP curriculum. This report compared the South African FP African languages curriculum for an Nguni and an Sotho language, isiZulu and Setswana, with the language curricula for the same grades in Botswana, Lesotho, Swaziland and Zimbabwe.

All the studies and papers discussed above highlight the debates on the complex issue of standards; what standards in our education system should be, and how we should measure them. The research has also led to the development of tools for use in the judgement of standards in the curriculum and in examinations.

### 3. Strands and sub-strands in Umalusi research from 2003 to 2010: Main findings and recommendations

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Four strands, each with sub-strands, are evident in the research outlined in Section 1 and 2:

- Strand 1: Quality Assurance Methodology
- Strand 2: Further Education and Training Band
  - Sub-strand 1.1. Senior Certificate/National Senior Certificate
  - Sub-strand 1.2 Vocational college subjects at Senior Certificate Level
- Strand 3: Adult Education and Training Band, NQF Levels 1-4
  - Sub-strand 2.1 Occupational Qualifications
  - Sub-strand 2.2 Adult Basic Education and Training (ABET)
- Strand 4: General Education and Training Band (Compulsory Education)
  - Sub-strand 3.1 Foundation Phase

Table 2 lists the titles of the reports/papers linked to each research strand and sub-strand, their date of publication, the period under review or dates of the documents reviewed; the main focus; the subjects covered; and the main findings and recommendations related to the focus.

**Table 2: Main strands and sub-strands in Umalusi research from 2003 to 2010, main findings and key recommendations**

Strand 1: Quality assurance methodology					
Title and date of publication	Period/year/s of documents reviewed	Focus	Subjects	Main findings	
<b>Approaches to quality assurance in the GET and FET bands, 2004</b>	2004	Discussing Quality Assurance provision in schools and colleges and specific strategies Umalusi might adopt.	N/A	An alternative to the old model of quality assurance (implicit systems of ensuring quality) was required, but the direct replacement of judgement of quality by quality assurance procedures only, conceived of as processes through which learning programmes were judged in relation to pre-specified standards (unit standards) and learning outcomes, was ill-judged and might lead to lower quality, poorer standards and a diminished curriculum. Compliance with quality assurance procedures might take precedence over what the procedures were designed to achieve, and institutions might devote enormous resources to paperwork and reporting methods rather than to improving teaching.	
<p><b>Key recommendations:</b> There should be a balance between quality as a judgement that relies on specialist expertise and is achieved by institutions that have earned the public's trust, and quality as something that is assured through the application of specific sets of procedures. What was required was a new 'mixed' model of ensuring quality and defining the curriculum that emphasised institutions and content as much as criteria and procedures. Umalusi would have to decide which aspects of an examination-based system it wished to retain, and what its role would be within an accreditation-based, delegated assessment system.</p>					
<b>Making educational judgements, 2007</b>	2004-2007	Reflecting on the types of tools and processes used in three research projects (the 2004 <i>Matric Research</i> , the 2005 <i>School/College Comparison</i> , and the 2006 <i>African Comparison</i> ) conducted in order to make judgements about intended and examined curricula.	N/A	Tools developed by Umalusi as guidelines for the evaluation of curriculum statements, and for making judgements about levels and types of cognitive challenge presented by items in examinations were helpful in providing focus to evaluators. However, they should be seen as guidelines by evaluators and not as a rigid checklist. How the tools are used by evaluators is much more important than the tools themselves.	
<p><b>Key recommendations:</b> Umalusi should consider developing a document for curriculum developers, based on the tools developed to date, in order to clarify what was required of curriculum statements or syllabuses. Some of the cognitive challenge grids developed by the subject evaluators in the research projects could be adopted by moderators as additional tools. Umalusi should also determine what is to be done with its evaluation reports.</p>					



Strand 1: Quality assurance methodology cont.					
Title and date of publication	Period/year/s of documents reviewed	Focus	Subjects	Main findings	
<b>The role of IRT in selected examination systems, 2008</b>	2008	Providing an overview of the psychometric approaches (Item Response Theory and the Rasch Model) used in the Netherlands, Western Australia, and Indonesia to link assessment results of high-stakes examinations across subject areas and over time.	N/A	The information obtained suggested the need for a combination of 'subjective' judgement and empirical measurement of examinations in SA, and the development of item banks of examination questions which have been piloted and subjected to a Rasch Analysis	
<b>Key recommendations:</b> Further consideration should be given to the incorporation of Rasch measurements in the South African examination system at selected nodes in the overall examination process. An item bank should be built by analysing piloted test items. Items from the bank should then be used to monitor standards longitudinally both vertically and horizontally. An in-depth analysis of the technical requirements for applying Rasch analysis at pivotal points should be undertaken.					
<b>The relation between knowledge and practice in curriculum and assessment, 2009</b>	2009	Considering possible options for a framework for the assessment and quality assurance of school and college practical subjects, and/or the practical component of subjects.	Practical subjects and/or subjects with a practical component	Knowledge distribution depends on a subject's knowledge base. Some practical subjects might have only a factual and procedural 'applied theory' knowledge base, in which case these categories would be the main focus. In other practical subjects 'applied theory' might consist of selections of factual + procedural + conceptual knowledge.	
<b>Key recommendations:</b> The strong emphasis on practice which characterised the college subjects and school practical subjects quality assured by Umalusi called for the development of a specification different from the quality assurance measures developed and used by Umalusi up to this point. Umalusi's quality assurance practice for practical subjects should allow for progression in both knowledge and practice.					

Strand 2: Further Education and Training band				
Sub-strand 2.1: Senior Certificate and National Senior Certificate				
Title and date of publication	Period/year/s of documents reviewed	Focus	Subjects	Main findings
<b>Investigation into the standard of the Senior Certificate examination, 2004</b>	1992-2003	Whether or not standards in Senior Certificate (SC) examination had declined over the previous ten years.	English First Language, English Second/Additional Language, Biology, History, Mathematics and Physical Science	Declining levels of conceptual challenge in English 1st and 2nd Language, Biology, and Maths. Standard of Biology, English 1st and 2nd Language had dropped. Level of challenge in History and Physics had risen.
<b>Key recommendations:</b> Umalusi should investigate the impact of continuous assessment (CASS) on pass rates, and compare South African question papers with examination papers from other countries.				
<b>Learning from Africa, 2008</b>	2004	Comparing the syllabi and examinations at Senior Secondary level of Ghana, Kenya and Zambia with the standards of South Africa's 'old' Senior Certificate and its new National Senior Certificate (NSC) in four subjects in order to make recommendations for strengthening the new SA curriculum and examination system.	Mathematics, Physical Science, Biology, and English	Only in SA was Science entirely optional. In the other countries the compulsory maths courses were general maths courses. SA's Mathematical Literacy course placed more emphasis on application. In English, the focus on outcomes in the NCS led to a lack of differentiation between HL and 1st and 2nd Additional Language curricula, and a lack of differentiation across grades. It also made the curriculum predominantly skills orientated, whereas, what determined the standard of English courses in other countries was the stipulation of content, types and numbers of texts to be studied and writing genres to be mastered.
<b>Key recommendations:</b> Umalusi should conduct an analysis of South African curriculum documentation as a whole, and also evaluate the usefulness of this documentation to teachers. SA should consider using examination anchor items in the Senior Secondary Certificate to compare standards, and determining grade boundaries per question paper, rather than for an entire subject.				

Strand 2: Further Education and Training band cont.				
Sub-strand 2.1: Senior Certificate and National Senior Certificate cont.				
Title and date of publication	Period/year/s of documents reviewed	Focus	Subjects	Main findings
<b>Signalling performance, 2008</b>	2003-2005	Quality of the school-based continuous assessment (CASS) compared to the externally set, marked and moderated matriculation examination	English (1st and 2nd language), Mathematics, History, Biology, Geography and Physical Science (Chemistry and Physics)	CASS was inaccurate in many schools. Maths was best assessed, with English close behind. History was assessed least accurately of all subjects.
<b>Key recommendations:</b> It was imperative that teachers re-evaluate their own assessment standards on the basis of the examination marks, in order to strengthen the link between CASS marks and curriculum standards.				
<b>Maintaining Standards: Overview Report, 2009</b>	2005-2008	Comparability of the old Senior Certificate (SC) (NATED 550) Higher Grade (HG) and Standard Grade (SG) curricula, with the new National Senior Certificate (NCS) curricula, and examinations in each qualification.	English FAL; Geography; Life Sciences (previously Biology); Mathematics; Mathematical Literacy; and Physical Science	<b>Curricula:</b> The standard of NSC Life Sciences, Maths, and Physical Science fell somewhere between old HG and SG. Geography was closer to HG standard. English FAL was more difficult than in the previous dispensation. Not possible to compare Maths Lit. <b>Exams:</b> Physical Science, Life Sciences, and English FAL were closer to HG; Geography was more difficult than HG; Mathematical Literacy and Maths were too easy.
<b>Key recommendations:</b> The NSC subject curricula should be strengthened through the careful reduction of content and a more specific focus on the discipline-related skills required for achievement in the subject. Exam papers were not necessarily uniformly difficult or easy. This research should be continued in the medium to long term, and the other NSC subjects should be investigated in the same way as the subjects in other qualifications such as the National Certificate Vocational [NC(V)] had been.				
<b>Maintaining Standards: Overview Report, 2009</b>	2005-2009	Comparability of the old SC (NATED 550) Higher Grade and Standard Grade curricula and exams, and the new NSC curricula and exams	History, Accounting, Business Studies and Economics	NSC <b>curricula</b> were of much the same standard as the NATED 550 HG curricula. <b>Exams:</b> NSC Economics and Business Studies were more difficult than HG; HG History exam easier than SG; Accounting exam pitched at a level between HG and SG.
<b>Key recommendation:</b> A judicious pruning of the NCS subject curricula would enhance the depth of learning that could occur in the time available. Greater clarity on the standard of the new NSC examinations across the different subjects was required to ensure that the NSC qualification as a whole had coherence and reliability. Examiners and moderators required a greater understanding of how to use a single examination to discriminate between learners' achievements.				

Strand 2: Further Education and Training band cont.			
Sub-strand 2.1: Senior Certificate and National Senior Certificate cont.			
<b>Evaluating the South African National Senior Certificate in relation to selected international qualifications, 2010</b>	2009	Benchmarking the NSC qualification, its curricula and exams, against the International Baccalaureate (IB) qualification at both Standard Level (SL) and Higher Level (HL), and the International General Certificate of Secondary Education/IGCSE (O-Level), the AS (Advanced Subsidiary) Level and the A (Advanced) Level offered by Cambridge International Examinations (CIE)	English First Additional Language, Mathematics, Physical Science, Biology/Life Sciences, and Geography  CIE AS and IB SL courses were comparable to the NSC. IB HL and full A-Level courses were most demanding. IGCSE (O-Level) was not comparable to the NSC.
<b>Key recommendations:</b> Comparison of qualifications should not be regarded as a straightforward process, since qualifications differ in terms of duration, the number of subjects candidates are expected to study, and the additional demands that may be made on candidates in terms of definition of the qualifications.			

Strand 2: Further Education and Training band cont.				
Sub-strand 2.2: Vocational college subjects at Senior Certificate level				
Title and date of publication	Period/year/s of documents reviewed	Focus	Subjects	Main finding
<b>Apples and Oranges, 2006</b>	2005	Comparing the standards of four college and school subjects at Senior Certificate Level	Science, Mathematics, English (Home and Additional Language), Hospitality	There was no equivalence between the school and college subjects in Science, Mathematics or English (Home and Additional Language).
<p><b>Key recommendations:</b> Urgent attention should be paid to curriculum development in SA and to the development of an appropriate approach to the presentation of syllabuses, in particular easy to use syllabuses which provide clear instructions to teachers about the key knowledge areas to be covered and the levels of cognitive challenge to be assessed. Umalusi should research the viability of its use of the Revised Bloom's Taxonomy (Anderson and Krathwohl 2001) as the basis for a single tool that could be utilised across subject areas.</p>				
<b>The 'F' in NC(V), 2010</b>	2009	Comparing the National Certificate (Vocational) with the National Senior Certificate and benchmarking common subjects	English First Additional Language (EFAL), Mathematics, Mathematical Literacy and Physical Science	<p>The NC(V) Mathematics at Levels 2, 3 and 4 <b>curricula</b> could be viewed as equivalent to, or more advanced than, the NCS Grades 10, 11 and 12 respectively. The NC(V) Mathematical Literacy curriculum did not match well with the NSC curriculum in terms of either breadth or depth. In terms of breadth of content coverage, the Physical Science curricula were very similar. It was difficult to draw a conclusion about the comparability of the English First Language NSC and NC(V) in terms of breadth of content and skills. Some of the <b>exam</b> findings suggested that, in terms of cognitive demand and level of difficulty, the NC(V) subjects were not being examined at a level of difficulty that was comparable to the NSC.</p>
<p><b>Key recommendations:</b> Umalusi's curriculum and examination evaluation instruments could provide a draft template for curriculum developers to facilitate comparability of the curricula of different qualifications. The information provided and the conclusions of this report should be subject to repeated scrutiny while both qualifications were being stabilised.</p>				

**Strand 3: Adult Education and Training band, NQF levels 1-4**

**Sub-strand 3.1: Occupational Qualifications**

<b>Title and date of publication</b>	<b>Period/year/s of documents reviewed</b>	<b>Focus</b>	<b>Subjects</b>	<b>Main finding</b>
<b>The 'f' word, 2007</b>	2006	Determining the standard of English and Mathematics courses offered by different providers and certified by different quality assurance bodies as part of the requirements for compulsory 'fundamentals' in all qualifications from levels 1 to 4 of the National Qualifications Framework	English and Mathematics	Difficulties with unit standards and with the idea of learning programme approval against learning outcomes, and decentralised assessment against Learning Outcomes, made it impossible to make meaningful judgements about courses and standards within the system.

**Key recommendations:** If Mathematics and languages are to be compulsory, there should be compulsory curricula and assessments, and not just learning outcomes. At least 50% of the summative assessment should be conducted externally by an accredited assessment body.

**Sub-strand 3.2: Adult Basic Education and Training (ABET)**

<b>Title and date of publication</b>	<b>Period/year/s of documents reviewed</b>	<b>Focus</b>	<b>Subjects</b>	<b>Main findings</b>
<b>Inspecting the Foundations, 2009</b>	2008	Reviewing the qualifications and the curricula which underpin the General Education and Training Certificates (GETC): Adult Basic Education and Training (ABET) at NQF Level 1/ABET Level 4 as delivered and assessed by major assessment bodies	N/A	The study found a multiplicity of ABET curriculum documents, and an expressed difficulty in creating learning programmes from unit standards. Because of the problematic state of the intended curricula, a detailed evaluation of the standards of the examinations was not deemed useful at this stage.

**Key recommendations:** There should be individual, nationally developed and dated curriculum documents for all learning areas and electives (created by the National DoE in collaboration with provinces, subject experts and representatives of business, labour and civil society) which provide proper guidance on content and levels of achievement, and which are made readily available. There should be standardised and centralised assessment, especially if certification is to have a specific and nationally recognised meaning.



Strand 4: General Education and Training band (compulsory education)				
Strand 4.1: Foundation phase				
Title and date of publication	Period/year/s of documents reviewed	Focus	Subjects	Main findings
<b>Comparing the Learning Bases, 2010</b>	2009	Comparing the South African Foundation Phase (FP) curriculum (Grades 1 to 3) with curricula for the same grades in Canada (British Columbia), Singapore, and Kenya, countries with systems that appear to be working well (as measured by student performance in international comparative studies)	English as a Home Language (HL) and as a First Additional Language (FAL), Mathematics (Numeracy), and Life Orientation	The content of the SA curriculum (NCS) was similar to that of other countries, but the NCS had less depth. Differences also lay in the way in which the information/content was presented in the curriculum. Content, concepts and skills specification were superior in the three foreign countries.
<b>Key recommendations:</b> The content, skills and concepts to be acquired needed clearer specification in the South African curriculum. Greater depth in the key content, skills and concepts was required. Assessment guidelines should be rewritten to include practical illustrations and examples of student assessments.				
<b>Comparing the Learning Bases, 2010</b>	2010	Comparing the South African FP <b>African languages</b> curriculum of an Nguni and a Sotho language with the language curricula for the same grades in Botswana, Lesotho, Swaziland and Zimbabwe	isiZulu and Setswana	The SA NCS for Setswana and isiZulu were found to be under-specified in terms of content to be taught, and in terms of progression, assessment and pacing.
<b>Key recommendations:</b> Curriculum revision which would not compromise the entrenchment of mastery of essential language skills in the FP was required.				
<b>Learning to teach the National Curriculum Statement in schools, 2009</b>	2009	Providing information on the extent, nature, and quality of FP teacher education in SA	<b>N/A</b>	The capacity within the university sector to provide FP teacher education was limited. The quality of provision was generally unknown, and there was no clear curriculum for teacher education.
<b>Key recommendations:</b> The actual content and structure of FP teacher education programmes should be investigated, with particular attention to issues of overload, coherence and articulation with the NCS. In particular, the question of breadth and depth of subject knowledge among FP student teachers should be addressed.				

# 4. Comprehensive summaries of Umalusi research reports

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Section 4 provides detailed summaries of each report within each strand.

## 4.1 Strand 1: Quality Assurance Methodology

**Title:** *Approaches to quality assurance in the GET and FET bands, Umalusi discussion document, 2004*

**Central purpose:**

Discussing existing provision of Quality Assurance in schools and colleges in South Africa and reforms, and specific strategies which Umalusi might adopt in the future.

**Key aspects investigated:**

- The origins and purpose of the of Quality Assurance and why it has been widely adopted internationally.
- Lessons South Africa can learn from other countries.
- Approaches to quality that have been developed internationally and how these are related to specific approaches to qualifications and curricula.
- The current proposals for reform in South Africa.
- The implications for Umalusi in following a middle way or dual approach that combines examining and institutional accreditation.

**Methodology:**

The discussion document made a case for specific strategies for Umalusi on the basis of analysis of the investigated aspects.

**Findings:**

The paper stressed the interdependence of three recent trends in educational policy: the introduction of systems of quality assurance; the development of a standards generation approach to qualifications; and the privileging of outcomes over content in approaches to the curriculum. An alternative to the old model of quality assurance (implicit systems for ensuring quality) was needed. However, the direct replacement of judgement of quality only by quality assurance procedures, conceived as processes whereby learning programmes are judged in relation to pre-specified standards (unit standards) and learning outcomes could only lead to poorer quality, lower standards and a diminished curriculum. When an intrinsic concept of quality which relied on judgement was replaced with one that was extrinsic and relied on evidence that certain procedures had been complied with, the new approaches might ignore the fact that the relationship between procedural compliance and quality is always problematic. Compliance with quality assurance procedures might take precedence over the desired achievements of the procedures, and institutions might devote enormous resources to paperwork and reporting methods rather than to improving teaching.

The paper identified four main approaches to ensuring the quality of education:

1. The Examination model, which focuses on the assessment of individual students and



which is traditionally associated with 'high-stakes' examinations. The model typically involves a centrally prescribed syllabus for each subject with recommended texts and model exam papers, and the educational priority is access to specialised knowledge. Public trust is located in the examining system which depends largely on the importance given to external marking. This is the model of quality assurance that was current within most of the Further Education and Training (FET) system in SA at the time the discussion document was formulated.

2. The Accreditation model, which focuses on defining criteria for institutions and on the capacity of schools and colleges to offer courses and undertake assessment, is typically associated with vocational qualifications. The model can be located in the move to develop formal, explicit criteria for assessment and evaluation. Outcomes and processes are emphasised in the curriculum more than explicit content, and assignments and continuous assessment are favoured over unseen examinations. Individual institutions conduct student assessment but the process is overseen by external verifiers or 'assessors'. The model allows for the specific circumstances of students and communities to be taken into account and encourages the development of methods to assess the application of knowledge as well as its acquisition. Because there is no prescribed syllabus and there is no central examination, the only measure of quality is through accreditation of institutions based on specific criteria, and the approval of their capacity to offer programmes. Variation in standards and the fact that public trust is located in trained, registered assessors who make their own judgements make it difficult to use the model as the basis for a high-stakes qualification. The model can also lead to undue emphasis on bureaucracy and to less attention to content and to students who lack the conceptual knowledge required by higher education. South Africa's Sectoral Education and Training Authorities (Seta) Education and Training Quality Assurance bodies (ETQAs) regard themselves as operating primarily within accreditation models.
3. The Inspection model, which focuses on the evaluation of institutions 'as a whole', can be regarded as another form of accreditation, but this tends to investigate what is actually happening in the classroom. Historically, this model has complemented the examination model. However, outcomes which are the product of examinations can become part of the data for inspection. This was the main model of quality assurance in the General Education and Training (GET) band in South Africa at the time of this discussion.
4. The Systemic evaluation model which focuses on assessing the effectiveness of the system rather than individual students or institutions.

Despite the weaknesses inherent in examinations, there did not seem to be a practical alternative for large scale, high-stakes assessment. What was prescribed in the syllabus, the type of questions set in examinations and the level of difficulty of examinations over a period of time, as well as the approach to marking, were the major determinants of what was formally taught and learnt in classrooms.

It was difficult to see how an Examination model could operate if the curriculum was based on unit standards or reliant on outcomes, with no national syllabus or other specification of content to be covered and examined. Standardised syllabuses or learning programmes would need to be developed. Combining national examinations and delegated assessment of fundamentals would only lead to confusion.

#### **Recommendations and/or issues arising:**

- What was required in South Africa was a new 'mixed model' which would allow for a more balanced view of quality as, on one hand, a judgement that relied on specialist

expertise and was achieved by institutions that had earned the trust of their public and on the other, as something that was assured through the application of specific sets of procedures.

- It seemed sensible for Umalusi to emphasise examinations and the accreditation or inspection of institutions as its main approach to ensuring quality in the FET band. This meant that qualifications should not be viewed as separate components to be evaluated in terms of specific criteria, with learning programmes judged against qualifications. Instead, the quality assurance of qualifications should take place primarily through systems monitoring the standard of question papers and marking, as well as those monitoring the curriculum and syllabus. These practices should be supplemented by processes evaluating the quality of teaching and learning in institutions. Inspecting schools was clearly outside the remit of Umalusi but it could develop systems to 'inspect' provinces as an 'audit function'.
- The challenge would be to improve examinations so that they provided students with opportunities to display application and analysis, as well as critical thinking and creativity. Some combination of externally assessed examination papers and coursework assignments assessed by teachers and moderated externally would be most appropriate for the proposed Further Education and Training Certificate (FETC) (Grade 12).
- Umalusi should take into account the differences between school and college sectors and between the demands of general and vocational qualifications. Whilst the external moderation, or verification, of a myriad totally separate assessment processes against the same standards and qualifications in FET colleges did not appear viable, it did seem appropriate that external examinations carried less weight in FET colleges. External examinations should also be conducted with a 'lighter touch' in FETC colleges than in schools.
- Umalusi should also consider accrediting assessment bodies to conduct assessment against prescribed syllabuses, as well as moderation bodies which could moderate assessment at site level. For example, assessment bodies could conduct moderation of individually designed assessments against an Aseca (A Secondary Education Curriculum for Adults) type syllabus. (The Aseca curriculum was designed for out-of-school youth, and offered by the Youth Colleges and some private adult education centres).
- Umalusi should decide which aspects of an examination-based system it wished to maintain, and what its role would be within an accreditation-based, delegated assessment system. Accreditation and regulatory bodies such as Umalusi might need to broaden their role to include capacity building, institutional support and staff development.
- Opportunities should be provided for adults who wished to progress to higher levels of the system to be formally assessed. In order to make allowances for adults who were studying for other purposes, Umalusi could consider investigating possible ways of conducting systemic evaluation of the ABET sector or other ways of gauging the health of the system, rather than relying on examinations.
- In the GET band there could be a greater focus on inspection and less on examinations. Systemic testing could be used as a tool to determine levels of learning in specific grades.
- What was important in the system as a whole was ensuring that all the components of quality assurance worked together, and that information was communicated to all of them; a relationship between the moderation of question papers, input into syllabus design, and inspection of schools should exist.

## **Title: Making educational judgements: Reflections on judging standards of intended and examined curricula, 2007.**

### **Purpose:**

To reflect on the tools and processes used in three research projects (the 2004 *Matric Research*, the 2005 *School/College Comparison*, and the 2006 *African Comparison*) which Umalusi conducted over four years in order to make judgements about intended and examined curricula, and to make recommendations with regard to future processes and systems for evaluating these curricula.

### **Key aspects investigated:**

- International perspectives on standards, curriculum and assessment.
- Umalusi's research up to that date on evaluation of intended and examined curricula.
- Lessons learnt from making judgements about research.

### **Methodology:**

The study reviewed the international literature on what makes a good curriculum. It provided an overview of guidelines, categories, criteria, tools and instruments developed for evaluating intended curriculum and examination question papers in *Investigation into the standard of the Senior Certificate examination (2004)*; *Apples and Oranges: A comparison of school and college subjects (2006)*; and *Learning from Africa: Umalusi's research comparing syllabuses and examinations in South Africa with those in Ghana, Kenya and Zambia (2008)*.

### **Findings:**

In evaluating the intended **curriculum** -

- Umalusi should specify clearly what documentation should be submitted for evaluation by curriculum designers, bearing in mind that the point of evaluations was to ensure that clear and succinct documentation was provided to teachers, textbook writers and examiners.
- Evaluators should be chosen based on their expertise in the respective discipline or subject, as well as their knowledge of the part of the education system for which the curriculum statement was intended. Panels of evaluators should be composed of individuals with complementary forms of expertise. Both kinds of expertise, education subject experts and pure disciplinary subject experts, should be included, and at least part of the evaluation process should take place with all the evaluators present.
- The tools developed as guidelines for the evaluation of curriculum statements were helpful in providing focus for the evaluators. However, they should be seen as guidelines and not as a rigid checklist. *How* the tools were used by the evaluators was much more important than the tools themselves.
- Evaluators should be encouraged to consider the aims of an intended curriculum and the extent to which the curriculum documentation ensured that these aims would be achieved.
- Where possible, curriculum evaluators ought to be given examples of internationally regarded syllabuses as supplementary documents, although they should be instructed not to make narrow comparisons with them. Evaluators could also use other supplementary documentation, such as reliable textbooks. However, there were no fixed benchmarks, other than an intelligent and considered application of the discipline, an understanding of the purpose of the course at hand, and a reasonable consideration of contextual factors, such as what was appropriate for learners at a particular level of the education system.
- Curriculum statements ought to contain guidelines on time to be devoted to various aspects of the intended curriculum.

- Key content areas and information about weighting of various aspects should be clearly specified in curriculum statements.
- Teacher/practitioner evaluators should be asked to look specifically at the ease of use of documents.
- Umalusi should request assessment bodies to provide either mock examinations (for new curriculum statements) or examples of actual examinations (for already existing courses). These could be used as supplementary documentation for curriculum evaluators.

#### In evaluating **question papers** -

- A tool for making judgements about the level and type of cognitive challenge of examination items was useful; a hierarchy of cognitive challenge helped to focus the minds of evaluators. A grid using two axes for judgements of levels and types of cognitive challenge in examinations was more difficult to use. Individual subjects should have their own grid.
- Umalusi should ensure that tools to determine cognitive challenge, used in the evaluation of examination question papers, were included in the intended curricula.
- More attention ought to be paid to improving marking memoranda and quality assurance of moderation.
- Umalusi should provide moderators with past examination question papers and insist that moderators check specifically for undue predictability.
- Panel moderation should be adopted wherever possible.

#### **Recommendations and/or issues arising:**

Umalusi should consider

- developing a document for curriculum developers, based on the tools developed at this point, in order to make clear to them the requirements of their curriculum statements or syllabuses.
- how expert evaluators are selected. This was more difficult in vocational education.
- developing a system to ensure that evaluators' judgements were as fair and as rigorous as possible, not excessively procedural, and useful to Umalusi.
- finding ways to deal with serious disagreements amongst evaluators.
- adopting some cognitive challenge grids developed in research projects by subject evaluators as additional tools for moderators. Alternatively, evaluators could be asked to produce a final grid for Umalusi's use, taking into consideration the various grids that had already been developed. In the case of subjects which were not part of any of the evaluations, moderators could be asked to develop a three-scale grid.
- the necessity, in the case of new curriculum statements, of monitoring the quality of examinations over time, and revising judgements of the intended curriculum if necessary.
- the expertise that Umalusi had available to assess the quality of evaluators' and moderators' judgements. The lack of subject experts both at the Department of Education and at Umalusi was in stark contrast to the situation in the three African countries which Umalusi had researched.
- what to do with its evaluation reports.

#### ***Title: The role of IRT in selected examination systems, 2008.***

##### **Purpose:**

To support the process of maintaining and improving examination standards in South Africa by providing an overview of the psychometric approaches used in three selected countries (the Netherlands, Western Australia and Indonesia) in order to link assessment results of high-stakes examinations across subject areas and over time.

**Key aspects investigated:**

- approaches used internationally in order to link assessment results of high-stakes examinations, as well as examination systems in general and associated techniques, with a specific focus on IRT (Item Response Theory) and the Rasch model.
- a number of countries that differed in terms of their economic status, education systems, assessment bodies and subjects offered at school level. Examples of the use of IRT and Rasch were explored with their benefits and limitations highlighted.
- the potential use of IRT in linking assessments across matriculation examinations from year to year, as well as with other qualifications at the same level.

**Methodology:**

This desktop study included three condensed case studies in regions of Europe, Australasia and Asia. In addition, three limited examples were used to illustrate the range of examination systems. The three case studies reviewed were from very different contexts: two well-resourced countries with state of the art test 'technology' (the Netherlands and Western Australia) and the third, a poorer environment considerably under-funded but using similar state of the art test technology (Indonesia).

**Findings:**

- The information gathered from the case studies suggested a need for a combination of 'subjective' judgement and empirical measurement. In addition to the more traditional and widespread practices of involving judgement as a means of equating tests or examinations, there was a call for the inclusion of a model such as Rasch to provide scientific measurement.
- The review found that the Rasch model could be used as a means to introduce more rigour into the measurement aspect of examinations in SA. The fact that this model can cope with missing data and is therefore able to link tests through common examinees or sets of examinees through common test items, confirmed its appropriateness. However, a requirement of all psychometric enterprises was conceptual clarity of the underlying construct.

**Recommendations and/or issues arising:**

- Further consideration should be given to the incorporation of Rasch measurement in the South African examination system at selected nodes in the examination process. In the medium to long term, the application of IRT could provide a means of conducting a retrospective analysis of matriculation examinations. An item bank could be built by analysing piloted test items. Items from this bank could be used to monitor standards longitudinally, both vertically and horizontally.
- The first step in this process was to capture and make explicit the scaling and standardisation processes in the existing moderation system in South Africa. The complementary roles of the National Department of Education and Umalusi ought to be clearly defined, and there should be consensus on the processes to be implemented. An advisory body (as recommended by Western Australia in response to the Andrich report in 2005) should be established for the purpose of ensuring alignment of the processes. This could be the role of the existing Umalusi Research Group, the Umalusi Statistical committee, or another group specifically assigned with this task. Such a group should include individuals from the Department who made pivotal policy decisions, statisticians and researchers who could take on new modelling techniques, subject experts and experienced examiners.
- Limitations in the use of the Rasch model were that it is little known in SA; applications of IRT are generally more expensive than similar applications of classical test theory; and many applications of IRT require specific software. The implications for SA adopting

such reforms are significant in terms of both the financial investment in human resource development, and the infrastructure and equipment that is required. An in-depth analysis of the technical requirements for applying Rasch analysis at key points should be undertaken.

### **Title: Concept paper: The relation between knowledge and practice in curriculum and assessment, 2009**

#### **Central purpose:**

To consider possible frameworks for the assessment and quality assurance of school and college practical subjects, and/or the practical component of subjects.

#### **Key aspects investigated:**

- The knowledge-practice relation in the curriculum.
- Theoretical perspectives of knowledge and practice and their relation to educational policy.
- The structuring logic of curricula and how rules of combination, in terms of selection, sequencing and pacing, create different permutations of the 'theory-practice' combination in vocational and professional curricula.
- Current specifications for cognitive distribution in school and FET college subjects with a practical component.
- A way forward in terms of quality assurance of practical subjects.

#### **Methodology:**

The paper opened with an overview of curricular approaches to the knowledge-practice combination. Next it examined different theoretical perspectives of knowledge and practice and their relationship to educational policy. Thirdly, it explored the logic behind the structuring of the curriculum, in terms of selection, sequence and pace, through the lens of 'rules of combination'. It developed a theoretical model of knowledge-practice relations. This model was used as the basis for a taxonomy of knowledge-practice combinations. The paper then examined how such combinations performed in the empirical domain of curriculum practice. Finally, the paper provided a set of conceptual tools for use in the reflection on assessment and quality assurance of theory and practice in the intended and assessed curriculum.

#### **Findings:**

A key question that the paper addressed was the direction in which knowledge moved when practice was included in the curriculum. The paper contended that what made a distinction between 'pure' and 'applied' theory was the fact that when conceptual knowledge moved towards the world of practice, it became proceduralised. An analysis of one of the studies carried out as part of *Apples and Oranges* demonstrated empirically that even when the content stipulated in the intended curriculum contained general laws and principles, the way in which 'applied' theory was examined frequently resulted simply in assessment of procedural knowledge. However, a foundational assumption is that practical knowledge can only be called knowledge when it is raised above the immediacy of everyday life, something which happens when practice is combined with a knowledge form from the conceptual world. The question of what counts as practice, should thus always be accompanied by the question of what counts as knowledge. If a curriculum was to enable both knowledge progression and occupational progression, specifications would have to indicate the knowledge base that related to the 'cognitive skills'. However, the knowledge distribution depended on the knowledge base of a subject. Some subjects might have only a factual and procedural 'applied theory' knowledge base, in which case these categories would

be the main focus. In other subjects, 'applied theory' might consist of selections of factual + procedural + conceptual knowledge.

**Recommendations and/or issues arising:**

Umalusi's quality assurance practice and specifications for practical subjects should allow for both knowledge and practice progression. Any guidelines should be straightforward and clear. It made sense to suggest the use of Bloom's taxonomy as the basis for specifications that captured different kinds of knowledge and practice as both schools and colleges are already familiar with its categories.



## 4.2 Strand 2: Further Education and Training band

### 4.2.1 Sub-strand 2.1: Matric Senior Certificate/ National Senior Certificate

**Title: Investigation into the standard of the Senior Certificate examination. A Report on Research Conducted by Umalusi, 2004 (aka The 2004 Matric Research)**

#### **Purpose:**

To investigate whether standards of **English First Language, English Second/Additional Language, Biology, History, Mathematics and Physical Science** in the South African Senior Certificate (SC) examination, commonly known as 'the matric' (grade 12), based on the NATED 550 curricula, had declined between 1992 and 2003, a period of ten years.

#### **Key aspects investigated:**

- the quality of examination papers for the six subjects over a period of time.
- the statistical moderation process used to standardise the results and to establish whether there had been any changes to the process.
- Comparison of achievement of African first language candidates who were given language compensation with achievement of candidates not given such compensation.
- rules, processes and procedures used in the examination, including pass rates

#### **Methodology:**

Teams of expert evaluators investigated the standard of examinations in 1992 (when education was administered by 18 different departments); in 1999 (when pass rates were low); and in 2003 (when pass rates were at their highest). Teams consisted of one experienced and successful teacher, one subject expert, and one higher education expert. They were provided with examination papers and marking memoranda for each of the three years in question, as well as marked scripts for 2003, and syllabuses to assess levels of difficulty. Judgements about the examinations were made according to the following criteria: content coverage, constructs employed, relative difficulty and challenge they presented to learners, variety of task types, length of paper, language and cultural bias, clarity of instructions, organisation of paper, additional criteria supplied to candidates, and relationship between question paper and marking memorandum. Syllabuses were not evaluated, but were used as tools with which to make judgements about the relative standards of examinations from these years.

#### **Findings:**

The study found declining levels of conceptual demand in Biology (HG & SG), History (SG), Mathematics (SG), English Second/Additional Language (HG) and English FAL (HG). An improvement in the level of challenge was observed in Physical Science, but an area of concern was the predictable nature of the questions in Biology, History and Physical Science. Other areas of concern included: declining HG enrolments; low standard of English Second/Additional Language curriculum and language proficiency in the medium of instruction in South African schooling (English second-language learner disadvantage); extremely low level of achievement of language compensated candidates compared to



the level of achievement of other candidates; the quality of examination setting, marking, and moderation, including length and language use in papers; efficiency of markers and moderators; cumulative effect of the statistical moderation process on pass rates; poor data management and collection.

**Recommendations and/or issues arising:**

What should be considered is:

- the impact of continuous assessment (CASS) on the pass rates in 2003. Types of statistical adjustments and the impact of these trends on pass rates required analysis. The introduction of CASS marks and their adjustment to 5% above the examination average would have had the effect of raising final SC marks.
- the need to compare South African question papers with those of other countries.
- whether the school-leaving certificate requirements fulfil higher education requirements, and how this issue should be handled in the environment of the projected Further Education and Training Certificate (FETC).

**Title: Signalling performance: An analysis of continuous assessment and matriculation examination marks in South African schools, 2008**

**Purpose:**

To evaluate the quality of school-based continuous assessment (CASS) compared to the externally set, marked and moderated matriculation examination for **English (First and Second Language), Mathematics, History, Biology, Geography and Physical Science (Chemistry and Physics).**

**Key aspects investigated:**

The quality of school-based CASS and of the externally moderated matriculation examination, using Umalusi data on CASS and matriculation examinations in seven subjects for 2005 and the two years preceding.

**Methodology:**

The total dataset obtained from Umalusi consisted of data for all matriculation students in South African high schools from the nine provinces for the years 2003, 2004 and 2005. Student information included gender, race and the raw scores (before adjustment) of school continuous assessment and the matriculation examinations for each examination written by each student. At the school level, information on the province, quintile and sector (public or independent schools) was made available. Based on the premise that the examinations and CASS tested the same underlying understanding of a school subject as articulated in the national curriculum, the externally set, marked and moderated matriculation examination was, for the purposes of this study, regarded as the 'correct' assessment of student performance. Two measures of accuracy of continuous assessment were applied across seven subjects: the degree of leniency with which CASS marks were awarded (compared to examination marks), measured as the gap between these marks, and the reliability of CASS marks in terms of their correlation with examination marks. The analysis was conducted on two levels. First, all individual marks in the selected subjects were analysed using the above two measures of assessment accuracy, and patterns were investigated. Secondly, a similar analysis was conducted at school level to establish which schools had the least accurate CASS scores, and to attempt to identify patterns in this regard. Where at least 15 candidates were registered for a subject, 'school correlations' between CASS and matriculation examination marks were calculated for each of the seven subjects, distinguishing where appropriate also HG and SG subjects. The report provided an overview of the magnitude

of the problems of CASS leniency and reliability in South African schools, by subject area, subject, province, socioeconomic background of schools, and type of school (public or independent).

#### **Findings:**

- CASS was generally inaccurate and leniency of assessment was evident (inflated CASS marks) in many schools, although unreliability of assessment was also a cause for concern in some cases. Schools with less reliable CASS tended to perform worse in examinations.
- There was evidence of a clear hierarchy in terms of assessment accuracy. The bulk of schools with inaccurate and lenient assessment were situated in Mpumalanga and KwaZulu-Natal, with the Eastern Cape a large contributor. The Western Cape, and schools in the top and even the second quintiles of the SES (socioeconomic status) distribution, produced more accurate assessments.
- In terms of subjects, Mathematics, both at HG and SG level, was the best assessed subject, with English First and Second Language coming a close second. There was a larger group of poorly assessing schools in History than in any other subject.
- In most cases gaps had increased, in some substantially. KwaZulu-Natal and Mpumalanga revealed large increases in aggregate gaps, whilst the previously small gap in History had increased four-fold. The gaps were widening largely as a result of falling examination marks, in part the result of a tightening up of the national examinations, but perhaps also because of a larger number of under-prepared students entering the examinations.

#### **Recommendations and/or issues arising:**

- With the 25% weighting awarded to CASS marks in matriculation, and the limit of a mean deviation of 10% either way between examination and CASS marks imposed by Umalusi, differences in strategic behaviour between teachers or schools could have important consequences. Schools setting high standards in CASS to encourage more intensive learning in preparation for the examination might place their candidates at a considerable disadvantage in the final matriculation assessment (of up to five percentage points), compared to schools which persisted with exceedingly lenient assessment.
- Differentials between CASS and examination marks did not appear to result in feedback to the following year's CASS marks. Teachers tended not to re-evaluate their own assessment standards on the basis of these examination marks, thus there was little change in the discrepancy between CASS marks and curriculum standards.

**Title: Learning from Africa. Umalusi's research comparing syllabuses and examinations in South Africa with those in Ghana, Kenya and Zambia, 2007 (aka 2007 African Comparison).**

**Purpose:**

To compare the syllabi and examinations for **Mathematics, Physical Science, Biology and English** of other Anglophone countries in Africa (Ghana, Kenya and Zambia) in order to ascertain the relative standards of South Africa's old Senior Certificate (SC) curriculum and its new National Senior Certificate (NSC) curriculum, and to make recommendations for strengthening the new South African curriculum and examination system.

**Key aspects investigated:**

- how SA compared with the other countries in terms of both the old and the new curriculum and examinations.
- what this comparison revealed about SA's curriculum and examination systems, and about approaches to representing the intended curriculum.

**Methodology:**

These four subjects were selected because they are situated in the same part of the education system in all four African countries, and because they have large enrolments and are regarded as important in SA. The syllabuses and 2004 examination documents for all subjects were collected. New South African curriculum documents consisted of a curriculum statement, a learning programme guideline document, and a subject assessment guideline document. Marked scripts were not available. The study was conducted through meetings and interviews with officials from all four countries. Groups of four or five South African expert practitioners and higher education specialists used the tools developed in earlier research by Umalusi to evaluate the intended curriculum and examination question papers. In the case of the analysis of the intended curriculum, the categories were: aims/ purpose/ vision/ outcomes; pedagogy and methodology; content coverage (breadth); coherence, sequence, progression, and pacing; content coverage by cognitive demand (depth); assessment specifications; provision and packaging of curriculum documents/syllabus. Evaluators developed and customised grids of types and levels of difficulty of cognitive operations based on *Revised Bloom's Taxonomy* (Anderson and Krathwohl 2001; Anderson 2005) to evaluate question papers in the various subjects.

**Findings:**

- All four countries issued senior certificate school certificates after twelve years of schooling. All four countries had syllabus-based exit examination systems. Only the new curriculum in SA reflected 'aspects of an outcomes-based system'. The main differences in the systems were regulatory: how the examination and curriculum systems were organised and run, the form of the intended curriculum, the nature of assessment at primary or junior secondary level, were all significantly different.
- Only in SA was Science completely optional. In the other three countries, the compulsory mathematics courses were general mathematics courses. SA's Mathematical Literacy course placed more emphasis on application. In English, the focus on outcomes in the SA curriculum led to a lack of differentiation between Home Language and First and Second Additional Language curricula, and a lack of differentiation across grades. The outcomes focus seemed to drive the curriculum strongly in a skills direction. What determined the standard of English courses was the stipulation of content, for example, types and numbers of texts to be studied and writing genres to be mastered.

- The shorter the documents, the easier they were to work with. The South African curriculum documents were not easy to read.
- In all the other countries, school-leaving primary or basic education certificates were issued based on centrally set and marked multiple-choice examinations. External assessment of all learners took place at an earlier stage in the system.
- The systems in the other three countries, where subject experts in government institutions drove curriculum processes, seemed to have an advantage over SA: SA had never had a separate curriculum institute; there was no single examination body in SA; examinations were set by a range of bodies; there was no direct or formal relationship between the people setting the examinations and those determining the curriculum.
- The processes for standardising marks in the three foreign countries were not dramatically different from the South African system, although in SA the focus is on learner grades while in the other countries it is on the grade boundaries where raw scores are not altered. None of the four countries used anchor items to compare standards.
- Unlike the other countries, the South African system had the advantage of a separate quality assurance body which was responsible for monitoring quality in primary and secondary education. Umalusi issued the certificates for all learners and was responsible for monitoring the standards of the curriculum and examinations, but was not directly involved in setting either the curriculum or the question papers.

#### **Recommendations and/or issues arising:**

- Single curriculum documents containing all the information directly pertinent to the teaching of each subject should be produced. Umalusi should conduct an investigation of the curriculum documentation as a whole, and evaluate its usefulness to teachers.
- None of the South African curricula had explicit organising principles. The notion of an organising principle that determines coherence should be developed in more depth.
- SA ought to consider
  - using examination anchor items to compare standards, and following an approach of determining grade boundaries per question paper, not per entire subject, in the Senior Secondary Certificate. This would be more likely to be driven by professional concerns and be less open to political manipulation.
  - removing the notion of a pass mark in the Senior Secondary Certificate as this might allow a more rational and nuanced discussion of learner achievement. The grades on the certificate would indicate how much a learner had learnt.
  - introducing external assessment (without a certificate) at levels lower than Grade 12 as a means of providing information to teachers about the required standards.
  - finding affordable and accessible alternatives for learners who do not complete secondary school.
  - whether all students in SA should have a basic grounding in Science as well as in Mathematics; whether Biology, a subject taken by most SA students, could have an explicit role to play in the development of an ability to deal with abstraction, and if so, whether this aspect of the curriculum should be strengthened; whether Physics and Chemistry should be offered as two separate subjects or as a combined science course; whether the role of literature in the English syllabus should be more than 'a tool for teaching reading' and whether one could 'develop a flair for writing without literature'. Mathematics generally claims to teach abstract thinking, but how does this link with the tendency in SA to incline the curriculum towards 'useful real life applications'?

Individual **subject reports** from the *Learning for Africa* research for English, Mathematics, Biology and Science were published in separate booklets in 2008.

## **Title: 2008 Maintaining Standards Report, English FAL: Geography; Life Sciences; Mathematics; Mathematical Literacy; and Physical Science Part 1: Overview, 2009**

### **Purpose:**

To provide information on the comparability of the old Senior Certificate (SC) (NATED 550) Higher Grade (HG) and Standard Grade (SG) curricula with the new National Curriculum Statement (NCS) curricula, and the comparative difficulty of the associated exams in six subjects: **English FAL; Geography; Life Sciences (previously Biology); Mathematics; Mathematical Literacy; and Physical Science**, and to make recommendations for strengthening the curricula and examinations in these six subjects.

### **Key aspects investigated:**

- whether the demands made by the intended **curricula**, NATED HG and SG, and the National Curriculum Statement for the six subjects were comparable.
- whether learners were required to perform at similar levels in final exit **examinations** and whether the papers contained items that discriminated accurately between learners with a range of academic proficiencies. The 2008 NSC exams were envisaged to be of such a level that they would allow learners achieving at the level of 33.3% in the old SG exams to achieve 33.3% in the NSC papers. They were also predicted to contain sufficiently difficult items so that learners achieving at the highest levels would be earning results equivalent to the 'A-grades' achieved previously at HG levels.

### **Methodology:**

Six high enrolment 'gateway' subjects were selected to assess suitability for entrance to tertiary institutions. The SC curricula (HG and SG) of the six subjects were compared with the equivalent NCS curricula. The comparability and relative levels of cognitive difficulty of the associated HG and SG exam papers from 2005, 2006, and 2007 (Papers 1 and 2 in each case) were also compared with the 2008 exemplar and final papers in these subjects. Teams of four researchers evaluated the NATED 550 HG and SG and NCS curricula for each subject using evaluation instruments developed to ensure consistency in reporting. These instruments were based on previous research conducted by Umalusi (2006-2008) and addressed key areas in curriculum and examination analysis, with a strong focus on type of cognitive demand and levels of difficulty.

### **Findings:**

- In terms of levels of difficulty, the new NCS **curricula** for Life Sciences, Mathematics and Physical Science were judged to be midway between the NATED 550 HG and SG curricula. They were also found to have areas of difficulty that far exceeded the levels of the previous HG curricula. (The Mathematics Curriculum assessed did not include the content and skills assessed in Mathematics Paper 3). Geography was found to be closer to the old HG than the SG level. English FAL was found to be effectively more difficult than the NATED 550 curricula, largely because of its greater degrees of specification. Mathematical Literacy was so different from the NATED 550 HG and SG Mathematics curricula that comparison was impossible.
- As far as levels of difficulty were concerned, the **exam papers** for 2008 Physical Science, Life Sciences and English FAL were, on the whole, closer to the old NATED 550 HG than to the SG papers for these subjects. Geography in 2008 contained more comprehension and problem-solving questions than previous HG papers and these questions were of a cognitively demanding type and, in addition, set at difficult levels. Mathematical Literacy

and Mathematics papers in 2008 were, on the whole, too easy. The Mathematics papers were closer to the old NATED 550 SG papers (Mathematics Paper 3 was not investigated). The percentage of questions set at low cognitive levels in the Mathematical Literacy Paper 2 in 2008 was almost three times higher than had been recommended.

- The usefulness of the Umalusi evaluation instruments was confirmed in the analysis of curricula and exams. The study also highlighted the integrity of the Umalusi standardisation processes.

### **Recommendations and/or issues arising:**

The relative proportion of exam questions at particular levels of difficulty were important in the NSC exams where single papers were expected to discriminate between very high achievers and those performing very poorly, and all learners in between. For instance, in the previous system the HG papers had catered for learners achieving at the highest levels; now the high-level questions in the NSC papers were required to accomplish the same task. In some cases the difficulty levels of the difficult, moderate and easy parts of the 2008 NSC papers were at the desired levels, while others were either too low or too high. Exam papers were not necessarily uniformly difficult or easy.

- The NSC subject curricula required strengthening, in particular with regard to the careful reduction of content and a more specific focus on the discipline-related skills required for achievement in the subject.
- The set of NCS documents per subject required rationalisation into a single or, at most, two coherent documents per subject – and these new documents should be made available to all schools, in soft or hard copy form as appropriate.
- More guidance regarding teaching in various social contexts should be included in NCS documents: clarity on the nature of different kinds of assessment tasks and how to assess them; and development of subject-appropriate assessment tools by teachers. This guidance should form part of the curriculum documents themselves and of teacher-development workshops.
- This research should be continued in the medium to long term. Other NSC subjects should also be investigated in the same way as subjects in other qualifications such as the National Certificate Vocational [NC(V)] had been researched.

**Part 2** of this report comprises a separate booklet on **curriculum evaluation**. The largest part of the booklet is devoted to individual, in-depth reports on the curricula for English First Additional Language (English FAL), Geography, Life Sciences, Mathematics, Mathematical Literacy and Physical Science. **Part 3** is a separate booklet providing individual, detailed analysis of and reports on the **exam papers** for the period 2005–2008.

### **Title: 2008 Maintaining Standards Report (Accounting, Business Studies, Economics, History) Overview, 2009.**

#### **Purpose:**

To provide information on the comparability of the old Senior Certificate (SC) (NATED 550) Higher Grade (HG) and Standard Grade (SG) curricula with the new National Curriculum Statement (NCS) curricula, and the comparative difficulty of the exams for **History, Accounting, Business Studies and Economics**, and to make recommendations for strengthening the curricula and examinations in the four subjects.

#### **Key aspects investigated:**

- the comparability of the NATED 550 **curricula** with the NCS for History, Accounting,



Business Studies and Economics in terms of levels of knowledge and required skills.

- the comparability of the standard of the new NSC **examinations** with their HG and SG counterparts in the previous SC. Evaluation teams were also asked to consider the range of examinations to assess their relative standards, and to make an overall assessment of the level of difficulty of the NSC examinations. This comparison was intended to lead to a conclusion on whether the new NSC examinations allowed for discrimination between high achievers who would have attained an A-grade on the old Higher Grade, and those lower achievers who would have passed on the old Standard Grade.

### **Methodology:**

Evaluation teams were selected to deal with each of the four subjects, based on their knowledge and experience of the subject area and the education system. Each team produced a single report in which it reached consensus. A similar evaluation instrument to the one used in 2008 was used in the 2009 study, with a few refinements based on the experience gained. In the analysis of the curriculum, teams used the NATED 550 syllabus documents and Examination Setting Guidelines for HG (the more cognitively challenging strand) and SG (the less challenging alternative), and the NCS Subject Assessment, Learning Programme, and Examination Guidelines for Grades 10 – 12. In the analysis of exam papers, teams used the NATED 550 system, 2005 - 2007 examination papers and marking memoranda, and the final 2008 and 2009 exam paper analyses and NSC exam papers and memoranda issued by the Department of Education.

### **Findings:**

With regard to **curricula**

- in terms of the breadth and level of difficulty of the content and skills, the NCS was more similar to the NATED 550 HG curriculum than to that for SG. In all the subjects investigated, the NCS had a stronger conceptual basis, but this was undercut by the rather ambitious breadth of the curriculum which could lead to superficial rote learning. It would be very difficult to fit the entire curriculum into the timeframes suggested in the NCS documents. The recommended pacing was unrealistic in the light of the breadth of these curricula.
- a learner-centred and activity-based approach was not easy to implement in the South African context of under-resourced schools. OBE relies for its success on resourceful and well-trained teachers, which many South African teachers are not.
- teachers experienced difficulties in referring to several different documents at once in order to plan their teaching.

With regard to **examinations:**

- the overall standard of the NSC final papers (both 2008 and 2009) for Economics and Business Studies was significantly higher than both the HG and SG papers from the previous years. The 2009 History paper was on the whole a less demanding examination. The general standard of the new NSC Accounting examination lay somewhere between that of the previous HG and SG papers.
- the standard of the new NCS qualification needed to establish itself more firmly. There were imbalances in levels of difficulty between the 2008 and 2009 NSC examination papers. Variation in standards across the different subjects and between successive years within subjects confirmed that the levels of demand in subjects was not consistent. Examiners and moderators were grappling with setting the intended standards for the NSC examinations and this meant that teachers and learners did not know what to expect. The consequence was huge variations in results from one year to the next.
- there was no 'neatly comparable' differentiation between the A-grades in the 2009 NSC papers. The difficulty in achieving a stable standard in examinations was exacerbated by the challenge posed by the fact that in the NSC, single papers are expected to

discriminate between learners, whereas the two levels of the NATED 550 examinations allowed for a clearer distinction.

- the language level in the 2009 NSC examinations could have disadvantaged second language learners unduly. This was not necessarily a fault of the examination, but was a result rather of the technical nature of the language of the discipline itself, or the testing reading and writing demands of a particular discipline.

#### **Recommendations and/or issues arising:**

With regard to **curricula:**

- a judicious pruning of the NCS subject curricula would possibly increase the depth of learning that could occur in the time available.
- since teachers had not necessarily mastered the skills inherent in the various disciplines, a more subject-specific list of skills in the NCS would contribute somewhat to ensuring that learners acquired the necessary discipline-related conceptual and procedural skills.
- the most critical information in the NCS documents should be highlighted for teachers through a more simplified presentation and alternative modes of mediating supporting guidance.

With regard to **examinations:**

- greater clarity on the standard of the new NSC examinations across the different subjects was required to ensure that the NSC qualification as a whole had coherence and reliability.
- in order to achieve greater consistency in the standard of examinations, the Umalusi exam paper evaluation tool could be used in the moderation of future exam papers.
- examiners and moderators needed a better understanding of how to use a single examination to discriminate between learners.

#### ***Title: Evaluating the South African National Senior Certificate in relation to selected international qualifications: A self-referencing exercise to determine the standing of the NSC. Research undertaken jointly by Umalusi and Higher Education South Africa (HESA). Overview report, 2010***

##### **Purpose:**

To benchmark the National Senior Certificate (NSC) qualification, its curricula and exams in five subjects, **English First Additional Language, Mathematics, Physical Sciences, Biology/ Life Sciences, and Geography**, against the International Baccalaureate (IB) qualification at both Standard Level (SL) and Higher Level (HL), and against the following qualifications offered by Cambridge International Examinations (CIE): the International General Certificate of Secondary Education (IGCSE) (Cambridge O-Level); the AS (Advanced Subsidiary) Level; and the A (Advanced) Level, to establish whether these qualifications could be recognised as fully or partially comparable to the NSC.

##### **Key aspects investigated:**

- details of the NSC and the equivalent level curricula and examinations of the various CIE and those of the IB, as well as the Namibian National Senior Secondary Certificate (NSSC) qualification as an example of the Cambridge qualification contextualised within the Southern African environment. An –‘ex post facto’ check was conducted on the NSSC OL (Ordinary Level, equivalent to IGCSE/O Level) and NSSC HL (Higher Level, equivalent to Advanced Subsidiary Level).
- whether the above international qualifications could be recognised as fully or partially comparable to the NSC.



**Methodology:**

Evaluation teams comprising four members were selected for each of the five subjects. The subject teams described the structure of each qualification and evaluated whether the curricula of the international qualifications were comparable to the NSC. They mapped the international qualifications in relation to the NSC in terms of curricula and assessment, so that HESA could determine appropriate minimum admission requirements to SA's higher educational institutions for candidates with these international educational qualifications. The description of the structure of each qualification included: background information, an indication of the duration of the qualification, its target group, the number of subjects included in the qualification, and the rules of combination determining the qualification. The instrument used to evaluate the qualifications required evaluators to compare and report on a number of significant curriculum elements. This instrument has a long developmental history in Umalusi's research, but had to be adapted to cope with the study's comparability questions. The number of teaching hours, the nature of the assessment, the rating scales used for assessment, the pass requirements for certification, and the current HESA admission requirements were also taken into consideration in the equivalence-setting analysis.

**Findings:**

- The CIE Advanced Subsidiary (AS) and IB Standard Level (SL) courses were considered comparable to the NSC.
- In the case of most elements in terms of which the curricula were assessed, the NSC curriculum fitted comparatively well within the range of the selected curricula. The common finding was that its content and level were most similar to the CIE AS Level and IB SL, and in some instances, such as English FAL, it was more similar to the CIE A Level. In general, there was a high degree of overlap in the NSC curriculum when compared with the CIE and IB curricula in terms of topics covered (breadth of content). All five of the evaluation teams found that most of the topics covered in the IB and CIE curricula were covered in the core topics of the NSC curriculum.
- Overall, the IB HL and full A-Level courses were the most demanding, if examination difficulty and depth of curriculum content were taken into account, thus the educational level attained was likely to be higher than that of the NSC. While both these qualifications were acceptable for higher education admissions, when comparable admission points tables were determined, higher points would have to be awarded for achievement in A-Level and IB HL courses.
- The International General Certificate of Secondary Education (IGCSE) (Cambridge O-Level qualifications) was not considered comparable to the NSC. It was thus not appropriate to set equal education entrance criteria for the IGSCSE qualification as the education level attained was not equivalent to that of the NSC.

**Recommendations and/or issues arising:**

The investigation into the structure of each qualification revealed that a comparison of qualifications should not be regarded as a straightforward process, since qualifications differ in terms of duration, the number of subjects required and the additional demands which may be made on candidates in terms of how the qualifications are defined.

Individual **subject reports** were compiled for Geography, Life Sciences (Biology), Physical Science (Physics and Chemistry), Mathematics and English First Additional Language.

## 4.2.2 Sub-strand 2.2: FET college subjects at Senior Certificate Level

### **Title: Apples and Oranges: A comparison of school and college subjects, 2006**

#### **Purpose:**

To compare the standards of three college and school subjects, **Science, Mathematics, and English (Home and Additional Language)**, and subjects within the learning area of **Hospitality**, at Senior Certificate (SC) Level, and to determine whether courses in the four subjects offered at FET (technical) colleges were equivalent to school subjects at the same level, and whether the college courses prepared learners for higher education (degree study, although preparation for other programmes was also considered where pertinent).

#### **Key aspects investigated:**

- a comparison of the syllabuses and 2004 examinations in the four subjects from the SC (school qualification) and the National Senior Certificate (NSC) (college qualifications).
- the relative standard of courses in the four subjects offered at FET (technical) colleges and high schools in SA, and the extent to which these courses prepared learners for higher education.
- what the notion of equivalence (an important policy goal in South Africa) meant in reality.

#### **Methodology:**

The courses selected for the study included: SC Mathematics, Physical Science, English Home Language and Additional Language (HG and SG), and Hotel Keeping and Catering Senior Certificate; N3 and N6 Mathematics; 'Situated' Mathematics Literacy NQF level 4 (Mathematics for Hairdressers); N3 Engineering Science; National Certificate Business English (Home Language and Additional Language); 'Situated' Communications NQF level 4 (including Language for Early Childcare Development and General Business Administration Practitioners); and Catering Theory and Catering Practical N3. Two sets of teams of external experts worked separately, investigating the courses in the four subjects using three categories of comparison: content coverage, key concepts and procedures, and expected outcomes. The first set of teams was composed of practitioner evaluators. The second set of evaluation teams comprised higher education experts. The second set used the analysis of the practitioners as a starting point for the second phase of the research. Each group was given syllabuses, examinations, marking memoranda and a small selection of scripts. Evaluators were given guidelines for evaluating examinations, including weighting in relation to key content areas. The question of whether or not a course prepares learners for higher education in this context provided a useful lens through which to examine the subjects, as it enabled an analysis of the depth and breadth of cognitive challenge in the various courses. The final report was based on a synthesis and analysis of the reports from practitioner and higher education expert evaluators.

#### **Findings:**

- **In Science, Mathematics, and English (Home and Additional Language)** there was clearly no equivalence between the school and college subjects—the college subjects were far less substantial and were tested through examinations which contained few challenging questions. College subjects seemed to be diluted versions of the school subjects and not adequate as preparation for degree study in higher education. However, many of the

school subjects were also found to be lacking in aspects required to prepare learners for degree study. In most cases syllabuses were inadequate in form and content—important areas were dealt with in insufficient depth or entirely omitted, and content areas were not integrated appropriately.

- Literature should be included in all **English** syllabuses, or sufficiently lengthy texts to develop sustained reading should be included in English courses.
- Umalusi's decision to quality assure and issue certificates to courses with external examinations only was vindicated by this research. The evaluators were able to form some understanding of the enacted curriculum only in those subjects for which they had summative examination papers—in other words, all except the NQF level 4 subjects.
- Using only outcome statements as an expression of desired standards for a course proved problematic, and not a viable approach to curriculum design if any degree of standardisation or equivalence was regarded as important.
- The categories, criteria and evaluative scales developed in this research and in the 2004 Investigation into the SC Examination provided a solid base from which Umalusi could develop tools for the evaluation of syllabuses and examinations. The scale developed by the Science evaluators in this study was considered particularly useful as a basis for a scale which could be used across subjects.

#### **Recommendations and/or issues arising:**

Attention should be given to

- curriculum development in SA and developing the most appropriate approach to the presentation of syllabuses, in particular easy to use syllabuses which clearly indicated to teachers the key knowledge areas to be covered and the levels of cognitive challenge to be assessed.
- the development of an appropriate English Additional Language syllabus which allowed learners to learn their other subjects through the medium of English; and deciding on the appropriate differences between English courses.
- the ability of examiners and moderators to set questions which discriminated properly between different levels; predictability of examinations and possible problems with the standard of marking.
- the extent to which college subjects gave access to higher education, and how to understand and measure preparation for higher education; the extent to which vocational qualifications facilitated preparation for the workplace, and the extent to which college courses provided the theoretical knowledge required for practical application in industry at the intended levels.
- testing the viability of Umalusi's use of *Revised Bloom's Taxonomy* (Anderson and Krathwohl 2001) as the basis for a single tool that could be utilised across subject areas through research.

#### **Title: The 'F' in NC(V): Benchmarking common subjects in the NSC and the NC(V), 2010**

##### **Purpose:**

To compare the National Certificate (Vocational), the NC(V), with the National Senior Certificate (NSC) and compare four subjects in NC(V) Level 4, **English First Additional Language (EFAL), Mathematics, Physical Science and Mathematical Literacy**, with these subjects in the NSC.

### Key aspects investigated:

- In what respects the two qualifications were similar;
- How they differed (was one more vocationally oriented – at least in terms of its fundamental component – while the other provided a more academic approach to learning?);
- How the NC(V) Levels 2 and 3 corresponded to Grades 10 and 11 to allow for the possibility of exemptions at these levels;
- Whether there was sufficient overlap in terms of the curricula and shared standards to allow for subject exemption between the qualifications for certification purposes;
- Whether the NC(V) qualification was correctly placed on the NQF levels, since there were perceptions to the contrary.

### Methodology:

The focus was on understanding the similarities and differences between the respective curricula and examinations in the four subjects in both qualifications. In-depth interviews were held with NC(V) lecturers of the four subjects to learn more about the practical NC(V) teaching-learning situation. Evaluation teams were selected for each of the four subjects. Teams used the same instruments and methodology as had been used in the *Maintaining Standards* study of the NSC subjects. One instrument facilitated the comparison of four NC(V) subject curricula with their NSC equivalents. The second evaluation tool was used to analyse the levels of cognitive demand of the NC(V) Level 4 examinations in the four subjects. Previous findings from an analysis of NSC Grade 12 examinations were used to make provisional judgements regarding the level of difficulty of the 2009 NC(V) examination. The NSC was used as a benchmark against which to assess the NC(V) because the NSC was the qualification which, through research, Umalusi had come to understand well, at least in terms of its intended and examined curricula. However, this benchmarking was not intended to suggest that the NSC was somehow the superior qualification. Rather, the idea was that the findings would assist in making decisions that would strengthen the curricula, the quality of exams and the standing of both qualifications. A formal comparison between the two exams could not be made because the NC(V) Level 4 exam had had no precedent.

### Findings:

- The comparison of the NC(V) and the NSC qualifications was not a straightforward process, since the qualifications differed in terms of duration, the number of subjects candidates were expected to study, and the additional demands made on learners by how the qualifications were defined. None of the evaluations found that the exit points at the three levels of the NC(V) were equivalent to the three grades of the NSC.
- The **Mathematics** evaluation team found that the NC(V) at Levels 2, 3 and 4 covered more higher level content than the NSC curricula for Grades 10, 11 and 12. On paper, it appeared that learners with NC(V) Mathematics at Levels 2, 3 or 4 could be viewed as equivalent to, or more advanced than, learners qualifying with NCS Grades 10, 11 or 12 respectively. However, the evaluation team found the volume of content in the NC(V) curriculum at each level unrealistically high. The team was concerned that this volume would result in the curriculum being taught on a superficial level.
- The **Mathematical Literacy** team found that there was a considerable difference between the NC(V) and NSC curricula in terms of breadth. Taken as a whole, the specified NC(V) curriculum did not correspond to the specified NSC curriculum in terms of breadth and depth. It could therefore not be guaranteed that learners who had completed Levels 2 to 4 of the NC(V) had covered similar content to those who had completed Grades 10 to 12 of the NSC.
- The **Physical Science** team found that, in terms of breadth of content coverage, the

NC(V) and NSC curricula were very similar.

- The **English First Additional Language** team found it extremely difficult to compare the exit levels of the two curricula and to come to a conclusion about the comparability of the NSC and NC(V) in terms of breadth of content and skills.
- The teams for **Mathematics, Physical Science and English FAL** found that the NC(V) curricula were overburdened with content.
- In some of the NC(V) subjects – **English FAL and Mathematical Literacy** were cases in point – attending to internal consistency in the curriculum was a high priority.
- The NC (V) subject curricula had only been given a superficial vocational bias. In the case of the **Physical Science** curriculum, such vocational application as there was served only to add to the extent of the curriculum. However, this factor made the possibility of a relatively straightforward comparison between the two subject curricula a possibility.
- In general, in an attempt to improve the status of vocational learning, the NC(V) curriculum developers erred on the side of making subjects too academic in terms of content, without paying sufficient attention to how this knowledge might be usefully applied. The analysis of the examination papers also indicated they did not have a clear vocational slant to them, and where this had been attempted, the resulting question often felt forced and inauthentic.
- Nothing specific in the research suggested that there was a mismatch between the qualification and the NQF Level at which it was pegged. Some of the exam findings suggested that, in terms of cognitive demand and level of difficulty, the subjects were not being examined at a level that was comparable to the NSC. This finding suggested that the qualification had not been placed at too low a level on the NQF.
- The study helped to establish a baseline understanding of the level of difficulty and cognitive demand of the very first set of NC(V) Level 4 examinations in these four subjects. This meant that both the NSC and NC(V) exams could be monitored and compared as the two qualifications 'bedded down'.
- The research also helped to establish the comparability of the NC(V) curriculum at Levels 2, 3 and 4 with the NSC curriculum across the three final years of schooling; how progression was taking place across NC(V) Levels 2, 3 and 4; and the ways in which the NC(V) adhered to vocational demands as a qualification.

#### **Recommendations and/or issues arising:**

- In order to facilitate comparability of the curricula of various qualifications, it was desirable to encourage the use of a common template which included the critical information required by curriculum description, but which nevertheless allowed developers to exceed these critical minima if they so chose. Umalusi's curriculum and examination evaluation instruments could provide the draft for such a template.
- The NC(V) curricula should be evaluated in terms of both what was included and what was excluded, as well as in terms of how this knowledge could best be taught to and learned by a group who would have left formal schooling in favour of alternative forms of learning.
- Compared to the NSC curricula, the NC(V) curricula were not particularly well constructed. Revision of the NC(V) curricula would do well to encourage a standardising formulation for its subjects. Single, unified, user-friendly documents should also be adopted by the NC(V).
- The 2009 NC(V) **Mathematics and Mathematical Literacy** examination papers did not prove to be a good model for future use. The recommendations made in the report should be reflected in amended examination guidelines as well as in the 2010 papers.
- The difference in the required pass mark between comparable subjects in the NC(V) and NSC curricula ought to be addressed lest this discouraged learners from taking vocational courses.

- The achievement ratings for the NSC and NC(V) qualifications had been pegged at different levels in the policy, which in turn had influenced the admission requirements for universities determined by higher education. At some level at least, the expectations of performance were higher for NC(V) learners. In due course, similar expectations should be instituted for the NSC, even if these new levels of performance were phased in gradually over the next five years.
- The information provided and conclusions made in this report should be subject to repeated scrutiny while both qualifications stabilised.

## **4.3 Strand 3: Adult Education and Training, NQF levels 1-4**

### **4.3.1 Sub-Strand 3.1: Occupational Qualifications**

**Title: The 'f' word: The quality of the 'fundamental' components of qualifications in general and further education and training, 2007.**

**Purpose:**

To determine the standard of English and mathematics courses offered by different providers and certified by different quality assurance bodies as part of the requirements for compulsory 'fundamentals' in all qualifications from levels 1 to 4 of the National Qualifications Framework (NQF) for adults (courses designed against unit standards registered on the NQF).

**Key aspects investigated:**

The standard of all the courses that had been developed and were being offered against fundamental unit standards in English and Mathematics; whether Umalusi should have been assuring the quality of any of these courses; and whether Umalusi was correct in insisting on an examination as a key quality assurance mechanism.

**Methodology:**

Umalusi obtained the names and contact details of 74 of the three main types of providers claiming to offer mathematics and/or language courses at NQF levels 1 to 4. Providers included large multi-purpose providers (such as the private FET providers), specialist language or mathematics providers which focused on the provision of Mathematics and/or Communication, and providers which specialised in occupational or industrial training, but offered courses in Communication and Mathematics. Only 35 providers sent in submissions. Of these, only 29 submitted actual courses or materials. A first level analysis comprising an overview of a provider's submission was conducted, but a planned second level analysis was not possible because many of the courses were not in a form that made expert evaluation viable. Nevertheless, it was felt that the first level analysis provided sufficient evidence to answer the research questions.

**Findings:**

Findings pointed to problems with unit standards, and with the idea of learning programme approval against learning outcomes, as well as decentralised assessment against learning outcomes. Unit standards had not proved an appropriate vehicle to ensure a commensurate standard, and caused difficulties and complications for both providers and quality assurance bodies. Many providers felt that the different and sometimes conflicting requirements of the various quality assurance bodies had caused them extreme difficulty. Programme approval was not a viable quality assurance mechanism within general and further education and training. A decentralised assessment model was problematic with regard to efficiency, accountability, and comparability of standards across providers and quality assurance bodies. In short, there appeared to be great variation in the standards of mathematics and English courses that were offered by different providers and certified by different quality assurance bodies, as part of the requirements for compulsory 'fundamentals' in all qualifications from Levels 1 to 4 of the NQF. It was not possible within this system to make meaningful judgements about courses and standards.



**Recommendations and/or issues arising:**

The research suggested that if Mathematics and languages were to be compulsory, there should be compulsory curricula and assessments, and not just learning outcomes. A limited set of compulsory courses in these subjects could be made available, from which qualification designers could choose. Such courses should have a prescribed curriculum framework, and at least 50% of the summative assessment should be conducted externally by an accredited assessment body. Research and policy decisions were also required with regard to questions of how much and what kind of mathematics and language courses should be compulsory at which levels, home language versus language of teaching, as well as what should be regarded as 'fundamental' in general and further education and training (e.g. should Life Orientation be regarded as 'fundamental' in occupational qualifications?) and how the need for standardisation, portability and transferability could be balanced with the need for fit-for-purpose courses.

**4.3.2 Sub-strand 3.2: Adult Basic Education and Training (ABET)**

**Title: *Inspecting the Foundations: Towards an understanding of the intended and examined curricula for the General Education and Training Certificate for Adults, 2008***

**Purpose:**

To review the qualifications and the curricula which underpin the General Education and Training Certificates (GETC): Adult Basic Education and Training (ABET) at NQF Level 1/ABET Level 4 as delivered and assessed by major assessment bodies.

**Key aspects investigated:**

Initially the intention was to investigate how the curricula available to adult South African educators and their learners in the GET band were constituted, and then to investigate the standards of the curricula and examinations in particular learning areas. But, because of the multiplicity of curricula in use by ABET at the time, the report focused on the nature of the ABET qualifications, how ABET curricula were constituted in general, and on describing the system of which these curricula were a part. It also investigated the challenges which beset the policy situation in the national and provincial systems, and ways of strengthening and streamlining the system.

**Methodology:**

The methodology for the research entailed gaining access to as many of the curriculum documents which underpin the teaching, learning, and assessment of the GETC: ABET as possible. In order to map and understand the different types of curricula available, documents were sought for two **other** categories of ABET qualification besides the national GETC which results in an exit-level certificate at NQF Level 1, issued by Umalusi. These were:

1. Industry-related ABET qualifications obtained via private providers under the authority of Setas or the IEB. These qualifications prepared learners for specific occupations or a relatively small range of occupations, and were variously referred to as certificates, basic certificates, or GETCs (SAQA 2007). Skills programmes and/or short employer-specific courses that fast-tracked learners to particular learnerships were included in this category.

2. Enrichment courses which did not feed directly into specific occupations or FET, but which nevertheless had the potential to make learners more economically productive in entrepreneurial ventures, or to play active roles in their communities. Included in this category were short private provider developed courses designed specifically to fast-track learners to the FET level.

Thus, although the main focus was on the national qualifications, the report also contains findings related to the Seta qualifications system and processes.

### **Findings:**

The study found a multiplicity of ABET curriculum documents; an expressed difficulty in creating learning programmes from unit standards; and a need for comparable and appropriate curricula across provinces and within industry sectors. It was difficult to reach consensus regarding the ABET documents (for example, documentation on the interpretation of unit standards and the development of learning programmes) in use within and across provincial departments and their respective PALCs (Public Adult Learning Centres). Because of the disorganised state of the intended curricula, a detailed evaluation of the standards of the examinations was not thought useful at this stage. Although central examinations were preferable to a situation where every provider developed its own assessment policy, a danger was that the examination could become the *de facto* curriculum. 'Teaching off' an examination could become very narrow and educators had none of the support that they would have from good syllabus documents. The study's description of how Umalusi quality assured the national examinations provided insight into the processes necessary to undertake large-scale national assessments to create a single, reliable standard across the country.

### **Recommendations and/or issues arising:**

A well-functioning adult learning sector in education required:

- a coherent national and provincial education system that supported a unified and consistent approach to Adult Education and Training (AET)/adult learning.
- single, nationally developed and dated curriculum documents for all learning areas and electives (created by the National DoE in collaboration with provinces, subject experts, and representatives of business, labour and civil society) which provided proper guidance on content and levels of achievement, and which were made readily available. Umalusi's guidelines for curriculum evaluation could provide a sound framework for curriculum development.
- adult qualifications and curricula that could provide a pathway that began with learning to read and write and ended with being able to achieve a matric – or beyond. While it was important for the NQF Levels 1 and 4 curricula for adults to be determined, ABET Levels 1–3 and NQF Levels 1 and 2 required curriculum input as well.
- standardised and centralised assessment, especially if certification was to have specific and nationally recognised meaning. In the case of the GETC, quality assurance of assessment required national curricula, where the DoE or the IEB would be responsible for assessment, and centralised training plans in the case of industry-related qualifications, where the newly formed Quality Council for Trades and Occupations (QCTO), responsible for occupational qualifications delivered primarily in the workplace, would be responsible for assessment.

## 4.4 Strand 4: General Education and Training band

### 4.4.1 Sub-strand 4.1: Foundation Phase

**Title: Comparing the Learning Bases. An evaluation of the Foundation Phase curricula in South Africa, Canada (British Columbia), Singapore and Kenya, 2010.**

#### **Purpose:**

To compare the SA Foundation Phase (FP) curriculum (Grades 1 to 3) for **English as a Home Language (HL) and as a First Additional Language (FAL), Mathematics (Numeracy), and Life Orientation** with international curricula for the same grades in countries with systems that appeared to be working well (as measured in student performance in international comparative studies), namely, Canada (British Columbia), Singapore and Kenya, in order to learn lessons for South African curriculum development processes.

#### **Key aspects investigated:**

- the broad social and educational context of each country under study.
- the standards of the English, Mathematics and Life Orientation curricula offered to South African learners in Grades 1 to 3 of the GET band relative to equivalent curricula in Singapore, Canada, and Kenya.

#### **Methodology:**

The countries were selected for comparison on the basis of their high performance in TIMSS, PIRLS and SAQMEC and because their curriculum documents were available in the English language. Both Singapore and Canada were among the top-ten achieving countries in PIRLS (2006) and TIMSS (2003). Kenya was among the five top-achieving countries in SACMEQ (2005). The analysis was based on a comprehensive collection of curriculum documents at the Grades 1 to 3 level of the schooling system from each of these countries. English was chosen as the language for consideration because it becomes the language of learning and teaching in later years for many South African learners. Teams of four researchers dealt with each subject separately. The theoretical framework underpinning the analysis of the curricula drew on that of Bernstein (1990), as well as previous Umalusi research into curriculum standards. Dimensions of each curriculum considered included: the aims, the organising principles, the content and skills coverage and depth, the time allocation, sequencing, pacing, progression, teaching approach, assessment, integration, and ease of use of the curriculum documents. The report combined the three subject reports, analysing trends across the curricula of the four countries in 2009 in terms of similarities, differences and strengths and weaknesses.

#### **Findings:**

- Discrepancies between the social indicators showed that SA and Kenya, and Canada and Singapore, as two sets of countries, varied significantly in, for example, their pupil:teacher ratio; literacy rates, and survival rates to Grade 5.
- The actual content of the South African curriculum did not differ radically from that of other countries. The differences lay in the way in which this knowledge was packaged in the curriculum, its specification, and the underlying principles for its transmission. The design of the curricula of the four countries was very different. There was variation in terms of the subject offerings. Kenya and Singapore represented more traditional, subject-based curricula, with no emphasis on integration. Both British Columbia and SA stressed integration, and both employed an outcomes-based framework, but in very different ways. The South African curriculum emphasised skills and generic learning skills, the British

Columbian curriculum specified skills but provided detailed content specifications through concept overview maps, assessment indicators and performance standards. Their curriculum was the most complex in terms of design and the most comprehensive in terms of offering guidance and specification to teachers. The Kenyan curriculum provided the least specification and guidance, although its focus on content made knowledge specification more detailed than in that of SA.

- A number of problems with the NCS were identified. There was a lack of sufficient specification of knowledge, and inadequate indication of progression across grades in terms of the knowledge and cognitive requirements of learners in the NCS. The curriculum had greater breadth but less depth than those of the other countries and its assessment procedures focused on generic and bureaucratic aspects of assessment, rather than on a subject specific explanation of what to assess and suggestions on how assessment should be applied in a particular subject. The emphasis on integration, especially in Life Orientation, was inadequately modelled and required a great deal of knowledge and effort on the part of teachers. There was a proliferation of documentation accompanying the curriculum, resulting in lengthy and inconsistent accounts of what teachers were supposed to teach and how they were supposed to teach it. The curriculum lacked a sufficiently coherent and systematic theory of curriculum design related to a suggested pedagogical approach or set of pedagogical principles that were likely to be recognised and understood by teachers within their particular social and historical context. The NCS did not represent a curriculum appropriate for the average South African teacher.

#### **Recommendations and/or issues arising:**

- The content, skills, and concepts to be acquired needed greater specification in the South African curriculum, and greater depth should be sought. Specification in the British Columbian and Singaporean curricula offered good examples of high specification. Kenya's simple format was also exemplary. The Singapore English curriculum, with its spiral design and emphasis on recursion, provided an excellent example of how strong vertical (within-subject) integration could be achieved.
- South African curriculum documents were not easy to use and teachers required overviews depicting progression within and between grades and phases.
- **English HL** should be distinguished from **English FAL**. Much could be learnt from the Singaporean English curriculum, which took an explicitly text-based approach, integrating skills and knowledge and providing a strong, well-sequenced and well-paced programme for the development of vocabulary, grammar and text types. A team of experts should be appointed to review the way in which text types/genres were listed in the current curriculum and to ensure good coverage of information texts.
- Further research, and possibly a national survey, of language(s) used as the medium of instruction in the FP and the teaching of English as FAL would be useful .
- The South African assessment guidelines ought to be rewritten with practical illustrations and examples of student productions. The British Columbian Performance Standards and the assessment guidelines provided in the South African *Foundations for Learning* documents provided good models. Clear guidance was needed with regard to early intervention for struggling readers/writers.
- The pedagogical approach in the Kenyan curriculum provided a model for approaches that are familiar and understandable to teachers and that offer a better chance of accurate interpretation by teachers. The integration between school and everyday knowledge in the South African curriculum should be revisited. What existed now was confusion between curriculum and pedagogy, and inadequate knowledge stipulations to guide teachers in their practice.

## **Title: Comparing the Learning Bases. A comparative evaluation of African Languages Foundation Phase curricula in South Africa, Botswana, Lesotho, Swaziland and Zimbabwe, 2010 (Final draft)**

### **Purpose:**

To compare the South African Foundation Phase **African Languages** curriculum (Grades 1 to 3) for an Nguni and a Sotho language, **isiZulu and Setswana**, with the languages curricula for the same grades in Botswana, Lesotho, Swaziland and Zimbabwe.

### **Key aspects investigated:**

- the broad social and educational context of each country;
- the standard of curricula offered to South African learners in Grades 1-3 of GET for African Languages compared to equivalent curricula in other countries;
- the extent to which curriculum documents provide guidance for the teaching and assessment of the curriculum.

### **Methodology:**

The two African languages selected for the investigation were isiZulu and Setswana. isiZulu represented the Nguni language family, while the Sotho languages were represented by Setswana. The four African countries were selected on the basis of their use of the same or a similar language as these. All five countries belonged to the Southern Africa Consortium for Monitoring Educational Quality (SACMEQ), a consortium of fifteen ministries of education. However, the five countries differed considerably in their average reading performance levels on SACMEQ II, with South Africa outperforming only Lesotho in average reading performance levels. Teams of four researchers conducted an analysis of each country's curriculum documents relevant to the FP or lower primary (Grades 1 to 3/4). The theoretical framework underpinning this drew on that of Bernstein (1990), as well as on previous Umalusi research into curriculum standards. Each subject curriculum was dealt with separately in terms of the aims, the organising principles, the content and skills coverage and depth, the time allocation, sequencing, pacing, progression, teaching approach, assessment, integration and ease of use of curriculum documents. This report combines three subject reports, and analyses trends across the curricula of the four countries in terms of similarities, differences, and strengths and weaknesses.

### **Findings:**

- Indications were that both isiZulu and Setswana documents had been directly translated from the English HL curriculum, and had glaring mistakes. This 'translation' forced teachers to use English HL documents alongside the African language documents.
- The South African curricula attempted to cover much more than the curricula of the other countries. The aims of the Setswana and isiZulu curricula were broad and not specific to the learning of the languages at home language level. In general, the NCS for Setswana and isiZulu was found to be under-specified in terms of content to be taught, and in terms of progression, assessment and pacing. Recommended, but not prescribed texts were listed and the storybooks and some recommended texts were available only in English. In addition, 15% of daily reading and writing time in mother-tongue teaching was to be used for teaching an additional language.
- The NCS did not represent a curriculum that the average South African teacher would be able to use easily. Multiple documents made it difficult for teachers to navigate the curriculum, and it provided little guidance on how to implement outcomes-based pedagogical approaches.

**Recommendations and/or issues arising:**

It was imperative that curriculum revision which did not compromise the depth required to establish essential language skills to be mastered in the FP be undertaken. Such revision should create a curriculum that resonated with teachers' actual training and practice, a curriculum they could understand and relate to, which at the same time protected the imperative that learners be exposed to internationally recognised content in a way that was best for their development.

**Title: *Learning to teach the National Curriculum Statement in schools: a desk review of teacher education in the Foundation Phase in South Africa, 2009*****Purpose:**

To provide an informed position regarding the extent, nature and quality of teacher education with specific reference to the Foundation Phase in order to gather supplementary information to report on evaluations of the NCS for the Foundation Phase.

**Key aspects investigated:**

Background to the training of teachers in implementation of the NCS; location of teacher training within new university structures; available pre-service and in-service programmes; 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 indications of uptake by teachers and prospective teachers.

**Methodology:**

The study entailed a desk review of currently available research into Foundation Phase teacher education. The central question guiding the desk review was: 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? On the basis of research using very incomplete data, the report extracted a number of points that provide an indication of what is known about Foundation Phase teacher education at this point.

**Findings:**

There was a paucity of research on FP teacher education. Little had been published or subjected to rigorous peer-review processes. The capacity within the university sector to provide FP teacher education was limited, especially for speakers of African languages. Students were concentrated at the FET level. Only 7% of students in 2006 were speakers of African languages being trained for FP teaching. College incorporation was one of the factors that appeared to have affected the supply of FP teachers. The quality of provision of both pre-service and in-service teacher education was generally unknown. Institutions instructing teachers in SA employed a range of approaches and applied a variety of models, particularly concerning the teaching of the design and delivery of programmes. The links between phases in the design and delivery of programmes were inadequate, especially between the FP and the Intermediate Phase. Teaching practice was beset by problems, and the depth and breadth of the teaching of subject knowledge varied. There was no clear curriculum for teacher education, which meant that student teachers in different institutions were likely to encounter very different content in their courses. The articulation between the national curriculum and



teacher education curricula (based on the Norms and Standards for Educators) required investigation. The extent to which the NCS informed the design of teacher education courses varied, and was in most instances unknown. Constructivism as a theoretical approach to curriculum and pedagogy was preferred in most teacher education institutions but there was a lack of understanding of what this approach entailed, its implications and the criticisms of it as a model for learning. There was a shortage of African language students in FP training, and those who did enrol often chose to be trained through the medium of English. There was also a shortage of materials in African languages and of African home language literacy experts. The teaching of phonics of African languages was particularly problematic.

#### **Recommendations and/or issues arising:**

- Future research should cover methodologies that move beyond a reliance on teacher-educator self-report. Analyses of the content of courses and modules (the intended curriculum), observations of instruction in teacher education institutions (the enacted curriculum) and also the testing of student teachers at exit from programmes (the achieved curriculum) would provide more robust findings on the nature and quality of teacher education provision at this level.
- An investigation into the quality of FP INSET programmes was required in order to ascertain whether these programmes were improving the quality of teacher practice at this level. In particular, the way in which these programmes supported the implementation of the NCS required research.
- The actual content and structure of FP teacher education programmes should be investigated with attention to issues of overload, coherence and articulation with the NCS. The question of the breadth and depth of subject knowledge among FP student teachers in particular should be addressed. The social location of teachers entering teacher education, their academic abilities and the requirements in terms of preparation to teach, should be explored.
- The generative mechanisms between language and achievement required further exploration. In addition, more information was required on all aspects of African home language training for teachers in the FP.
- Research into the structuring of B Ed programmes in relation to subjects, learning areas, and phases was required. Alternative delivery models of Initial Professional Education of Teachers for FP teachers, such as distance provision and learnerships should also be investigated.
- Research on the curriculum for FP student teachers could explore the tension between theory and practice, and between professional and academic learning. Different models of the programmes underlying the curriculum should be examined. Research should focus on deriving the models that work best for children in disadvantaged contexts, working-class children and children in rural schools. It should be established for which schooling contexts student teachers were being trained to teach.
- Research into models of teaching practice and their effectiveness was recommended, given the lack of guidelines for teacher education institutions and the importance of teaching practice.
- Further research on the supply and demand of FP teachers was required, with particular attention to mother-tongue African language FP teachers. Accurate information on the graduate output of B Ed programmes, in terms of phase and subject specialisation and language competence, ought to be available so that the needs of the system could be addressed.



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