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Higher Education Monitor

A Case for Improving Teaching and Learning in South African Higher Education

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Research paper prepared for the Council on Higher Education

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The views expressed in this publication do not necessarily represent the views of the CHE.

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ACKNOWLEDGEMENTS

FOREWORD

This issue of the *Higher Education Monitor* focuses on one of the most difficult and urgent topics which concern higher education institutions, government and the general public: the outcomes of higher education. The research published here was commissioned by the Higher Education Quality Committee (HEQC) of the Council on Higher Education (CHE) in collaboration with the Monitoring and Evaluation Directorate of the CHE in the context of a project aimed at improving the quality of teaching and learning in South African higher education.

The main purpose of this research was to make a case for greater and different forms of support for the teaching and learning core function at public higher education institutions and to point to a number of possible interventions designed to improve the quality of the educational experience afforded to undergraduate students at higher education institutions, and therefore, the quality of higher education graduates.[1]

The study that Scott, Yeld and Hendry have produced takes as its point of departure an analysis of throughput rates, i.e. the calculation of how many students in a given cohort completed their degrees and graduated within the stipulated time, how many dropped out, and how many took longer than the stipulated time to graduate. The authors have gone beyond merely using throughput rates as a tool to mechanically determine the shortfall of graduates in broad fields of study in order to be able to comment on institutional inefficiencies. They have located higher education outputs in the intersection between much broader conceptual issues: access and equity on the one hand and the quality of the educational process on the other. This approach provides an opportunity to reflect on the relationship between access, equity and quality, its theoretical underpinnings, and the practical tensions and challenges faced by different stakeholders in the implementation of strategies to improve teaching and learning.

It can be argued that the constitution of access and equity as 'issues' in South African contemporary political discourse started with the Freedom Charter and that different sectors of the mass democratic movement had over time various interpretations of the definitions, implications, priorities and strategies necessary to guarantee access to and equity in higher education. Whatever the strategic and tactical differences, the political bottom line was that access and equity were a democratic right, which was constitutive of the definition of citizenship (Wolpe 1991). As the first democratic government was voted into office and policy development was followed by policy implementation, the conceptualisation of access and equity became both sharper (access to what by whom) and more statistically defined (Cloete et al, 2002). The fact that in order to respond to access and equity imperatives, higher education institutions depend on public funding (in the form of direct funding of student inputs or financial aid provided to poor students), introduced the concept of efficiency at institutional and systemic level as an important aspect in the access and equity debate.

Research in the area of access and equity has so far indicated that the expansion of the higher education system from 395,700 headcount enrolments in 1990 to 732,000 in 2005 has not necessarily meant a

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[1]   This study focused on the public higher education sector because the DoE has an adequate base of information to construct this kind of analysis. This does not mean that effectiveness and quality of teaching and learning are not issues of concern in relation to private providers of higher education. So far issues of teaching and learning in relation to the private provider sector have been dealt with by the CHE in analyses of the outcomes of programme accreditation processes.

significant increase in the actual participation of African students in higher education (Cloete et al 2002; CHE 2004). An analysis of the distribution of student enrolments by race across major disciplinary fields shows some of the limitations that the expansion of access has had in bringing about greater equity in the South African higher education system. In 1993, 57% of all headcount student enrolments were in the Humanities and Social Sciences (HSS), 24% were in Business and Commerce (BC) and only 19% in Science, Engineering and Technology (SET). By 2005, the distribution of headcount enrolments at system level had almost reached the target set by the National Plan on Higher Education[2] with 42.3% of students enrolled in HSS, 29.1% enrolled in BC and 28.6% in SET (DoE 2006: 30). However, these improved figures disguised the fact that Black and, particularly, African students still constitute the minority of the enrolments in SET and BC, which raises the issue of the equity of opportunity among different race groups. These figures suggest that the South African higher education system has been unable to break substantively with pre-1994 enrolment patterns.

The report of Scott et al indicates not only that the improvement of access to higher education might be less significant than initially thought, but that in terms of throughputs the higher education system as a whole is not doing very well. Of even greater concern is that student performance continues to be racially differentiated. Black students do worse than White students in most disciplinary fields and African students performed worst of all. As the authors indicate, these outcomes undermine the gains made in terms of access and raise a number of issues about the quality of the educational process and the possible reasons for the unsatisfactory results.

The problem of poor student outcomes is a complex and multilayered one which is shaped by issues such as the lack of preparedness of students and staff; the nature and organisation of teaching and learning at higher education institutions; the conceptualisation of the educational process, particularly in terms of the appropriateness of content and assessment methods and its relationship with different institutional cultures; the extent or lack of professionalisation of academic staff; the nature and extent of funding; and the role that system differentiation might have in addressing under-preparedness.

The very complexity of the issues at hand might require redefining the problem and the careful examination of the impact that individual and system level initiatives, policies and frameworks are having on equity and quality. As far as the national quality agency's responsibility goes, the HEQC has already started to investigate the impact that its conceptualisation of quality is having in improving the actual quality of the educational process through the accreditation of programmes and the conduct of institutional audits. Is the focus on teaching and learning in all HEQC's systems sufficiently deep to simultaneously support development and accountability at the different layers of higher education institutions? Could it be that the lack of sufficient participation of academics in the quality assurance system is preventing processes of change to take root at HEIs? What initiatives should be put in place to prevent the more mechanistic aspects of quality assurance from obliterating the investigation of the deeper challenges, problems and limitations faced by institutions in the process of educating a new generation of students?

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2   HSS:40%; SET: 30%; BC:30%.

With regard to the higher education system, as the initial and more operational aspects of mergers come to an end, HEIs are beginning to look into the development of approaches and strategies for teaching and learning which take into account the needs of their students and staff. This could be used as a point of departure to think through their missions and roles within the higher education system in an innovative and bold manner. Those institutions not directly affected by the restructuring have an equally great responsibility in responding to the educational challenges posed by the imperatives of access with success. Many of these institutions face the challenge of looking into both the effectiveness and the conceptual underpinnings of their organisation of teaching and learning, the relationship between teaching and learning and research, and the development of the necessary mechanisms and processes to engage in a critical assessment of the practice of teaching as common sense and academic excellence and the effects this has on the educational processes and its outcomes.

The implementation of the new funding framework with its renewed focus on teaching outputs, the creation of the teaching development grant and the resourcing of foundation programmes constitute new opportunities for the Department of Education to examine the effectiveness of its own steering of the system. What are the most appropriate ways to measure and monitor the impact of these interventions? What type of cooperation from HEIs is required in this regard? These are some examples of the issues government has to grapple with in this regard.

The publication of this study is a first step in initiating a debate between and among different stakeholders at system level. The CHE hopes that this debate would culminate in a national conversation about rethinking teaching and learning in South African higher education.

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ABBREVIATIONS AND ACRONYMS

AD	Academic Development
CESM	Classification of Educational Subject Matter
CHE	Council on Higher Education
DoE	Department of Education
FET	Further Education and Training
HEQC	Higher Education Quality Committee
HEQF	Higher Education Qualifications Framework
HEMIS	Higher Education Management Information System
ITLS	Improving Teaching and Learning for Success
NPHE	National Plan for Higher Education
SET	Science, Engineering and Technology

EXECUTIVE SUMMARY

It has become widely accepted that, in the context of globalisation and the knowledge economy, higher education is vital for national development, not least in terms of the need for an appropriate number and mix of graduates of good quality. The extent to which the graduate output of South Africa's higher education sector is meeting national needs is therefore a key concern, highlighted recently by government's emphasis on economic development and setting of a 6% growth rate target. *Prima facie*, indicators such as shortages of high-level skills and the concurrent incidence of graduate unemployment suggest that there is a significant mismatch between the output of the sector and the needs of the economy. In addition, data produced recently by the Department of Education (DoE), in the form of national cohort studies, show some disturbingly low levels of performance in the sector.

This paper aims to contribute to higher education development by making a case (a) that the improvement of graduate output – in terms of key parameters such as size, shape, equity, efficiency and quality – should be accepted as a central driver of higher education policy, planning and resourcing, and (b) that improving the effectiveness of the educational process in higher education is an essential element of improving graduate output. The basis of the case is the contention that concerted action is needed to change the current patterns of poor performance in the sector, in the interests of meeting national developmental needs.

The paper provides a basic analysis of current student performance patterns, drawing primarily on disaggregation of cohort data produced by the DoE. Notwithstanding significant improvements in access, the analysis shows substantial shortcomings in performance in terms of completion rates, equity of outcomes, and efficiency, all of which are important for meeting national needs.

In the interests of drawing attention to what can be done to improve the output of the sector, some key factors affecting student performance in the South African context are identified. It is recognised that there are a range of such factors, some outside and others within the sector's control. Particular attention is given to considering some indicators of performance and prospects in the school sector, and it is concluded that improvement in schooling should not be relied on in itself as the primary means of achieving substantial improvement in graduate output and equity of outcomes in higher education. The paper then focuses on aspects of the educational process that are within the control of the higher education sector, and argues that making a commitment to improving output, particularly by means of improving the effectiveness of teaching and learning in higher education itself, should be a central element of the sector's contribution to transformation and development.

Based on analysis of the performance patterns as well as institutional experience, the paper argues that systemic responses are essential for improving the educational outcomes of the sector. Strategies that are seen as necessary conditions for improvement include: the reform of core curriculum frameworks; building educational expertise in the sector to enable the development and implementation of teaching approaches that will be effective in catering for student diversity; and clarifying and strengthening accountability for educational outcomes.

Since some key obstacles are embedded in traditional higher education structures and practices, it is recognised that bringing about positive change constitutes a substantial leadership challenge, involving strengthening both accountability and incentives. The paper concludes with an outline of the kind of planning, monitoring and professional development initiatives that it is suggested will be needed to constitute a comprehensive capacity building approach that can address the importance and scale of the challenge.

A CASE FOR IMPROVING TEACHING AND LEARNING IN SOUTH AFRICAN HIGHER EDUCATION

1. INTRODUCTION

It is now widely accepted that, in the contemporary context of the knowledge society and economic globalisation, higher education is vital for development in all its facets. The higher education sector has a range of roles but its traditional, interlinked functions of research and teaching – that is, knowledge creation and high-level human capacity development – continue to represent its key contributions and responsibilities. In the South African context, the inclusiveness of the higher education sector is also a key factor affecting its value to the society. Given the significance attached to higher education, it is important for the performance of the sector, in all its main functions, to be critically assessed. This paper is concerned with the educational role of higher education, and particularly with the capacity of the sector to meet the country's growing need for an appropriate number and mix of graduates of good quality.

Recent issues in South Africa have prompted a renewed focus on higher education and its role in national development. Government's emphasis on economic development, the establishment of clear growth targets and the introduction of ASGISA (the Accelerated and Shared Growth Initiative for South Africa) have highlighted the importance of advanced skills, and shortages of such skills have been identified as one of the major obstacles to development (see for example Jipsa 2006). The role of different education sectors in delivering appropriate education and training has consequently attracted much attention. Policy-making has lately been directed particularly at the reform and expansion of Further Education and Training (FET) but higher education has also come under the spotlight.

The skills issue is complex and contested but, in relation to higher education, it has served to raise important questions about the goals and performance of the sector. For many, these questions need to extend well beyond skills for economic development and encompass wider matters of social and cultural development and inclusiveness.

In the context of the debate on higher education and skills, the possible need and justification for further state investment in the higher education sector has also arisen (DoE 2006a). This has happened in a period when sector-wide, longitudinal data on student success have become available through the Department of Education (DoE) for the first time. Since the data are disturbing, they raise more specific questions about performance in the sector, what kind of investment would be optimal, and what it would take to ensure that higher education can progress towards meeting national needs.

These developments point to the need for detailed analyses of the various key elements of higher education to be undertaken, for the purpose of stimulating a review of priorities and providing a research-informed basis for the further development of the sector in its second

decade since the political transition. Considerable work has been done on knowledge production and policy development, and a major overview study, *South African Higher Education in the First Decade of Democracy,* has been published by the Council on Higher Education (CHE 2004). Valuable studies have also been undertaken on educational topics, including a wide range of qualitative studies as well as quantitative work on, for example, access and enrolment (e.g Cooper and Subotzky 2001; Cloete and Bunting 2000). However, the absence of detailed longitudinal data on student progression has until recently constrained research on the educational performance and output of the sector as whole. This paper is offered as a contribution to analysis of this aspect of the sector.

The study on which this paper is based was commissioned from UCT's Centre for Higher Education Development by the CHE as part of the 'Improving Teaching and Learning for Success' (ITLS) project of the Higher Education Quality Committee (HEQC). The HEQC's Directorate for Quality Promotion and Capacity Development has a mandate to improve teaching and learning through building capacity in the higher education sector, and ITLS is a means to that end. The following extracts from the project agreement outline its purpose:

> The purpose … is to contribute to improving the educational outcomes of South African higher education by building capacity … for effective, high-quality provision and management of the educational process. … 'Effective' here refers to meeting national higher education goals relating to the educational function of higher education, and thus includes effectiveness in addressing equity, efficiency and appropriateness of outcomes as well as quality and standards. … (ITLS) is intended to contribute to the development of an effective and systematic capacity-building approach and plan.

The section of the project covered in this paper entails research on student performance patterns across the higher education sector, and educational strategies designed to improve this performance. At this stage it is focused on undergraduate performance. There are two main aims:

- to make a case for the importance of improving graduate output by increasing the effectiveness of the educational process in higher education, in the interests of national development; the case is based on analysis and interpretation of current student performance patterns in the sector;

- to provide analysis of major factors affecting graduate output, with a view to (a) identifying educational strategies that can substantially improve student progression, and (b) considering the implications for policy development and for capacity building in relation to teaching-and-learning across the sector.

There has long been awareness of unsatisfactory student performance patterns in the higher education sector, particularly in relation to first-year attrition and, in the last two decades, concerns about 'equity of outcomes', as the higher education White Paper termed it (DoE 1997). The awareness has, however, been based largely on institutional experience and data, and the problems and challenges could not be quantified across the sector.

Recently, however, the maturing of the Higher Education Management Information System (HEMIS) has made it possible for the DoE to compile longitudinal data on the progression of all students and to produce broad undergraduate cohort studies, starting with the 2000 first-time-entering intake. The availability of these data has created the opportunity for more in-depth analysis of sector-wide performance patterns, disaggregated by categories such as race, qualification type and subject. It is analysis of this kind that has been undertaken in the ITLS project.

As implied in the two aims specified above, the purpose of this paper is developmental. The limitations of quantitative analysis are fully acknowledged but it is intended, and hoped, that the data analysis and interpretation presented here will provide a useful basis for considering policy development, resource allocation and further research, particularly the kind of qualitative research that is at the heart of understanding and improving the teaching-and-learning process.

The body of the paper comprises the following main sections:

- What should the higher education sector be aiming to achieve?
- What is the higher education sector achieving? Key patterns in graduate output
- Improving graduate output as a national priority
- Indicators of the need for systemic change
- Where does responsibility for improvement lie? Key factors affecting student performance in higher education
- Educational strategies for improving graduate output
- Approaches to building educational capacity in the higher education sector

A note on terminology
- The 'race' or 'population group' categories used here are those used by Statistics SA with the term 'black' referring to 'African Black'.
- Various terms are used generically for the sake of brevity. For example, 'undergraduate' refers to national diplomas as well as all first degrees. Notes on this are included where appropriate in the text.
- In keeping with usage in other education sectors, the term 'professional development' is used here to mean developing the capacity of academic staff as professional educators.

2. WHAT SHOULD THE HIGHER EDUCATION SECTOR BE AIMING TO ACHIEVE?

Assessment of the effectiveness of the higher education sector depends on what it should be expected to achieve. This section does not attempt any detailed discussion of the topic but rather offers some brief observations on the question of what South Africa (most) needs from higher education.

2.1 THE SIGNIFICANCE OF GRADUATE OUTPUT

Internationally, the importance of higher education is well established, being 'founded on recognising that countries which have managed to sustain high levels of economic growth with significant improvements in the living standards of the masses of their populations are those which have given priority to excellent education and training, and to higher education and training in particular as an agent of socio-economic change and development' (CHE 2004: 14). There are also strong arguments that higher education has particular significance in developing countries because of their acute need for high-level capabilities, to address their often extensive social problems and, in the context of economic globalisation, to establish a productive niche or at least avoid falling steadily behind the developed world in international competitiveness. A number of writers have considered the significance of higher education in South Africa as both a public and a private good with key implications for development and equity (for brief overviews see, for example, CHE 2004:14-20; Moleke 2005).

The value of all the main functions of higher education is fully acknowledged, particularly the production of research, which is vital for the country's competitiveness. However, we seek to make a case in this paper for recognition that there is a special need and obligation for the higher education sector to produce an appropriate number and mix of good graduates, sufficient to meet the country's developmental requirements. *Prima facie,* the high-level skills shortages that have been identified are one clear indicator that the needs are not being met, and the concurrent existence of graduate unemployment points to a level of mismatch between output and the requirements of the economy (see for example Moleke 2005).

The case has to be informed by an assessment of the current educational performance of the sector, so is outlined later, in section 4. However, a few general points can be made here:

- The South African higher education sector is primarily an undergraduate teaching system. This is not to minimise the value of postgraduate education, research or the other higher education functions but rather to emphasise that undergraduate education needs to be given full value in policy and practice.

- The production of graduates is exclusively the responsibility of the higher education sector (including private providers, but this source is at present relatively small), which underlines the sector's obligations to its educational function.

- It can consequently be argued that the production of good graduates (at all levels) is at the core of the higher education sector's 'core business'.

It should be emphasised that it would be counter-productive to see the educational role of higher education, including its direct contribution to human resource development, in a narrow or technicist way. In the first instance, the complex but critical inter-relationship between research, teaching and social responsibility, on which there is a growing literature, warrants full recognition and realisation. Moreover, South Africa in particular has reason to understand that development, personal as well as national, has many facets, and that the need for representivity and social inclusion is interwoven with the need for competence. This paper will in fact argue that the 'development' and 'equality' agendas (Wolpe, Badat and Barends 1993) are converging in South Africa. The key point, however, is that graduate output matters, is a necessary condition for development, and merits foregrounding as a central focus of the sector's work.

2.2   OUTPUT TARGETS AND POLICY

It may seem self-evident that appropriate graduate production should be accepted unequivocally as a central goal of the sector. However, given the importance of the outcomes, it is necessary to consider to what extent the goal is operationalised in existing policy and practice.

It is widely recognised that the practice of 'manpower planning', involving setting specific output targets on the basis of detailed forecasting of skills needs, has largely been discredited. However, while there is considerable contestation, analysts and stakeholders in the economy identify broad areas of need for advanced skills and capabilities. The government's current major skills development initiative, the Joint Initiative for Priority Skills Acquisition (Jipsa 2006), and the debate around it have raised complex planning issues, not least the difficulty of reconciling the importance of clear 'strategic direction' with uncertainty about future output needs.

In terms of national policy, the DoE's 2001 National Plan for Higher Education (NPHE) sets a number of broad output-related goals, addressing growth and widening of participation, the shape of the output (aiming for a 40:30:30 ratio for Humanities, SET and Business/Commerce graduates), efficiency in terms of graduation rates, and quality (DoE 2001). Some of the goals are broadly quantified, others not. It is evidently in line with the concept of 'strategic direction' that the NPHE identifies an 'endemic shortage…of high-level professional and managerial skills…[particularly] in the science and economic-based fields…in which future demand is likely to be the greatest' (DoE 2001:2.1.1).

Since the publication of the NPHE, the DoE has addressed shape and output in various ways, including introducing steering elements in the funding framework, specifying a 'Programme and Qualification Mix' for each institution, and, recently, engaging with individual institutions

on enrolment and output planning. However, what it takes to translate broad national goals into meaningful institutional targets, and actual output, is not straightforward.

A key question, then, is to what extent current policy – in relation to clarity of goals, setting and monitoring of output targets, focusing the use of resources, and accountability for progress – is able to gear the sector to meeting priority national needs. Again, this question must be addressed in relation to an assessment of the sector's current educational performance, so is taken up later, in sections 4 and 8 below.

2.3 DEVELOPMENTS IN THE RELATIONSHIP BETWEEN THE STATE AND HIGHER EDUCATION

There have been substantive shifts in government approaches to the provision of public services in a number of countries over the last two decades, designed inter alia to improve responsiveness to social and developmental needs and ensure value for money. Higher education provides a noteworthy example of this kind of shift. Referring in the first instance to Britain, Williams (2003) characterises 'a radical transformation in the financial relationships between universities, government and the wider community' as follows:

> In brief the transformation was from institutions subsidized by government to fulfil certain broad academic missions, to suppliers of specific teaching and research services available for direct purchase, or for purchase by government on behalf of student consumers. … Similar changes have occurred in most countries of the world, although the extent and speed of "marketization" varies very considerably between different countries (Williams 2003:1).

South African higher education has experienced a relationship change of this kind, albeit relatively recently. The core higher education policy documents to date, particularly the 1997 White Paper, the Higher Education Act and the NPHE, established a framework for government steering of the sector through planning, regulation and funding (DoE 2003: 1.4). Within this framework, one of the potentially most far-reaching reflections of the international trend is in the new approach to state funding of higher education. The essence of the change is that the state is no longer prepared to be the 'funder of last resort' but rather sees its role as being 'to pay for the delivery of teaching and research-related services … which contribute to the social and economic development of the country' (DoE 2003: 1.8).

The changing relationship between higher education and the state has been highly controversial internationally and often contested by academic communities. Discussion of this complex topic is not within the scope of this paper. It may be noted, however, that among the implications in South Africa, the change in the state's approach not only reinforces the call for the higher education sector to be responsive but also highlights the need to develop as clear as possible an understanding of what is expected of the sector. If services are to be effectively 'purchased' on behalf of the country, it is important that what is being purchased, and how it meets the national interest, should be understood and agreed by the key parties.

This paper will argue that the national interest would be served by the development of a 'compact' between higher education and the state: a compact, however, that does not reduce the relationship to a narrow business arrangement or further commodify education, but rather one that enables the expectations and obligations of both the sector and the state to be clarified, to ensure that the key needs are met. This is discussed in section 8.

3. WHAT IS THE HIGHER EDUCATION SECTOR ACHIEVING? KEY PATTERNS IN GRADUATE OUTPUT

3.1 BACKGROUND

There have been some major achievements in the higher education sector since the political transition. There has been extensive and widely commended policy development, aimed not only at undoing the network of apartheid legislation but also at positioning the sector in relation to international trends. The policy development has not been uncontroversial, with criticism including argument that there has been an absence of 'clear direction and … a major policy-driver' (Cloete and Bunting 2000:79). However, a central achievement is that a single system has been established out of the fragmented and often dysfunctional previous dispensation. There has also been substantial growth in overall numbers as well as widening of access, with black enrolment having doubled since 1993, reaching 60% as early as 2000 (CHE 2004: 64-71).

However, given the high stakes involved in higher education's contribution to development, it is essential to focus on the collective outcomes of the sector, to assess the extent to which they are meeting key needs. This section provides a quantitative analysis of some key aspects of current undergraduate performance, with particular reference to graduate output. The primary purpose is not to offer a comprehensive critique of the sector but rather to identify performance patterns that may point to underlying obstacles in the system, indicate priority areas for improvement, and provide a basis for developing strategies that can make a substantial difference to outcomes.

Undergraduate cohort studies – that is, the tracking and analysis of the performance of specific student intakes through to completion or termination of their undergraduate studies – are used as the basis of the analysis since longitudinal data of this kind offer the most comprehensive and reliable means of identifying performance patterns. A disadvantage of cohort studies is time lag, but institutional experience indicates that the patterns are broadly persistent.

National cohort data have only recently become available, in the form of studies of the 2000 and 2001 intakes of first-time entering undergraduate students conducted by the DoE. The performance of the 2000 cohort has been tracked for five years, while four years of data are available for the 2001 cohort thus far. The analysis in this paper is derived from data produced in these studies, and we are indebted to the Department for their pioneering work as well as their co-operation in providing the data for further analysis.

Cohort studies of the whole first-time entering intake at national and institutional level, as produced by the DoE, provide an overview of performance. However, disaggregating the data – by race, qualification type, subject classification (CESM[1]) and other relevant categories – is key to identifying patterns that cast light on underlying problems and hence challenges for improvement. In our experience, an important analytical category is the qualification (e.g. BSc, BCom), and in some cases

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1   CESM stands for Classification of Educational Subject Matter, a term used in the Higher Education Management Information System.

specific programmes within the qualification (e.g. BSc in Computer Science). At present, however, national data on individual qualifications can only be constructed through aggregating programme codes that are specific to each institution, and are not yet available. The detailed analysis in this paper thus focuses on first-order CESMs.[2] The CESMs used have been selected on the basis of enrolment size and the significance or illustrative value of the disciplines they cover.

To put the performance patterns into perspective, some implications of South Africa's higher education participation rates should be taken into account first, as outlined below.

3.2   PARTICIPATION RATES AND THEIR IMPLICATIONS

Rates of participation in higher education are a relatively crude measure, and international comparisons are difficult because what counts as higher education can differ considerably from context to context. They also do not in themselves say anything about how successful a system is in facilitating student learning and producing good graduates in sufficient numbers. However, it is widely accepted that participation rates are important, and relationships have been found between levels of participation and of economic development (see for example DoE 2001:2.2; Sadlak 1998). Participation rates inform government higher education policy in various contexts.

A measure that is commonly used is the gross participation rate – that is, the total higher education enrolment (of all ages) expressed as a percentage of the 20-24 age group. In terms of this measure, South Africa's participation rates are low. At the time of the NPHE (2001), South Africa's overall participation rate was estimated at 15%, while the benchmark for countries at a comparable level of economic development was 20%. The NPHE thus set a target of '20% of the age group 20-24 in public higher education … over the next 10-15 years' (DoE 2001:2.2). Recent calculations based on 2005 HEMIS data and population estimates indicate that the overall participation rate has thus far grown only marginally, to just under 16%.

More disturbing are the major discrepancies between the participation rates of the main population groups in South Africa, which are striking despite the widening of access since 1994. The calculations referred to above indicate that the rates are approximately as follows:

Gross participation rates: Total enrolment in 2005 as percentage of 20-24 age-group	
Overall	16%
White	60%
Indian	51%
Coloured	12%
Black	12%

These discrepancies are exacerbated by disproportionately low enrolment of black people (and in some cases women) in key SET, professional and graduate programmes, which is both a socio-political problem and a major contributor to the skills shortages in these areas that have been identified by government and the private sector (for example in the NPHE and Jipsa).

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2   A brief account of the methodology used in this analysis and of the limitations of using CESMs, particularly in their current configuration, is given in Appendix 1.

The participation rates have major implications for the higher education sector. First, while there is a body of opinion in the academic community that a significant proportion of the intake are not fit to be in higher education, the low participation rates make it clear that, in the interests of development, the sector must be able to accommodate at least the students who are currently gaining access.[3] This is particularly true of the black and coloured intakes: the great majority of the current students in these categories are in the top decile of their group in terms of achieved performance in prior learning. In fact – given that the participation is expressed as gross rates and includes appreciable numbers of mature students – well under 12% of the black and coloured 20-24 age groups are participating in higher education. It must be a cause of concern, for political, social and economic reasons, if the sector is not able to accommodate a higher and more equitable proportion of the majority population group.

Second, while the DoE may not at present regard overall expansion of enrolment as a priority, growth in participation in the 'science and economic-based fields' is seen as essential for meeting national needs. If such growth is to occur, a significant number of students who are not currently gaining access to programmes in these areas (particularly black students, who are most seriously under-represented) will need to be successfully accommodated. Increasing the intake into these fields will be a particular challenge because of the persistently low levels of school performance in mathematics and science in South Africa, as discussed in section 6.1.1 below.

The overall implication is that the success of the present student intakes, at least, is critical for national development. In the face of this, the view that many current students 'do not belong in higher education' is not tenable.

Successful higher education planning and provision depend to a large extent on agreement on the size and, as importantly, the profile of the student body that the sector needs to accommodate. In the absence of this, there is no sound basis for determining what kinds and levels of provision should be put in place to meet the real learning needs, and thus realise the potential, of the student intake. In the South African context, recognising the implications of the low and racially skewed participation rates is critical to evaluating the effectiveness of the current system and determining what can be done to improve it. The participation rates therefore form an essential backdrop to the analysis of student performance undertaken in this paper, and will be referred to regularly in the course of it.

The following sections provide an overview of how the higher education sector is performing in its core function of undergraduate education, as reflected in key student performance patterns derived from analysis of the DoE's cohort studies. The body of the paper uses performance data only for the 2000 cohort. The reasons for this are:

- The 2001 cohort study is not fully sector-wide since data from some institutions have not been available because of merger complications; also, only four years of data are currently available. Therefore, since they are not directly comparable, the two cohort studies cannot be aggregated into a single analysis.

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3   The extent of selection that has taken place in relation to the students who currently gain access is illustrated in Section 6.1.1, which shows that only 5% of the cohort entering schooling (Grade 1) in 1995 obtained a Senior Certificate endorsement, the statutory requirement for entry to degree study.

- The patterns in the 2001 study are very similar to those in the 2000 cohort. In the interests of brevity, 2001 data are thus not included in the body of the paper but selected tables are provided in **Appendix 2.**

At the time of writing, studies of later intakes have not been undertaken by the DoE, partly because of data complications arising from the institutional mergers.

3.3   SOME KEY PERFORMANCE PATTERNS IN THE 2000 COHORT

Please note: The pre-merger institutional categories are used at times in this paper because they applied when the 2000 and 2001 cohorts entered the sector. Notwithstanding the changes in the institutional configuration, the sector-wide performance analysis remains valid since the same qualification types are still offered. Thus, depending on the context, 'technikons' can be taken as standing for 'technikon-type programmes' and so on.

3.3.1   Overall completion rates

The 2000 cohort study conducted by the DoE presents a disturbing overall picture. By the end of 2004 (that is, five years after entering), only 30% of the total first-time entering student intake into the sector had graduated. 56% of the intake had left their original institutions without graduating, and 14% were still in the system. The breakdown by institutional type is as follows:

2000 intake cohort: All first-time entering students

Institutions	Grad within 5 years	Still registered after 5 years	Left without graduating
Universities excluding UNISA[4]	50%	12%	38%
UNISA	14%	27%	59%
All universities	38%	17%	45%
Technikons excluding TSA	32%	10%	58%
Technikon SA	2%	12%	85%
All technikons	23%	11%	66%
All institutions	30%	14%	56%

The category 'left without graduating' refers to students who left their original institution without completing a qualification, as a result of withdrawal, 'dropout' or academic exclusion. The DoE emphasises that a significant proportion of the students in this category (estimated at 10% of the university students and 11% of the technikon students) transferred to other institutions. It is not at present possible to track the subsequent performance of these students in order to arrive at a total completion rate for the cohort. If, however, 70% of the transferring students and those still

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4   Figures for the University of the North (now Limpopo) not available.

registered after five years eventually graduated, the cohort completion rate would reach about 44%. This would mean that the number of students 'lost' to higher education from this cohort would exceed 65,000.

Some disaggregation of these figures provides a more nuanced view, as set out in the tables below.

As would be expected, performance in the distance education institutions is markedly lower than in the contact institutions. For this reason, a number of the tables in this paper exclude figures for UNISA and Technikon SA (TSA), though a caveat about this is discussed later.

Performance in university programmes

The contact universities (that is, excluding UNISA) represented the best-performing section of the sector. Even so, by the end of 2004 only 50% of the 2000 intake had graduated. In individual universities, the attrition after five years ranged widely, from 25% to 64%.[5]

Performance of the cohort in some key CESMs and qualification types illustrates the position in more detail.

The following table covers students entering four-year professional Bachelors degrees (which are commonly highly selective):

Professional first B-degrees, by selected CESM: All first-time entering students excluding UNISA

CESM	Grad within 5 years	Still registered after 5 years
04: Business/Management[6]	60%	7%
08: Engineering	54%	19%
12: Languages	42%	13%
13: Law	31%	15%

The following table covers three-year degree programmes:

General academic first B-degrees, by selected CESM: All first-time entering students excluding UNISA

CESM	Grad within 5 years	Still registered after 5 years
04: Business/Management	50%	7%
15: Life and Physical Sciences	47%	13%
16: Mathematical Sciences	51%	9%
22: Social Sciences	53%	6%
12: Languages	47%	7%

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5   Excluding Medunsa, where, partly because of the types of programme offered, 46% of the intake were still registered after five years.
6   This category contains significant numbers of students who transferred to and completed three-year degrees within the period, so the completion rate for the qualification type may be somewhat inflated.

If UNISA is included, performance drops somewhat in relation to completion rates and duration of registration, as illustrated in the following table:

General academic first B-degrees, by selected CESM: All first-time entering students including UNISA

CESM	Grad within 5 years	Still registered after 5 years
04: Business/Management	31%	15%
15: Life and Physical Sciences	44%	13%
16: Mathematical Sciences	50%	10%
22: Social Sciences	43%	10%
12: Languages	44%	8%

OBSERVATIONS ON THE GRADUATION DATA FOR UNIVERSITY PROGRAMMES

- Among the key CESMs and qualification types analysed in the contact universities, there are only two cases where the loss from the intake may be less than 40%. The two cases concerned are the highly selective professional Bachelors in Business/Management and Engineering, where under 25% of the graduates after five years were black.

- Assuming that some 70% of the students who change institutions, or are still registered after five years, will eventually graduate, the number of students lost from the 2000 intake into the contact universities, the most selective sub-sector, is estimated at 15,000.

- Since distance education students can be expected to take longer to complete programmes, it is reasonable to show contact institution figures separately for measures involving duration of studies (as in the tables above). It is nevertheless important not to exclude the distance education institutions from any assessment of the overall output performance of the sector since these institutions (now the merged UNISA) have large enrolments and thus account for a substantial proportion of the participation rate. (In the 2000 cohort, UNISA and Technikon SA students made up 32% of the total first-time entering intake.) Particularly since participation rates are low overall, the performance of distance education students is critical to the graduate output of the sector as a whole.

Performance in technikon programmes

The performance of the 2000 technikon cohort was notably lower than that of the university intake. By 2004 66% of the technikon intake had left or transferred without graduating, and 23% had graduated. If Technikon SA is excluded as being a special case, completion after five years rises to 32%, with 10% still studying. In individual contact technikons, the attrition after five years ranged from 44% to 72%, so was high across the board.

The following tables cover students entering three-year national diploma programmes:

National diplomas, by selected CESM: All first-time entering students excluding Technikon SA

CESM	Grad within 5 years	Still registered after 5 years
04: Business/Management	33%	8%
06: Computer Science	34%	11%
08: Engineering	17%	14%
21: Social Services/Public Administration	29%	6%

National diplomas, by selected CESM: All first-time entering students including Technikon SA

CESM	Grad within 5 years	Still registered after 5 years
04: Business/Management	21%	7%
06: Computer Science	23%	9%
08: Engineering	15%	12%
21: Social Services/Public Administration	12%	8%

OBSERVATIONS ON THE GRADUATION DATA FOR TECHNIKON PROGRAMMES

• Among the key CESMs and qualification types analysed in the contact technikons, there are no cases where the loss from the intake may be less than 50%.

• Assuming that some 70% of the students who change institutions, or are still registered after five years, will eventually graduate, the number of students lost from the 2000 intake into the contact technikons is estimated at 25,000.

• 29% of total first-time entering technikon enrolment in 2000 was in TSA, which had a particularly high attrition rate.

• Students in technikon-type programmes on average have lower levels of school attainment, and the performance of the intake will commonly be attributed to this. However, given that this category comprises a major proportion of the group that should benefit from higher education, performance in this subsector is a particular concern. There are not yet indications of whether the institutional mergers will change this situation.

3.3.2 Equity of outcomes

As articulated in the higher education White Paper (DoE 1997), equity has two essential elements: equity of access and equity of outcomes. Despite substantial growth in black enrolment, there are continuing obstacles to equity of access arising from the relative shortage of qualified black candidates, especially in programme areas that are seen as priorities for economic development (see section 6.1.1 below). It is therefore critical for the sector to create conditions that facilitate the success of the full range of students who do gain entry.

The DoE cohort studies do not disaggregate performance by race, so overall comparisons are not available. However, in our view overall comparisons of this kind are less meaningful than comparisons at the CESM or, ideally, the programme level. This is because it is evident that improvements in representivity in overall enrolment in the sector can mask the persistence of significant racial (and gender) skewing in specific subject areas, particularly in more selective or high-status programmes. A key question is to what extent the sector is progressing towards representivity in graduate output in all the main subject areas and qualification types, in the national interest.

This paper does not attempt to answer this question comprehensively but rather to illustrate key patterns related to equity of outcomes in the selected CESMs, as set out in the tables below.

The following three tables compare black and white completion rates in the universities after five years. In most cases the percentage of black students still registered after five years is higher than that for whites, so it is possible that the gap between the completion rates may ultimately be slightly smaller than that shown here.

Graduation after 5 years in professional first B-degrees, by selected CESM and race: First-time entering students excluding UNISA

CESM	Black	White	Ratio w/b[7]
04: Business/Management	33%	83%	2.5
08: Engineering	32%	64%	2.0
03: Law	21%	48%	2.3
12: Languages	26%	65%	2.5

Graduation after 5 years in general academic first B-degrees, by selected CESM and race: First-time entering students excluding UNISA

CESM	Black	White	Ratio w/b[9]
04: Business/Management	33%	72%	2.2
15: Life and Physical Sciences	31%	63%	2.0
16: Mathematical Sciences	35%	63%	1.8
22: Social Sciences	34%	68%	2.0
12: Languages	32%	68%	2.1

The inclusion of UNISA does not make a substantial difference to the white/black five-year completion ratios in the CESMs studied, as illustrated in the following table:

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7   This is the ratio between the white and black 5-year completion rates. For example, in Law the white completion rate was 2.3 times higher than the black completion rate.

Graduation after 5 years in general academic first B-degrees, by selected CESM and race: First-time entering students including UNISA

CESM	Black	White	Ratio w/b[9]
04: Business/Management	22%	43%	2.0
15: Life and Physical Sciences	30%	59%	2.0
16: Mathematical Sciences	33%	62%	1.9
22: Social Sciences	26%	58%	2.2
12: Languages	31%	58%	1.9

These tables do not reflect the relative size of enrolment by race but a brief comment on the relative numbers of graduates is given below.

As shown in the next table, the position in the National Diplomas is again notably different, but see the observations below. (As in the case of the university programmes, inclusion of the distance education data reduces the ratios slightly in some CESMs, but the overall patterning remains.)

Graduation after 5 years in National Diplomas, by selected CESM and race: First-time entering students excluding TSA

CESM	Black	White	Ratio w/b[9]
04: Business/Management	31%	44%	1.4
06: Computer Science	33%	43%	1.3
08: Engineering	16%	28%	1.8
21: Social Services/Public Administration	29%	23%	0.8

OBSERVATIONS ON EQUITY OF OUTCOMES

- Among the CESMs and qualification types analysed in the contact university programmes, in almost all cases the black completion rate is less than half the white completion rate. This serves to negate gains made in black enrolment: even in the CESMs where black enrolment exceeds white, the absolute number of black graduates is lower than that for whites in all the cases studied. This indicates the significant loss of black students, in particular, in these selective programme areas.

- Among the CESMs analysed in the contact technikon programmes, black and white completion rates are much closer, and the great majority of the enrolment and the graduates here are black. However, completion rates are low across the board, so, since these are areas of large black enrolment, the loss of black students is particularly high.

- The significance of racial disparities in outcomes, together with low black participation, for improving the overall output of the sector is discussed in section 4 below.

3.3.3 Quality and responsiveness

Quantitative analysis, such as is drawn on in this paper, does not in itself say anything about the quality and standards of the provision offered in the sector. Given the historical absence of effective system-wide quality assurance in South Africa, there are concerns, assumptions and prejudices about discrepancies in quality that may or may not be well-founded but nevertheless find expression in, for example, student choice of institution, the acceptance or otherwise of student or credit transfer between institutions, and employer attitudes towards graduate recruitment. It is believed that, as South Africa's quality assurance system matures and a stable qualifications framework is established, greater transparency and objectivity in educational outcomes will be facilitated.

In the meanwhile, various indirect indicators of the quality and appropriateness of provision have to be relied on, such as the international mobility of South African graduates for purposes of work or further study, and feedback from employers and professions. An important indicator that has recently come to the fore is the existence of significant and racially skewed graduate unemployment alongside the widely-reported shortage of high-level skills (see for example Moleke 2005). This suggests a mismatch between the output of the sector and the needs of the economy. It is not clear whether the underlying cause is graduate quality and attributes, lack of responsiveness of programmes to contemporary needs, or the mix or 'shape' of the graduate output, or a combination of such factors. Whatever the causes, they are likely to be related in some way to the factors that underlie the unsatisfactory performance patterns outlined above.

3.4 PERFORMANCE PATTERNS IN THE 2001 COHORT

Detailed analysis of the DoE's data on the 2001 cohort is not offered in this paper for the following reasons:

- As a result of the recent mergers, complete longitudinal performance data from some institutions have not been available for the 2001 intake, so there is not a proper basis for comparison with the 2000 intake.

- There are currently only four years of data on the 2001 intake. While this would allow for some comparison with the 2000 cohort, the high proportion of students still registered after four years means that analysis of completion rates has more limited value.

However, in so far as comparison is meaningful, it is evident that the patterns in the 2001 cohort are similar to those for 2000. Selected tables on the 2001 cohort are provided in **Appendix 2** by way of illustration.

4. IMPROVING GRADUATE OUTPUT AS A NATIONAL PRIORITY

4.1 A CASE FOR A NATIONAL FOCUS ON IMPROVING GRADUATE OUTPUT

On the basis of the current performance patterns, weighed against the importance of high-level skills for national development, this paper seeks to make a case that the improvement of graduate output should be recognised as a priority for higher education policy and resourcing. The main points of the argument are as follows.

- The shortage of high-level skills reported in a number of areas of the economy and the society at large (together with the existence of some graduate unemployment) indicates that the output of the higher education sector is not matching the country's developmental needs.

  In material terms, the overall performance of the sector indicates unsatisfactory utilisation of scarce resources. The loss in terms of human resources is, however, arguably much greater. In a context of relatively low participation rates, the great majority of the students who are leaving without qualifying come from at least the top quintile of the population in terms of prior learning achievement. The higher education sector must be able to cater more successfully for this intake profile if national needs for high-level skills are to be met.

- In terms of equity, access remains a key issue despite the increase in black enrolment since the political transition. The persistent disparities in participation rates are not justifiable against the need for redress and social inclusion, and the sector must be able to accommodate more than the current 12% gross participation rate for the majority population group.

  However, since it is successful completion that really matters for individuals and the country, equity of outcomes is the overarching challenge. The major racial disparities in completion rates in undergraduate programmes, together with the particularly high attrition rates of black students across the board, have the effect of negating much of the growth in black access that has been achieved. Taking account of the black participation rate, the overall attrition rate of over 50% and the below-average black completion rates, it can be concluded that the sector is catering successfully for under 5% of the black (and coloured) age-group. This has central significance for development as well as social inclusion, as discussed below.

- It may therefore fairly be said that the graduate output of the higher education sector is not meeting national needs in respect of the two key areas of 'economic growth and … social cohesion' (Pandor 2005). Since graduate output is a unique responsibility of the sector, the situation calls for concerted action to ensure substantial and continuing improvement.

As noted earlier, this argument does not presuppose that detailed forecasting of skills requirements is either possible or desirable, and does not imply that graduate output should be confined to meeting the technical and professional needs of the economy. The aim is rather to ensure that, in the first instance, better use is made of the country's human resources through creating conditions in which a much higher proportion of higher education entrants complete their studies, and, secondly, that the shape of the graduate output is not distorted by systemic obstacles that prevent talented students from being able to succeed in their qualifications of choice.

The concerted action called for would need leadership from central governance bodies, particularly the Ministry of Education, and engagement by the higher education community. Possible strategies for improving graduate output are discussed in section 7 below.

4.2 IMPLICATIONS OF THE PERFORMANCE PATTERNS FOR IMPROVING GRADUATE OUTPUT

The performance patterns set out above have important implications for how improvement in graduate output might best be achieved in our context. Key points arising from the cohort studies are as follows.

- Although only two national cohort studies have been done thus far (with the 2001 study not complete), there are strong indications that the performance patterns they reveal are persistent. Shortcomings in higher education performance have been acknowledged for a long time. Concerns about attrition go back as far as the period of higher education expansion in the 1960s and 1970s. Addressing historical educational inequalities has been identified as a major challenge for higher education since at least as far back as the 1980s, and has been a central policy goal since the political transition (DoE 1997; DoE 2001). There will be fluctuations in the figures from year to year, but the analysis of the existing cohort studies serves to confirm and broadly quantify patterns that have been recognised in individual institutions and the sector as a whole for a considerable time.

    The main implication of the persistence of the underlying performance patterns is that they will not change spontaneously. Decisive action needs to be taken in key aspects of the educational process – and at key points of the educational 'pipeline' – to facilitate positive change in outcomes. Such key points occur particularly at the interface between major phases of the system: between general education and FET, for example, as well as between FET and higher education, and, increasingly significantly, between undergraduate and postgraduate studies. While this paper focuses on the undergraduate phase, continuity in the system as a whole is necessary for improving graduate outcomes, without which meeting national developmental needs will continue to be an elusive goal.

- It is clear that, as long as the current undergraduate performance patterns continue, increasing the intake is not in itself an efficient means of increasing graduate output. Given the small pool of adequately-prepared candidates, increasing the intake will result in increasing the proportion of less-prepared students in the sector. Unless there are changes in the educational process, this will mean at best perpetuating, or more likely worsening, the negative aspects of the current performance patterns.

  This has implications for further investment in higher education. 'More-of-the-same' funding, focusing on enrolment growth rather than improving the educational process, is unlikely to produce optimal returns.

- It follows that improving graduate output depends primarily on improving the performance patterns. Particularly in view of the low overall higher education participation rates, it is essential to optimise the performance of the current student intake in the first instance. In this respect, the performance patterns support the emphasis on success rather than access expressed in the NPHE and aspects of subsequent DoE funding and enrolment planning policy (see for example DoE 2005).

- It is clear from the 'equity of outcomes' analysis that the differentials in the completion rates of the different student groups are a major obstacle to progress. While no group's success rate can be said to be satisfactory, improved performance in the least well-performing groups – that is, the black and coloured groups[8] – is key to substantially improving graduate output overall.

  Moreover, given the current disparities in participation rates, future enrolment growth will need to come primarily from the black and coloured groups. In fact, irrespective of how much overall growth occurs, it is evident that there will need to be at least a relative increase in black and coloured enrolment to reach participation levels above the current 12%.

  In summary, substantial improvement in graduate output, of the order necessary to meet national needs, depends particularly on improved performance in the black and coloured groups. Progress towards equity of outcomes has thus become imperative for 'economic development … [as well as] social cohesion' (Pandor, *op cit*).

- Since the majority of students entering the sector are not completing their studies, it can reasonably be inferred that the existing system is not effective in contemporary conditions.

  Furthermore, as the data analysis shows, the groups from which growth in output must primarily come are those that are least well served by the existing educational process.

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8 Data on coloured student performance are not provided in this paper but have been analysed in the ITLS project. The analysis shows that coloured completion rates are commonly somewhat higher than those of black students but well below those of whites.

The lack of provision enabling such students to realise their potential and succeed represents a particular obstacle to development. Given the persistence of the performance patterns, it is evident that improving graduate output depends on improving the effectiveness of the educational process – that is, on systemic change.

A central question, then, is what it will take to cater effectively for at least the present intake profile, and particularly the student groups that are under-represented within it. The following section considers some key indicators of where systemic problems lie.

5. INDICATORS OF THE NEED FOR SYSTEMIC CHANGE

Aspects of the cohort studies and other data provide indicators of systemic faults – that is, aspects or stages of the formal educational process where substantial obstacles to student progression are evident. Interruption of progression may of course arise from students' not surmounting legitimate and necessary hurdles, such as gaining knowledge and skills that are essential for functioning at the next educational level. Since it is accepted, at least in practice, that not everyone will progress through all the educational levels available, 'hurdles' that discriminate fairly between students are built into the educational process, not only for criterion-referenced assessment of attainment but also for regulating the flow of students through the range of educational levels.

What this study is concerned with, however, is systemic faults which represent unnecessary and counter-productive obstacles to student progression. Obstacles of this kind can arise from structures or practices that are embedded in the traditional education system to the extent that their effectiveness, or their suitability for changed circumstances, goes largely unquestioned.

An example of a structural obstacle is lack of effective educational continuity, or articulation, between consecutive educational levels. What constitutes appropriate articulation is a complex and often contested matter. For example, many would accept that moving to a higher educational phase (such as from secondary to tertiary, or undergraduate to postgraduate education) should make significant new intellectual demands on the student. What is contested is the nature and level of the demands – commonly associated with what are regarded as appropriate 'entry standards' or expectations for each major phase.

Effective articulation is not just about aligning formal entry requirements; rather, it is achieved by ensuring appropriate forms and levels of provision at the interface between educational types or phases, and by providing appropriate support for students making the transition. Articulation is thus a critical matter for educational planning as well as theory. To ensure appropriate continuity in the system (and therefore appropriate output in each major phase), provision for articulation must take account of the approximate size and shape of the student body that each major phase needs to be able to accommodate successfully. If there is not sufficient continuity, too few students will successfully make the transition to the higher educational level, with predictable effects on output. It follows that provision for articulation (and related educational structures and approaches) must be aligned with participation and output needs, and changed appropriately if these needs change.

Articulation is one example of a structural aspect of the educational process where unnecessary obstacles to student progression can occur. A range of aspects of educational practice, in teaching and assessment, can have similar effects. Because such obstacles are often embedded in the system, recognising indicators of systemic faults is an important stage in planning for positive change. The following are examples of indicators that can be identified in quantitative data analysis, as pointers to key areas for qualitative research and developmental action.

5.1 SHORTAGE OF QUALIFIED ENTRANTS IN KEY SUBJECT AREAS

As discussed earlier, while it is recognised that detailed forecasts of specific occupational requirements are not possible in contemporary conditions, there is reasonable agreement on broad areas of need for high-level knowledge and skills. As noted, the NPHE identified an 'endemic shortage in South Africa of high-level professional and managerial skills…[particularly] in the science and economic-based fields' (DoE 2001:2.1.1). Current work by Jipsa and other bodies on identifying scarce skills broadly supports the NPHE view (see for example Jipsa 2006; Mail and Guardian 2006b: 1-2).

The growth of graduate output in these areas is constrained by shortages of candidates who have the standard qualifications for entry to the relevant programmes. As discussed further in section 6.1.1, enrolment in degree programmes where growth is most needed is limited in particular by poor performance in mathematics and science in the school sector. This is reflected in the small numbers of matriculants passing mathematics on the higher grade, which is a minimum requirement for admission to key SET and Business/Management degree programmes. The problem is again compounded by racial skewing: for example, in 2003 black matriculants made up under 30% of higher grade mathematics passes. This contributes to disproportionately low black participation in key programmes. In 2005, for example, despite substantial increases in recent years, black enrolment was under 50% in professional bachelors degrees in Engineering and Business/Management, and was about 50% in first degrees in the Mathematical, Life and Physical Sciences (calculated from HEMIS data).

In summary, participation in key subject areas is low overall, and particularly so in the black group, from which future growth should largely be expected. Application profiles suggest that the situation arises from shortages of qualified candidates rather than lack of student aspirations. Few would believe that the enrolment figures reflect the potential within the population, so the situation is an indicator of unsatisfactory articulation between secondary/further and higher education. The problem is twofold: the schools are not producing more well-prepared candidates and the higher education sector is not geared to successfully accommodating more than a very small proportion of the potential candidate pool in key subject areas.

The problem is generally attributed to the continuing deficiencies and inequalities in the school system. This paper will argue, however, that the higher education sector itself has a key role to play in establishing educational structures that enable talented, motivated but underprepared students to enter and succeed in the programme areas 'in which future demand is likely to be the greatest' (see section 6).

5.2 GRADUATION IN REGULATION TIME

One of the most striking findings arising from analysis of the cohort data is the low proportion of the intake who graduated in minimum or 'regulation' time – that is, three years for general

academic bachelors and national diploma programmes, four years for certain professional bachelors degrees, and so on. This bears out a pattern that has shown up in institutional data over a longer period.

The DoE cohort studies do not separate out three- and four-year programmes or show completion rates after three years. However, as an earlier version of the 2000 cohort study shows, even after four years of study and excluding the distance education institutions, under one-third of the intake (36% of university students and 26% of technikon students) had graduated. The majority of the students would have been on three-year programmes. The following table summarises the position.

Graduated within 4 years: All first-time entering students

All programmes	22%
Universities excluding Unisa	36%
Technikons excluding TSA	26%

The ITLS project has analysed 'efficiency' rates in key CESMs. The following tables show the proportion of the 2000 intake graduating in regulation time in selected qualification types and CESMs, excluding distance education.

Professional first B-degrees, by selected CESM: All first-time entering students excluding UNISA
General academic first B-degrees, by selected CESM: All first-time entering students excluding UNISA

CESM	Grad in 4 years
04: Business/Management[9]	46%
08: Engineering	32%
12: Languages	30%
13: Law	22%

CESM	Grad in 3 years
04: Business/Management	24%
15: Life and Physical Sciences	21%
16: Mathematical Sciences	24%
22: Social Sciences	29%
12: Languages	28%

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9   This category contains substantial numbers of students who transferred to and completed three-year degrees within the four-year period, so the rate of completion in regulation time may be somewhat inflated.

National diplomas, by selected CESM: All first-time entering students excluding TSA

CESM	Grad in 3 years	Grad in 4 years (cumulative)
04: Business/Management	18%	28%
06: Computer Science	14%	27%
08: Engineering	5%	11%
21: Social Services/Public Administration	13%	25%

Broken down by race, rates of completion in regulation time show patterns similar to those in the 'equity of outcomes' tables provided earlier. The following tables show the patterns.

Graduated in regulation time: Professional first B-degrees, excluding UNISA

CESM	Black	White
04: Business/Management[10]	22%	70%
08: Engineering	14%	42%
12: Languages	14%	55%
13: Law	14%	33%

Graduated in regulation time: General academic first B-degrees, excluding UNISA

CESM	Black	White
04: Business/Management	11%	43%
15: Life and Physical Sciences	11%	35%
16: Mathematical Sciences	13%	33%
22: Social Sciences	14%	43%
12: Languages	13%	52%

Graduated in regulation time: National diplomas, excluding TSA

CESM	Black	White
04: Business/Management	16%	33%
06: Computer Science	12%	25%
08: Engineering	3%	12%
21: Social Services/Public Administration	13%	18%

An additional 'efficiency' indicator is the number of students graduating in regulation time expressed as a proportion of the total number of graduates in the cohort. The following tables show three-year regulation time graduates as a percentage of the total graduating within five years in the selected CESMs in contact institutions. (The percentages would of course decrease if the 'final' completion rate, including graduates from the transferring and 'still-registered' groups, were used as the denominator.)

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10   This category contains substantial numbers of students who transferred to and completed three-year degrees within the four-year period, so the rate of completion in regulation time may be somewhat inflated.

Graduates in regulation time as % of total graduates within five years: General academic first B-degrees, excluding UNISA

CESM	Grad 3/Grad 5
04: Business/Management	49%
15: Life and Physical Sciences	44%
16: Mathematical Sciences	46%
22: Social Sciences	55%
12: Languages	59%

Graduates in regulation time as % of total graduates within five years: National diplomas, excluding TSA

CESM	Grad 3/Grad 5
04: Business/Management	55%
06: Computer Science	41%
08: Engineering	26%
21: Social Services/Public Administration	47%

In all the CESMs studied, the percentages were lower for black students, by at least 10 percentage points in the university programmes. Fewer than half of the total black graduates completed in regulation time in all but one of the CESMs.

OBSERVATIONS DRAWN FROM THE TABLES IN THIS SECTION

- The overall performance patterns of the 2000 cohort indicate that only one in five first-time entering students graduate in regulation time. When distance education institutions are discounted, well under one-third of the intake complete in the formal time provided for by the system. Only one in three of the intake into the contact institutions graduate even within four years.

- In the CESMs analysed, including subject areas that are highly selective, a minority completed in regulation time; it is only in professional Business/Management degrees (where a significant number of students switched from four- to three-year programmes) that the contact students' completion rate exceeded 32%.

- In many cases, including all the SET CESMs analysed, fewer than half of all the students who actually graduate in the cohort completed in regulation time.

- The disparities between black and white performance on these 'efficiency' measures are at least as marked as they are in completion rates. In the contact universities, in all but one of the CESMs covered, black students made up under 25% of all graduates in regulation time.

- These performance patterns provide further evidence that the current system is not working effectively for the majority of the students who are (and need to be) in higher education. Curricula, as formally planned, are being followed by only a fraction of the intake, particularly in the case of the student groups where growth is most needed. This points to a mismatch between systemic educational structures and national as well as individual student needs.

- The fact that the great majority of the intake are not able to graduate in the time formally expected thus provides evidence not only of the outcomes of schooling but also of articulation failure between secondary/further and higher education. If the system were designed to enable an appropriate proportion of the population to enter and succeed in higher education, regulation-time completion rates should be at least twice the current rates overall. In the case of the black student intake, these rates would need to be four or more times higher if they were to reflect efficient accommodation of even the current (low) level of participation.

- The figures support the contention that the traditional timeframes provided for undergraduate degrees and diplomas, and the associated funding arrangements, are not realistic or valid for the majority of students in higher education. This paper will argue that inappropriate curriculum structures are a key factor affecting effective teaching and learning, and consequently that the formal qualifications framework and funding arrangements – which largely determine the curriculum structures – are in themselves an obstacle to improving the performance of the sector. This topic is discussed in section 7.1 below.

5.3   FIRST-YEAR ATTRITION

The 2000 cohort study confirms that the greatest attrition occurs at the end of the first year of study. For first-time entering students, the overall rate was 29%, made up of 25% for the universities and 34% for the technikons (22%, 19% and 24% respectively if the distance institutions are excluded).

It is widely recognised that termination or suspension of studies can result from a range of factors, material and affective as well as academic. Financial problems are commonly reported as a significant factor. The DoE data available do not enable distinction to be made between exclusion and voluntary termination, and moreover, despite various institutional research efforts, there is little systematic knowledge about the underlying causes of dropout across the sector. Again, however, insofar as it results from or is affected by poor academic performance, the high first-year dropout rates that prevail alongside low participation rates are an indicator of systemic problems such as articulation failure.

<div align="center">❋❋❋❋</div>

In summary, the data analysis presented in this paper indicates that, notwithstanding the achievements of the past decade, the higher education sector is not meeting key output goals, and this has significant implications for development. Performance is unsatisfactory in terms of overall output and equity of outcomes. It has been argued (in section 4) that these two broad goals have become organically interlinked, in that improving equity of outcomes is essential for improving graduate output overall as well as for 'social cohesion'. It can be said that the development and equity agendas are converging: progress with equity will be a key measure of the sector's potential to meet future growth needs.

Given the persistence of inequalities in schooling and the limited pool of well-prepared candidates (see section 6.1.1), it is argued that highest priority should be attached to realising potential and facilitating successful performance in the existing student intake, particularly in the most under-represented groups and in the programme areas where growth in graduate output is most needed.

It is not clear, however, that policy and resources are sufficiently focused on addressing this priority. Since the performance patterns point to underlying systemic issues – such as the extent of continuity between major phases and the capacity of different sectors to adapt to changing conditions – the effectiveness of an improvement agenda depends on understanding the major factors affecting performance, and on agreeing where different responsibilities for development lie. The following section discusses this topic.

6. WHERE DOES RESPONSIBILITY FOR IMPROVEMENT LIE? KEY FACTORS AFFECTING STUDENT PERFORMANCE IN HIGHER EDUCATION

The issue of where responsibility for the improvement of higher education output lies is complex and contested. There is no comprehensive research on attitudes to this matter in South African universities, but the fact that sector-wide longitudinal performance data have only recently become available suggests that focusing on the collective output of the sector has historically not been a priority. Although awareness of throughput rates has been raised since the introduction of the new higher education funding framework and through the DoE's recent requirement for institutional enrolment and graduation targets, the focus has been predominantly on individual institutions.

It is worth asking why the institutions have not thus far been more proactive in establishing collective output goals as a key contribution to development, and what stands in the way of such a commitment. Part of the answer may come from a traditional view in higher education that the key factors determining student performance are beyond the sector's control. It is of interest that, when the broad findings of the DoE's 2000 cohort study appeared in the press, virtually all of the reported responses attributed the high attrition rates to 'money and poor schooling' (Mail & Guardian 2006a) – that is, to factors external to the sector.

That such external factors have a major bearing on student performance in higher education is not in dispute. However, two questions arise:

- Are the external influences likely to change to the extent that substantial improvement in higher education performance will result, and if so in what time scale?

- Are there factors within the higher education sector's control that can substantially affect student success and hence graduate output?

Responses to these questions are central to establishing what can be done to improve higher education performance, and where responsibility for different aspects of development might lie. While this paper does not set out to offer comprehensive answers to the questions, the following sections outline some key factors that are seen as beyond or within the sector's control, with a view to framing a developmental agenda.

6.1 SOME KEY FACTORS BEYOND THE SECTOR'S CONTROL

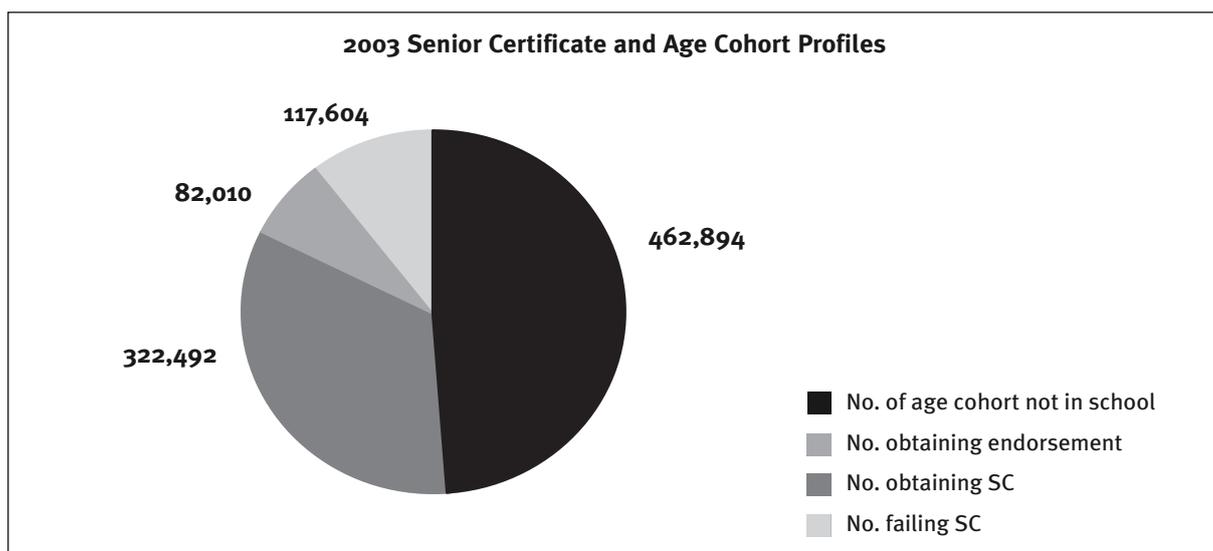### 6.1.1 The school sector: output and prospects

Many in higher education attribute the unsatisfactory performance of the sector to the shortcomings of the school system, and it is common cause that the legacy of inequalities has had a profound effect on the quality as well as the shape of its output. However, if improvement of the school system is

to be relied on for solving key performance problems in higher education, there needs to be a rigorous assessment of the prospects of this. Questions that need to be addressed include (a) to what extent the system will be able to produce a sufficient supply of well-prepared candidates for higher education, (b) the extent to which this supply will be representative of the population, and (c) how long the improvement process is likely to take. In the absence of such an assessment, there is a danger that improvement of the output of higher education will rest on a hope that will not materialise, at least in the medium term. Should this be the case, and should other approaches to improving higher education not have been pursued, there will be significant consequences for national development.

A full assessment of the prospects of the school system will be a substantial undertaking. In the meantime, the following is an outline of some salient aspects of the situation.
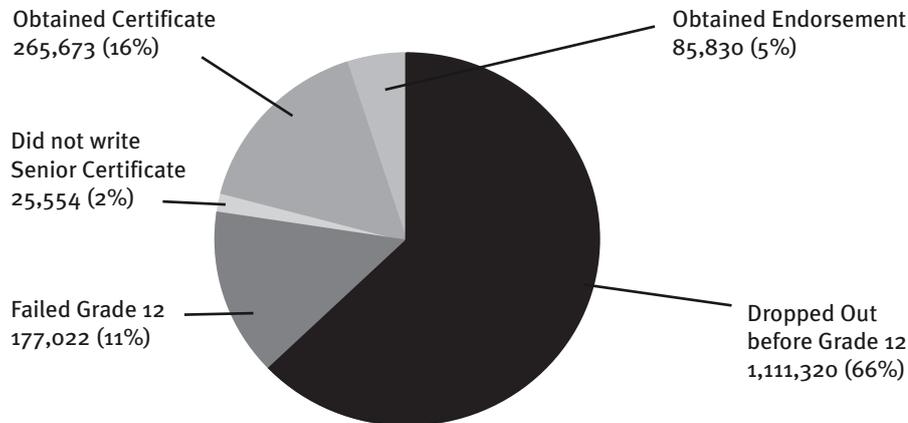
Unsurprisingly, the history of the country has ensured that performance on the Senior Certificate is highly skewed in terms of 'race', and generally very poor. Several examples are offered to illustrate the seriousness of the schooling challenge.

The first example concerns the low numbers of students in school, as well as the low numbers passing the Senior Certificate. The pie graph below shows how few students in the appropriate age cohort (n = 985,000) of 18 year-olds in 2003 were in school (van der Berg 2004). It also shows the very small number who obtained a matriculation endorsement and were thus eligible for consideration for degree study: only about 15.7% (82,010) of the 522,106 SC candidates, representing less than 8% of the age cohort. Only 5.2% of black candidates gained endorsements.

2003 Senior Certificate and Age Cohort Profiles

- ■ No. of age cohort not in school
- ▨ No. obtaining endorsement
- ▨ No. obtaining SC
- ▨ No. failing SC

Data from the most recent Senior Certificate examination cycle (2006) confirm the gravity of the situation. The graph below illustrates the educational progress of the cohort dubbed by the media 'Madiba's children' – the cohort that entered schooling in 1995, immediately after the advent of

**Senior Certificate 2006: Performance of the 1995 entering cohort
"Madiba's children"**

Obtained Certificate
265,673 (16%)

Obtained Endorsement
85,830 (5%)

Did not write
Senior Certificate
25,554 (2%)

Failed Grade 12
177,022 (11%)

Dropped Out
before Grade 12
1,111,320 (66%)

democracy in 1994. Of the over 1.6 million learners who entered Grade 1 in 1995, 66% dropped out before reaching Grade 12. Only 21.1% of the cohort obtained a Senior Certificate, and only 5% (85,830) of the cohort obtained a Senior Certificate endorsement (the statutory requirement for entry to degree study), making the national target of a 20% participation rate in higher education seem difficult to reach.

Mathematics Higher Grade passes – 2003

Approximate numbers

Population group

Black · Coloured · Indian · White · Other
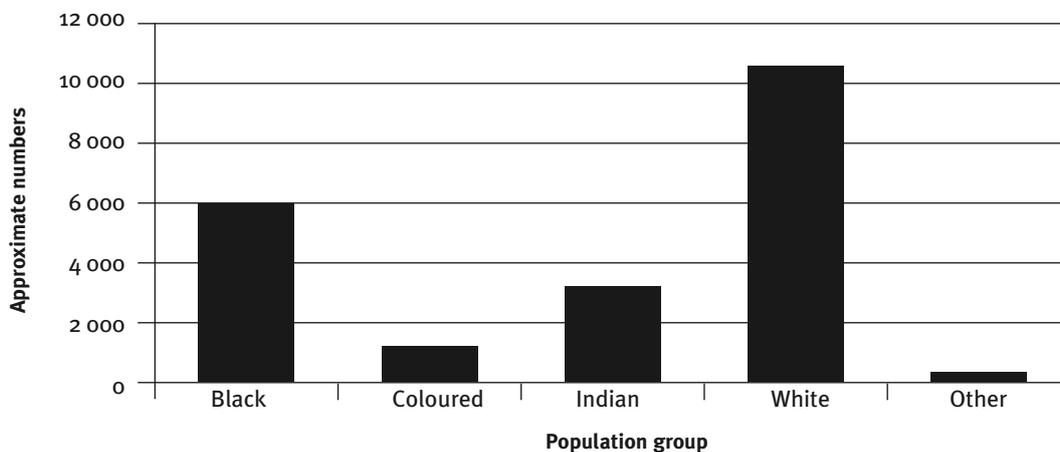
The second example relates to the numbers of school students writing and succeeding in Mathematics and Science, often viewed as an indicator of the quality of an educational system. The graph above shows the very troubling situation in respect of Mathematics, a key gateway subject for higher education (Perry 2005).[11] It is of particular concern that although black South Africans comprise approximately 78% of the population, they account for only 26.8% of the successful Mathematics group.

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11   It should be noted that Mathematics is currently offered at two levels: Higher Grade, commonly required for entry to such disciplines as Engineering and Science, and Standard Grade.

There have been several costly and well-meaning efforts to address this situation. Examples include the establishment of the Dinaledi schools, the earmarking of more than R400m for the promotion of Science, Mathematics and Technology (SMT) with emphasis on the development of SMT education strategic plans by the provinces, targeting of schools specialising in Mathematics and Science education (for example by funding school projects), a R600m allocation of 'scarce-skills' allowances for teachers of Mathematics and Science, youth camps for Mathematics and Science, and early talent spotting (Masehela 2005). Despite these initiatives, results have not been promising. The poor results have been confirmed by such studies as TIMSS (Trends in International Mathematics and Science Study), in which South Africa did as badly in 2003 as it did in 1999. In 2003 it came last in grade 8 Science and Mathematics out of 50 countries (these 50 included five other African countries).

Besides revealing generally very low levels of performance, the 2003 study indicated the inequitable nature of South African schooling. The data below derive from the average scores generated for learners attending schools in the South African TIMSS sample, categorised according to the former racially based Departments of Education (Reddy 2003).

TIMSS 2003: Scores by Former Racially Based Departments

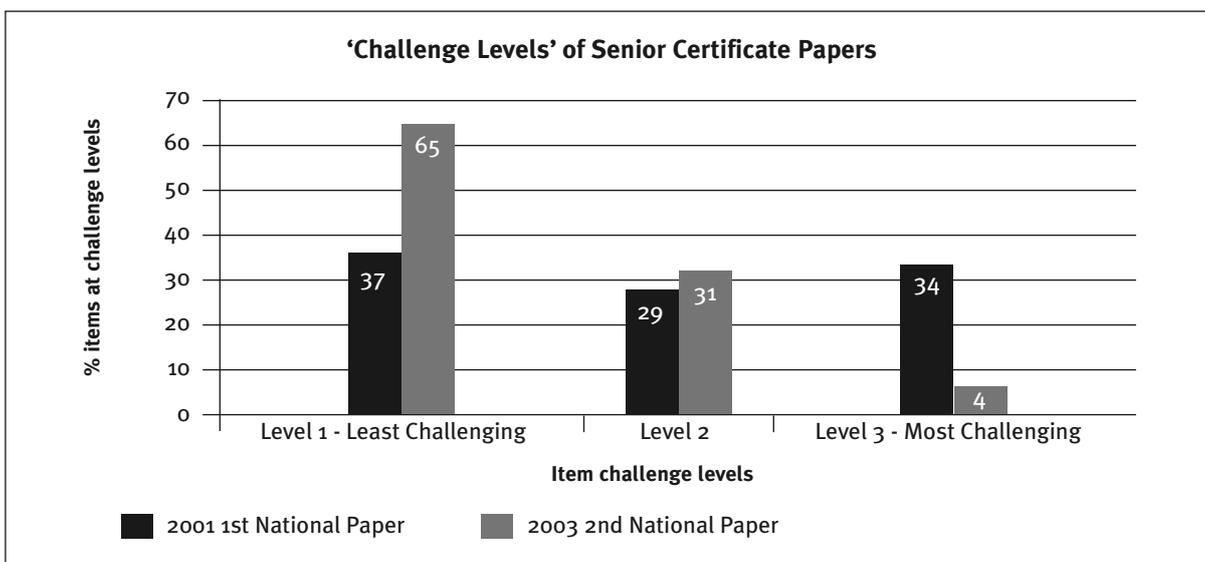|	Maths score	Science score
Former DET schools	227	200
Former Model C schools	456	468
National Average	264	244
International Average	467	474

The table shows that average performance in Science and Mathematics in former white schools is slightly below the international average. This is in itself an outcome of concern, since these schools represent the apex of achievement for the system and consume a disproportionate share of resources. The shockingly low average performance level in former DET (black) schools – half of the average in formerly white schools – goes a long way to explaining some of the performance data contained in section 3.3 above.

The third example concerns the recent decline in quality and challenge in the Senior Certificate examination, and associated decline in schooling. During the tenure of previous Minister of Education Professor Kader Asmal, the pass-rate in the examination rose sharply. It can be seen in the figure below that under Minister Naledi Pandor, the pass-rate is slowly declining, reflecting slightly more realistic levels of attainment (the upward trend was halted in 2004), and – perhaps – a gradual improvement in the standard of the examination papers.

Senior Certificate Pass-Rate (%)

Year	Pass-Rate (%)
2000	57.9
2001	61.7
2002	68.9
2003	73.3
2006	66.5
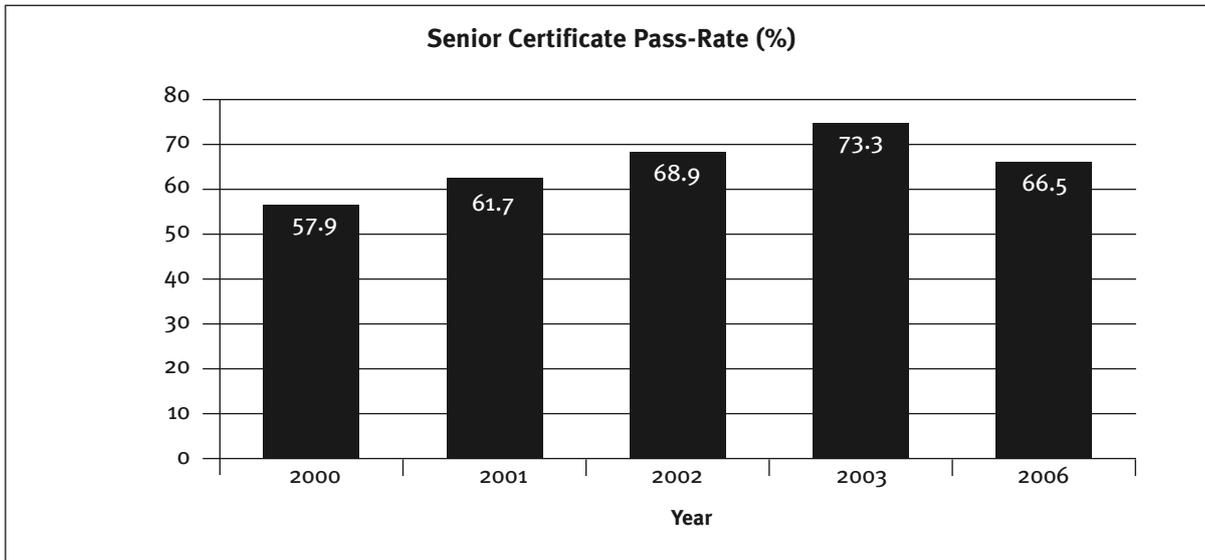
Increasing public alarm about 'grade inflation', as well as concerns about accountability, prompted Umalusi,[12] the Quality Assurance agency for General and Further Education and Training, to commission a study in 2004 '… to assess the validity of public claims that the Senior Certificate examination in 2003 represented a drop in "standards" – i.e. that the rising pass-rates in recent years (and most strikingly in the last two years) were due to easier examination papers rather than a dramatic improvement in schooling' (Yeld, Grobler and Sekwane 2004:1).

In addition to curriculum coverage, the researchers assessed 'conceptual challenge' levels in the national papers, assigning three levels of challenge. The researchers in the subject with the largest number of registrations, English Second Language Higher Grade (with 355,377 candidates in 2003), concluded that 'the nationally set paper in the subject is becoming easier – or, in the jargon of the examiners, becoming "more accessible"' (op cit:15). This conclusion was based on

'Challenge Levels' of Senior Certificate Papers

% items at challenge levels

Item challenge levels	2001 1st National Paper	2003 2nd National Paper
Level 1 - Least Challenging	37	65
Level 2	29	31
Level 3 - Most Challenging	34	4

12   The name is derived from the Nguni word 'uMalusi' which means 'shepherd'.

the decline in the number of questions designed to operate at more challenging levels. This is illustrated above in the dramatic drop in the number of relatively challenging items from 2001 to 2003. In 2001, 34% of the items were judged as challenging, and 37% as very easy. In 2003, however, only 4% of the items were judged as challenging, and 65% as very easy.

These findings were largely confirmed by the research groups dealing with the other national papers. The seriousness of the situation needs to be emphasised: in a context of under-qualified teachers, poorly resourced learning environments and syllabus stagnation, examinations tend to define the curriculum, and to set the standards. That students are expected to perform at increasingly easy ('accessible') levels in the only external examination they write in their school careers explains many of the difficulties they face with higher education study. This is particularly serious in relation to English, which plays a crucial role in South African education, where it is both a target of and a vehicle for learning for the majority of the country's school students. It also does not bode well for the introduction of the new National Senior Certificate in 2008 which, however desirable and necessary in the long run, will inherit this context of inflated indicators of performance at the same time as having to grapple with a poorly understood and unevenly implemented new curriculum.

Those aspects of literacy required by contexts of learning and teaching that are highly dependent on reading and writing as vehicles for meaning construction, and whose context is customarily that of formal education, have become known as Academic Literacy.[13] A concise outline of these aspects of literacy is offered below. In a higher education context, students are required to:

- make meaning from what they read;
- understand and interpret conceptual and metaphorical language;
- identify and track academic argument;
- follow discourse structure in text;
- make inferences about and extrapolate from what they read;
- demonstrate familiarity with and understanding of the conventions of visual and multimodal literacies, such as reading and interpreting graphs, pictures, flow-charts and diagrams; and
- cope with basic numeracy (Cliff, Hanslo and Visser 2003).

Meeting these requirements is a challenge for all students, and the difficulties faced in adjusting to independent study at this level are well known. For students from poor educational backgrounds, however, getting to grips with these requirements is seriously impeded by approaches to texts and epistemic practices such as those put forward by Slonimsky and Shalem (2005: 86):

- a propensity towards verbatim reproduction or plagiarism in essays;
- a propensity to describe rather than analyse, and to offer tautologies in place of justification;
- a propensity to focus on examples (tokens) rather than on principles (types) and the relation between them;
- a propensity to write from a highly subjective viewpoint without depersonalising;
- a propensity to be prescriptive or normative when asked to be analytic.

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13 There is a prolific, ever-growing, and fairly argumentative literature on academic literacy, which is not reviewed here. The theoretical underpinnings of contrasting views of literacy and literacy practices differ markedly, as might be expected, and are found in different understandings of knowing and learning. Similarly, research on learning and cognition covers a vast field, and has a relatively long history. It has not, however, after decades of development and activity, '… settled into a single theoretical account' (Greeno, Pearson and Schoenfeld 1996:5) of understanding and learning.

In a comprehensive empirical study, Yeld (2003) reports on the performance of students entering higher education at institutions across the country. Nine institutions, including Historically Disadvantaged Institutions (HDIs), technikons and universities, were included in the study. The results strongly support the difficulties outlined above. The study concludes thus: 'The data … give a chilling picture of the very low levels of preparation in incoming students to South African higher education institutions' (Yeld 2003:46).

Slonimsky and Shalem (2005) give a vivid and instructive account of what it takes for students to develop more effective approaches to the kinds of learning demands posed by formal education. The point being made here is that the extent of educational disadvantage and consequent underpreparedness evident in South Africa's school-leavers is so serious that Higher Education cannot cope simply by 'teaching better' within current structural arrangements. Implications for higher education curriculum frameworks and teaching approaches are discussed in section 7 below.

Analyses of the school sector, of which the studies cited above are some examples, have implications for the higher education sector, particularly in relation to the first question raised in this section, viz. 'Are the external influences likely to change to the extent that substantial improvement in higher education performance will result, and if so in what time scale?' The implications include the following:

- Concerns in the higher education sector about the level of preparedness of many school-leavers are borne out by a range of evidence.

- Recent developments in the school sector, not least of which is the imminent introduction of an ambitious new curriculum and school-leaving examination (the National Senior Certificate), suggest that significant increase in the output of well-prepared candidates for higher education is unlikely to be achieved in the short to medium term.

- Improvements in the school sector cannot be relied on as a primary means of achieving the necessary substantial improvement in graduate output and equity of outcomes.

This paper argues that it is consequently incumbent on higher education to improve its own capacity to address this situation and thus to share responsibility for dealing with South Africa's historical inequalities. We argue that this can be achieved, but not by just doing 'more of the same', as discussed in section 6.2.2 below.

6.1.2   Material conditions: socio-economic conditions and student finance

Few would dispute that socio-economic factors have a profound influence on performance in higher education. Socio-economic inequalities in South Africa are among the most severe in the world. It is not within the scope of this paper to attempt to enumerate or quantify the ways in which shortage of material resources affects people's chances of becoming a candidate for higher education, of gaining access (not least to a programme of one's choice), and of completing a qualification. It is important, however, to recognise the impact of socio-economic factors and to intensify efforts to address them, as a central element of any higher education improvement strategy.

Particularly because most South African universities do not have access to large endowments, institutional contributions to student financial aid are generally very limited. However, Government has made major efforts in this area through the establishment of the National Student Financial Aid Scheme (NSFAS), which has benefited from substantial injections of funds in recent years. Financial aid available through NSFAS is expected to total over R1.3 billion in 2007. Nevertheless, need constantly exceeds the available resources, and there are regular appeals by student bodies as well as institutions for increased funding. As noted earlier, financial problems are commonly cited by students as a reason for dropping out.

The extent of existing Government investment in NSFAS calls for regular evaluation of the effectiveness of the approach. The kind of data used in this paper may provide a basis for analysing the effectiveness of student financial aid from a somewhat different perspective, focusing for example on the extent to which financial aid translates into graduate output. The current performance patterns raise the question of the extent to which it could be expected that further substantial investment in NSFAS would in itself result in improved output. Given that the majority of socio-economically disadvantaged students are black, it is evident that the cost-effectiveness of NSFAS is linked particularly to equity of outcomes. Researching the relationship between student funding and academic success in the South African context is complex but could make a major contribution to effective use of resources.

Uncertainty about the extent to which external influences will produce improvement in graduate output within reasonable time draw attention to the second question raised in section 6, namely 'Are there factors within the higher education sector's control that can substantially affect student success and hence graduate output?' This is discussed below.

6.2 KEY FACTORS WITHIN THE SECTOR'S CONTROL

This paper argues that there are key factors within higher education – structures, conditions and practices – that have a major effect on student performance and that universities and the sector as a whole can choose to address. While a range of such factors can be identified, it is suggested that they may be considered under two broad headings: (a) affective factors, particularly those arising from institutional culture; and (b) the teaching and learning processes followed in higher education institutions.

6.2.1 Affective factors and institutional cultures

It is widely recognised that affective factors influence students' academic performance. In South Africa, Academic Development experience has indicated that the benefits of well designed educational interventions can be neutralised by lack of motivation, anxiety about personal or financial circumstances, or alienation from the institution. While some affective factors are beyond the institution's control, others – such as aspects of students' material conditions, life skills and relationship with the institution – are at least partly within it. Given South Africa's past, it is not surprising that institutional culture has emerged as a key issue, and a number of institutions have recognised the importance of taking action to change the dominance of their traditional institutional culture in favour of more inclusive approaches.

The relationship between affective factors and academic performance is likely to be iterative, however, so the other side of the coin is that students' confidence, motivation and general wellness may be compromised by inability to cope with the educational process they find themselves in. In the South African context, underpreparedness for traditional higher education provision, resulting from inequalities in schooling and general socio-economic conditions, may be a key cause of attrition not only through academic exclusion but as a result of demoralisation and eventual drop-out. The interaction between affective factors and academic performance in influencing 'voluntary' withdrawal is an under-researched area that warrants particular attention in any comprehensive approach to improving graduate output.

However, with no intention to minimise the significance of non-academic factors, this paper focuses on aspects of the formal educational process which can substantially affect student performance and over which the higher education sector can wholly or partly exercise control.

6.2.2 Improving the effectiveness of the educational process in higher education

The term 'educational process' is used in this paper to mean not only teaching approaches but all aspects of the formal system, including the curriculum framework, the design of its component parts, assessment, and student support. By the 'effectiveness' of the educational process we mean its capacity to facilitate the success – that is, the attainment of the learning outcomes specified for recognised programmes – of the student body that the higher education sector needs to accommodate. The effectiveness of the sector thus encompasses its capacity to address equity, efficiency and appropriateness of outcomes as well as quality and standards.

The issue of factors and conditions affecting the quality of student learning has attracted attention internationally in recent decades, producing a growing body of literature. A notable theme is the complexity of factors that affect learning. Apart from personal circumstances, these include a range of cognitive factors, including 'learning style' and orientation, and different understandings of purpose and the requirements of the learning process. In South Africa key issues include the nature of prior educational experience as well as the level of achieved performance, and language background in relation to the medium of instruction. A salient point is that different educational processes suit different students. However, notwithstanding individual differences, structured teaching and learning generally takes place in groups, for practical and educational reasons. The question then arises of how best to constitute these groups: what (differential) teaching-and-learning arrangements should be made, within available resources, that will facilitate success for the greatest number of students in the intake?

This question has implications for improving the effectiveness of the educational process in individual institutions and across the higher education sector, including the following:

- The diversity of the student body in the sector as a whole has increased dramatically since the 1980s, particularly in terms of race, language, nationality and educational background. Diversity is embraced in national and institutional vision statements, and diversity in culture and life-experience is widely accepted as enriching. Diversity in educational background,

however, is largely rooted in continuing socio-economic inequalities, is manifested in wide differentials in preparedness for higher education, and is an obstacle to equity and development.[14]

Despite this, the educational processes in higher education have not changed significantly to take account of the major changes in the student intake. The value of innovations that have been introduced in specific areas should not be underestimated, but by and large traditional educational structures and teaching approaches remain predominant across the sector. The question of who is benefiting from the retention of the status quo is a key consideration.

- The changing student intake, with resultant increase in diversity and underpreparedness, is also a key issue at institutional level. In some cases, growth has led to a substantial shift in the profile of the student body as a whole, which has not been matched by institution-wide modification of educational approaches. In others, there has been significant increase in the diversity of the intake, in individual programmes as well as the institution as a whole. A consequence of the recent institutional mergers has been a marked increase in the range of preparedness in the student intake in many programmes as offerings from campuses with very different histories have been combined. This may have been a policy intention but is nevertheless not simple to manage.

  As in the case of the sector as a whole, these shifts raise questions about the adequacy of institutions' traditional educational practices for their changing circumstances, at institutional, faculty and programme level.

As demonstrated in the performance patterns outlined earlier, current educational processes are not working effectively for the majority of the current student intake. While there may be significant variance within the sector, the DoE's 2000 cohort study shows that few if any individual institutions are producing the graduate output they would be happy with (Mail & Guardian 2006a). Given that future growth in the student intake will result in greater diversity, the limitations of traditional approaches in the South African context are likely to be amplified.

Aligning the educational processes in higher education with the diverse realities and needs of the student intake is within the control of the sector and, we argue, should be part of its professional responsibility and competence. Particularly in view of the persistence of inequalities in schooling, implementing educational strategies that foster greater success across the student spectrum – without sacrificing the quality and standards of qualifications – is a necessary condition for improving graduate output, and should consequently be accepted by the higher education sector as a central challenge and developmental obligation. The development of such strategies is discussed in the following section.

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14 Caveats about assuming diversity to be a self-evident good are evident in research undertaken in the USA in particular. In brief, the studies conducted fall into two main groups.
- Studies which support diversity on the grounds that it enriches students by exposing them to different life experiences, thereby challenging them intellectually and facilitating the development of mutual respect (e.g. Chang 1999, Tierney 1997, Moses 1994).
- Studies which argue that diversity contributes to a dilution and distortion of academic standards, on the grounds that black students are more likely to be educationally disadvantaged, or to have been admitted with lower scores (e.g. Stowell 1992), and that many so-called integrated campuses are in fact racially polarised. This polarisation, it is argued, tends to confirm stereotypes (Steele 1990, Thernstrom & Thernstrom 1997) rather than to facilitate positive experiences.
What both camps would agree on, however, is that simply mixing students from different racial or cultural groups is not guaranteed to produce educational benefits. On the contrary, research strongly suggests that '…when efforts to improve diversity are taken seriously and done well …' (Chang 1999:379), the educational environment for all students will yield benefits.

7. EDUCATIONAL STRATEGIES FOR IMPROVING GRADUATE OUTPUT

As discussed above, students respond differentially to different learning conditions. Apart from personal characteristics, key factors affecting students' engagement with particular learning opportunities include their educational background, and particularly its effects on their approaches to learning as well as their subject knowledge.

However, mainstream higher education programmes generally treat the student intake as homogeneous in that, once admitted, all students are exposed to the same educational process. Whatever the theoretical or practical merits of this, the effectiveness of any unitary approach depends on two conditions: (a) its suitability for the particular student intake; and (b) that there is a relatively level playing field, meaning that the range of students admitted have an equitable chance of responding positively to the learning opportunities presented.

Diversity in the student intake, particularly in respect of inequalities in educational background, challenges the validity of traditional, unitary educational processes. The current student performance patterns support the contention that, where there is substantial diversity, a unitary process cannot realise the potential of the full spectrum of the intake, and inevitably favours certain student groupings over others. Traditional educational structures and approaches will favour the 'traditional' student groupings around which they evolved.

In the South African context, the differentials in the performance of the different population groups, which still largely reflect disparities in educational and socio-economic background, call for widening the range of educational structures and approaches used in higher education, to address the realities of different educational backgrounds. As argued earlier, increasing graduate output depends primarily on improving the performance of the least well performing groups. It follows that equity-related educational strategies have become a key element of higher education's capacity to contribute to development.

It is not self-evident, however, that the performance of any group is optimal; rather, the student intake should be considered as a whole. The central point, then, is that the effectiveness of the higher education system hinges on its capacity to cater educationally for the diversity of the student intake that it needs to accommodate, in ways that accord with the realities and priorities of South Africa as a developing country.

Because dealing with diversity has different implications at different levels in the sector, there need to be interventions that address systemic issues (such as educational structures) as well as regular teaching-and-learning approaches. This paper does not set out to offer a comprehensive account of the range of strategies that can be used, but the following sections outline two broad aspects of the educational process where it is believed that concrete initiatives can make a substantial difference in improving the patterns of performance.

7.1   CURRICULUM FRAMEWORKS: A CASE FOR REFORM

It has been argued in section 5 that key performance data point to underlying systemic problems affecting higher education outcomes. This section discusses some implications of this for the key systemic issue of curriculum structures and frameworks in higher education.

In higher education systems, the standard curriculum structures – as codified in higher education qualifications frameworks and funding policies – establish the educational frameworks within which all formal teaching and learning take place. (In the South African system, the three-year 'formative' degree and National Diploma are core structures in the qualifications framework.) These structures may be so embedded in a system that they are widely accepted as a given and not subject to critical examination. In South Africa, however, in view of the indicators of underlying systemic problems, there is a case for considering the higher education curriculum frameworks as a possible variable affecting student performance – that is, for considering the effectiveness of the traditional frameworks for our context.

7.1.1   Underpreparedness and the issue of articulation

As noted earlier, the educational factor to which poor performance is perhaps most commonly ascribed across the higher education sector is student underpreparedness for standard undergraduate[15] programmes. The impact of inequalities in the school system is not in dispute. A key issue, however, is what underpreparedness means. Underpreparedness should not be equated with a fundamental inability to cope with higher education, though the term is sometimes used as a euphemism for this. It has been argued earlier that, since the students who currently gain entry to higher education are in the top quintile of the population in terms of prior performance, the large proportion of underprepared students among them should not be discounted as lacking the potential to succeed.

An alternative view of the situation is that a significant part of the problem is inadequate articulation between the secondary/further education system and higher education in its existing standard forms. Students from educationally disadvantaged backgrounds have generally not been exposed to key academic approaches and experiences that are taken for granted in traditional higher education programmes. The resulting 'articulation gap', as referred to in the 1997 White Paper (DoE 1997: 2.32), is manifested in students as a lack of sound foundations for tertiary studies, and has profound effects on students' ability to respond positively to higher education programmes, irrespective of how talented they are.

While the effects of the articulation problem have been recognised in some individual institutions for as long as two decades, the national cohort studies have provided the first opportunity to consider quantitative indicators of the articulation gap across the sector. As set out in section 5, various aspects of the performance patterns – including shortages of qualified

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15   For the sake of brevity, the term 'undergraduate programmes' is used generically here to refer to all first bachelors and higher education diploma programmes.

candidates, high first-year attrition rates, and low completion rates in regulation time – point to a mismatch between the outcomes of schooling and the demands of the entry level of higher education programmes, even for substantial numbers of those who have been most successful in the secondary system. On the evidence of the indicators, the mismatch affects the majority of the intake but is severe for black students, among whom greater success is most needed.

Unless it is the case that most of the country's academic talent has remained outside the system, the lack of provision for the majority of the selected intake to successfully make the transition into higher education indicates significant articulation failure. Given the effects on performance, it is important to take account of the experience gained from interventions designed to address this systemic problem, which in South Africa have mainly taken the form of foundational provision and 'extended programmes'.

7.1.2 Experience arising from foundational provision and extended programmes

Foundational provision, in the form of foundation courses and other interventions integrated into what have become known as 'extended' degree and diploma programmes, has the express aim of enabling talented students from disadvantaged educational backgrounds to build sound academic foundations for succeeding in their programme of choice.[16] Foundational provision has its origins in the 1980s, when growing numbers of black students, the majority from educationally disadvantaged backgrounds, gained access to some historically white universities, and when the historically black institutions gave increasing attention to the underpreparedness of the majority of their intake. In the words of recent DoE policy (DoE 2006b), 'Foundational provision is commonly intended primarily to facilitate the academic development of students whose prior learning has been adversely affected by educational or social inequalities. Foundational provision is thus aimed at facilitating equity of access and of outcomes.'

Since the 1980s foundational provision has been introduced in a variety of forms and institutional settings. In the policy-development period after 1994, an analysis of the role of foundational and other forms of 'intermediate' provision in promoting access to and success in higher education was commissioned for the National Commission on Higher Education (Scott 1995; NCHE 1995), and the 1997 White Paper included recognition of foundational provision and extended programmes as a key means of addressing the articulation gap (DoE 1997:2.34). This recognition was confirmed in the NPHE in 2001 (DoE 2001:2.3.2), and provision for funding was made in the new higher education funding framework of 2003 (DoE 2003:4.1). Earmarked funds totalling some R600 million have been made available in two funding cycles (2004-06 and 2007-09) to date.

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16 Foundational provision and extended programmes have recently been defined by the Department of Education as follows:
'Foundational provision is (the offering of) modules, courses or other curricular elements that are intended to equip underprepared students with academic foundations that will enable them to successfully complete a recognised higher education qualification. Foundational provision focuses particularly on basic concepts, content and learning approaches that foster advanced learning. Even where the subject matter is introductory in nature, foundational provision must make academic demands on the students that are appropriate to higher education.'
'*An extended curriculum programme* is a first degree or diploma programme that incorporates substantial foundational provision that is additional to the coursework prescribed for the standard programme. The foundational provision incorporated must be (a) equivalent to one or two semesters of full-time study, (b) designed to articulate effectively with the regular elements of the programme, and (c) formally planned, scheduled and regulated as an integral part of the programme.' (DoE 2006b)

Considerable experience of foundational interventions has thus been gained, albeit mainly on the fringes of the teaching-and-learning process in the sector. While comprehensive analysis of the outcomes has not yet been undertaken, accounts of a range of initiatives have been given in papers and reports.[17] Some key points that have emerged from this experience and are relevant to this paper are as follows:

- While the effects of inadequate schooling cannot be minimised, 'underpreparedness' is relative to the level and type of provision concerned. Thus talented but disadvantaged students who are underprepared for a traditional curriculum are often able to respond well to foundational provision that is aligned with their educational and language background, and go on to become successful graduates.

- South Africa's core undergraduate programme structures were established early in the last century, when the student body was small and relatively homogeneous in educational and social background. The assumptions about prior learning and educational 'capital' on which our traditional curricula are based have essentially remained the same, and are not valid for the diverse intake of the contemporary higher education system. As long as these unitary assumptions remain dominant, the articulation problem will continue to undermine the development of many talented students (as the current performance patterns show), and will be exacerbated by any future growth in the diversity of the intake.

  The disjunction between the traditional curriculum structures and the realities of the diverse student body thus amplifies the problem of underpreparedness arising from inequalities in schooling. Though it may manifest itself as student deficiencies, the problem is in key respects systemic in that it relates to curriculum structures that hinder rather than facilitate the realisation of many students' potential.

- Although the discourse has evolved over time, from the outset foundational provision and other forms of Academic Development have been designed to address underpreparedness arising from educational disadvantage and the articulation gap. The principally systemic nature of the problem, and its implications for higher as well as secondary education, was recognised at an early stage (see for example Mehl 1988; Scott, Yeld, McMillan and Hall 2005). Foundational provision, particularly when it has been purposefully integrated with regular provision to form extended programmes, has thus represented efforts to respond to different educational backgrounds and the articulation problem through establishing alternative curriculum frameworks and pathways. The intention, albeit often implicit, has been to find structural responses to a key systemic problem.

- The underpreparedness associated with disadvantaged educational backgrounds often involves a complex of factors such as conceptual development, academic language proficiency and approach to learning, as well as subject knowledge. This means that 'more-of-the-same' approaches, such as providing more standard tutorials within the

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17 Work on foundational interventions has been published in, for example, the SA Journal of Higher Education, proceedings of Academic Support Programmes and SA Association for Academic Development conferences (selected papers available on CD from the Higher Education Learning and Teaching Association of Southern Africa [Heltasa]), and various institutionally-based journals.

parameters of traditional first-year courses, are seldom effective in addressing educational disadvantage. A key feature of successful approaches is that they are not 'remedial' but in various ways recognise and build on the capabilities that students bring with them into higher education, rather than being bound by traditional assumptions about what these capabilities should be. Alternative curriculum and course structures, particularly at entry level, are needed to make this possible.[18] This underlines the systemic nature of the challenge.

- Different forms of foundational provision have been found to be successful for different student profiles. For example, in situations where a high proportion of the intake are severely underprepared, a full year of foundational courses which prepare students for the regular curriculum has proved effective, and there are reports of 'foundation' students outperforming the regular class in subsequent studies. Because the emphasis needs to be on enabling students to successfully complete the whole degree or diploma programme, rather than on just coaching them through to the next level, effective foundational courses are 'forward-looking', usually focusing on conceptual development and key academic skills rather than only on making up content deficits. It has consequently been found that foundational provision and approaches can be successfully blended with the content of 'regular' first-year (or even higher-level) courses, to produce innovative courses that 'cover the syllabus' of regular courses but take additional contact and learning time. The return on this investment is students' passing, enhanced learning outcomes, and sound foundations for more advanced study. Courses of this kind can take different forms (the main ones now being commonly referred to as 'extended' and 'augmented' courses) that suit the student profile and the undergraduate programme they are located in. Articulating such foundational courses with the traditional senior courses in the curriculum has to be carefully managed, usually through steadily increasing the students' independence as learners.

  It has become widely accepted (including by the DoE) that foundational provision can only be effectively implemented if there are enabling structural arrangements, as outlined below.

- While differential entry levels in higher education programmes are critical to establishing positive articulation, the structural challenge of catering for a diverse student intake is not confined to entry-level provision. To allow for a steady increase in the intellectual demands on students coming from different starting points, the structure of a curriculum also needs to be flexible enough to accommodate differentials in the pace of progression. There is no intention to create separate courses throughout the programme, so the goal is to ensure that, in addition to integrating foundational provision, the required senior courses are spread evenly over an extended curriculum. The design challenges are outlined in section 7.2.

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18 The extent of the underpreparedness of many of the student intake – and hence the extent of the articulation gap in relation to traditional programmes – is indicated by various studies of school-level achievement such as those outlined in section 6.1.1. A further example is as follows. Low levels of achievement at the point of entry were demonstrated in an empirical study of entry level performance in Mathematics and Academic Literacy at several South African higher education institutions, which concluded '… even the most selective institutions are admitting a significant number of students whose levels of performance are alarmingly low' (Yeld 2003: 26). Test data derived from 322 registered students (99% of whom were from ex-Model C schools) at arguably the most selective Science Faculty in the country, revealed a sharp contrast with traditional assumptions: on a test based on the Grade 11 Standard Grade Mathematics syllabus, over a quarter of the students obtained less than 50%. Although these students were highly ranked in terms of prior achievement, the articulation gap would militate against their succeeding in traditional first-year Science courses. This underlines the need for foundational provision to enable such students to realise their potential.

- Additional curriculum space, over and above what is allowed for in the traditional programmes, is a pre-requisite for addressing underpreparedness in these ways. This means acceptance of a different entry level and the need for additional programme time – contact and independent study time. Extended programmes usually increase the duration of the degree or diploma by a year.

  This has resource and cost implications for institutions and students. The DoE's foundation grants are designed to enable institutions to meet the additional provision costs, but the student position is more complicated, involving concerns about direct and opportunity costs. In most cases the issue of additional cost is perceived rather than real since there is a low probability that the students affected would graduate in regulation time, if at all. It is possible for real additional student costs to be offset by financial aid and fee adjustments, but no effective way of avoiding an additional commitment of time has been found. The alternative is to use only the traditional structures, with the likelihood of perpetuating current performance patterns.

- The question of the effect of extended programmes on academic standards is relevant. It is not uncommon for the assumption to be made that extended programmes lead to second-rate outcomes. Ongoing monitoring of quality and standards in all programmes is of course necessary and justified, but the following brief points may be made in response to untested assumptions of inherent inferiority in 'non-traditional' forms of provision:

  * It is not valid to equate the modification of entry-level requirements and assumptions deterministically with lowering the 'exit standards' of a programme. The latter reside in the learning outcomes set for the programme, and particularly in the senior courses or modules. The mark of effective provision in the earlier phases is that it should be tailored to realising students' potential and preparing the way for success in advanced studies; different forms of provision can be used to fulfil this purpose for different student profiles. Thorough assessment of the programme-level outcomes assures quality and standards overall.

  * Exit standards cannot be compromised, and must be demonstrably the same for all students achieving the qualification concerned. The main design challenge is thus to provide alternative paths to the same learning outcomes. This challenge has been highlighted in the work of establishing extended programmes as variants of traditional curricula.

  * Applying unitary entry-level assumptions and provision to a diverse student intake can in fact undermine the desired exit standards and learning outcomes, in that many students do not develop the sound academic foundations needed for depth of understanding in their disciplines. If a significant proportion of students are in this position, there is downward pressure on quality and standards.

- As noted, no sector-wide study of the outcomes of extended programmes has yet been done. The DoE's experience with foundation grant applications and reports indicates that the implementation of these interventions has to date been uneven across the sector, and their contribution to graduate output (as opposed to widening access) cannot yet be assessed

sector-wide. However, long-standing experience in some individual institutions shows extended programmes making a significant contribution to black graduate output, not least in SET and Business and Management programmes. In some cases, particularly but not only in historically white institutions, the majority of the black graduates in key SET programmes have come through foundational provision and extended curricula. (See Sikakana 2006 for a case study of an MBChB extended programme.) Various institutions have reported positive course success and throughput rates for students admitted via alternative entry-level provision, though in a number of cases longitudinal performance studies have only recently begun.

In relation to the argument here, the key point is that, given appropriate provision that builds on their prior learning experience, talented students who are underprepared for traditional mainstream programmes can demonstrate their true ability and succeed in higher education. Interventions that effectively address the articulation issue, at least partly through establishing alternative curriculum structures, can make a positive difference to performance patterns.

- However, the design and implementation of extended programmes has been hindered in various ways. For example:

  * Foundational provision has often not been accepted as part of the responsibility of faculties and departments, with resultant shortcomings in quality assurance and articulation with the rest of the curriculum.

  * Foundational provision has suffered from shortage of resources, which has inhibited continuity of development and the growth of specialised teaching expertise. The DoE's introduction of earmarked funding in 2004 has injected substantial resources but, because the funding is awarded in three-year cycles, has not resolved the need for recurrent funding which would foster professionalisation in this area.

  * Foundational provision has commonly been used almost exclusively to provide access for students who do not meet minimum standard entry criteria, and has not been available to the many students who, despite meeting the minimum requirements, are underprepared for traditional programmes and fail or drop out. The impact of extended programmes on graduation rates has consequently been limited.

On the evidence of applications for the second cycle of DoE foundation grants, state funding appears to have boosted institutional recognition and design quality. However, extended programmes are still on the margins of the higher education system, accounting for an estimated 10% of the intake. As the performance patterns bear out, mainstream provision continues to be affected by structural problems associated with diversity and articulation. If the experience gained from educational development is to be utilised to improve overall performance in the sector, provision has to be made in mainstream programme structures for the curricular space and flexibility needed to cater effectively for the realities of South Africa's diverse student intake. Some implications for curricular frameworks, at national and institutional level, are discussed below.

7.1.3   A case for the reform of curriculum frameworks

The sector's performance patterns and experience with extended programmes outline a case for the reform of the core undergraduate curriculum frameworks, as a systemic response to the need to accommodate diversity in the student intake through providing flexibility in entry levels and progression routes to the desired learning outcomes. The main points are as follows:

- It is evident from the performance patterns that the existing traditional curriculum frameworks – particularly the three-year bachelors and national diplomas – are not effective for the majority of the student body. The mismatch between current structures and the profile of the intake contributes to the fact that core curricula, as formally planned and funded, are being successfully followed by only a relatively small proportion of students. This does not mean that existing structures should be discarded but rather that what is called for is more flexible frameworks. Put colloquially, 'one-size-fits-all' structures are not effective for the diverse intake.

- As has been argued earlier, the higher education sector needs to accept a share of the responsibility for meeting the diversity and articulation challenge, on grounds of pragmatism – that is, the limitations on significant improvement in schooling outcomes – and principle – that is, that aligning its inherited educational structures with the realities of the student intake is a key part of higher education's contribution to transformation.

- Experience with extended programmes indicates that, particularly in SET and other 'cumulative' disciplines, traditional curricula can obstruct many students' learning, in that poor articulation and content overload act against the development of sound academic foundations. However, the pressure on institutions and students to conform to the standard curriculum structures – even where it is known that the majority of the intake are not successful in them – is powerful, not least because of financial realities and perceptions. Notwithstanding the output-related steering mechanisms in the new higher education funding framework, there is evidently insufficient incentive for most institutions to adopt alternative curriculum structures on any scale.[19] In addition, it is well known that many at-risk students avoid interventions such as extended programmes if they can, not only because of the perceived additional costs of a longer study period but also because of negative associations with non-standard provision. State recognition and recurrent funding of a more flexible mainstream curriculum framework would be a key means of addressing such perceptions and the counter-productive discontinuities in the system.

19   Recent applications for foundation and teaching development grants indicate a few notable exceptions here.

- The articulation gap can be seen to be a major contributor to under-performance in higher education. It has negative effects on the following aspects of the sector's performance:

  * growth, because there are too few qualified candidates
  * equity of access, because it predominantly affects historically disadvantaged groups
  * 'shape', because articulation is particularly problematic in 'numerate' disciplines which are fundamental to the programmes where growth is most needed
  * efficiency, because it results in slow progress, dropout or failure
  * equity of outcomes, because, as the figures show, attrition tends to be highest in the groups that are already under-represented and whose successful participation is critical to improving graduate output
  * quality of outcomes, in that students who are not able to construct adequate academic foundations have particular difficulty in gaining mastery in their disciplines.

- Longstanding experience with extended programmes and related interventions indicates that alternative curriculum frameworks, designed to address the articulation gap that affects students from disadvantaged educational backgrounds, can enable such students to succeed in higher education. A key feature of most successful alternative frameworks is that they extend the duration of the degree or diploma programme in order to allow for (a) a different entry level, based on realistic assumptions about prior learning, (b) the inclusion of foundational provision that develops knowledge and skills needed for more advanced studies, and (c) more flexibility in progression through the curriculum. Recognition of such frameworks as integral to the qualification structure of higher education is essential for utilising their capacity to improve student performance.

- Considering the evidence and what is at stake, it is necessary to question what grounds there are for retaining the existing unitary curriculum frameworks. Two related arguments in favour of the status quo have commonly been raised: first, that underpreparedness arising from educational inequalities is a short-term problem not justifying any systemic response; and second, that non-traditional curriculum structures would reduce academic standards. Counter-arguments on these issues have been offered earlier.

  A third key argument is that allowing more formal time for the core undergraduate programmes would not be affordable. The financial implications clearly require detailed analysis, which is beyond the scope of this study. It can be noted, however, that the performance patterns indicate unsatisfactory returns on investment in the current system. In 2001, at the time of the NPHE, subsidy expenditure on students who left without completing was estimated at R1.3 billion (DoE 2001:2.1.3). The issue of affordability for individual students is equally significant but similar arguments about return on investment apply.

In short, this paper contends that there is a case for a formal investigation of the need for and feasibility of introducing flexibility into mainstream curriculum frameworks, to provide expressly for 'extended' versions of core programmes designed to accommodate talented students whose interests are not served by the traditional curriculum structures.

Reform in this area involves a range of policy considerations affecting the national and the institutional level, as outlined below.

7.1.4   Some key policy considerations

National policy frameworks

Recognition of extended programmes as an educational strategy has been accorded in the following national policy documents: the 1997 White Paper (DoE 1997: 2.3.4), the NPHE (DoE 2001:2.3.2), the new higher education funding framework (DoE 2003:4.1) and the latest policy on Foundation Grants (DoE 2006b). However, if this kind of educational strategy is to be used optimally, in ways that match the scale of the need, then alternative curriculum structures have to be provided for as an integral part of the mainstream higher education system. Two elements of higher education policy which would be key to accomplishing this are as follows:

- *The Higher Education Qualifications Framework (HEQF):* Much positive work has been done in recent years towards rationalising and modernising the qualifications framework. However, the draft new HEQF (DoE 2006c) makes no reference to extended programmes or other equity-related forms of provision (such as the 'foundation certificate' that appeared in earlier drafts). This may be because such interventions are seen as short-term or peripheral to the extent that they do not warrant inclusion, but the evidence counters this view.

  We argue that the evidence supports the need for the HEQF to allow explicitly for flexibility in the structure and duration of core undergraduate programmes. Whatever form this may take, the effect should be to recognise programme variants that incorporate additional (foundational) provision, and the credit requirements should be modified accordingly. In the traditional time-related terminology, the HEQF should allow for, say, three- and four-year versions of national diplomas and general academic bachelors degrees, and four- and five-year versions of professional bachelors programmes. This would be designed to enable institutions to structure their programmes in accordance with their missions and intake profiles.

  It is worth recalling that the report of the CHE's 'Shape and Size' task team in 2000 included proposals for the reform of the basic degree structures, calling for consideration of a four-year Bachelors as the standard undergraduate degree (CHE 2000:47-48). It is regrettable that debate on the key issues underlying this idea was lost in the wider contestation about the task team's controversial proposals on institutional differentiation. It should be noted, however, that the task team's proposal was for a different but still essentially unitary structure. We believe that the debate should be revived but with the difference that it should take account of the evidence of the need for differential core structures in catering for diversity.

- *HEMIS and the higher education funding framework*: Provision for alternative programme structures in the HEQF would have to be carried through into HEMIS and the funding framework. At present, every qualification is allocated a specific 'formal time' – for example, three years for a BSc, four years for a BSc (Eng) – which is a key factor in the calculation of 'teaching input' subsidy for a programme. The fact that the system is not designed to allow for any programme variants with different formal time means that it is not possible for additional provision – such as foundational provision within an extended programme – to be recognised and funded through the regular subsidy system.[20] This has strong symbolic as well as practical significance, in that it stands in the way of the regularisation of alternative curriculum frameworks and inhibits acceptance of their having a role within the mainstream system.

  Adapting HEMIS and the funding framework to allow for alternative curriculum frameworks would no doubt be a substantial challenge with considerable cost implications. Its feasibility would have to be gauged against its potential to address the limitations of the current system, and against the probable cost – in human and material terms – of maintaining the status quo.

It is acknowledged that modifying central elements of the system along these lines would require thorough analysis of options and expert planning and implementation. In the shorter term, progress in catering for diversity can continue to be made by refining the present national policy on extended programmes, particularly as it is embodied in the foundation grant mechanism, and by building capacity in the sector for effective design, delivery, management and evaluation of such programmes. The key issue of capacity development is discussed in section 8 below.

A related national policy issue, namely the possible contribution of new forms of FET provision to improving articulation, can only be flagged in this paper but is acknowledged as potentially important. In the 1990s there was extensive debate on the idea of 'intermediate' provision (see for example NCFE 1997, University of Natal 1990, and Fisher and Scott 1993), which covered 'bridging' programmes as well as foundational provision as it is now known.[21] An argument at that time was that, for many potential entrants to higher education from township and rural schools, the gap between secondary and higher education was so wide that tertiary-level foundational provision was not sufficient as an intervention, but that bridging programmes within FET, designed to articulate with extended higher education programmes, had an important role in providing equity of access.

Interestingly, the tightening of eligibility conditions in the second cycle of foundation grants (particularly the requirement that foundation courses be credit-bearing) has re-opened discussion on the need for bridging, perhaps mainly in relation to technikon-type programmes. The DoE's (2006b) position that bridging cannot justifiably be classified or funded at higher education level has drawn fresh attention to the role of FET colleges in supplying this level of provision.

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20 This has recently been manifested in the difficulties involved in devising a formula-based method of allocating the DoE's foundation grants (DoE 2006b).
21 Bridging programmes are understood to be pre-tertiary, while foundational provision is classified as being at higher education level.

Experience with bridging initiatives offered by NGOs indicates that this level of intervention does not diminish the need for the reform of curriculum frameworks in higher education because bridging does not adequately prepare students for entry to many traditional programmes. However, bridging may well assume increasing importance if performance in the school sector does not improve quickly enough and/or if it becomes necessary to raise higher education participation rates significantly above their present level, which would necessitate catering for more underprepared students. The policy issues related to bridging warrant consideration in any detailed planning of alternative higher education structures.

Institution-level policy and the issue of institutional differentiation
While national policy should provide an enabling framework, the extent to which alternative structures are effectively used depends ultimately on choices in the institutions. A key question here is whether extended programmes should be offered in all institutions or concentrated in those with predominantly equity-related missions.

In some higher education systems, notably in north America, diversity in the student intake is accommodated primarily by means of formal institutional differentiation. Thus, in the USA, the different tiers of the system – ranging from community colleges, whose main offerings are two-year Associate Bachelors qualifications, to full research universities – have very different student intake profiles. This approach is able to provide access for a very wide range of entrants, as the USA's high participation rates attest. However, it has also been historically criticised on the grounds that it tends to perpetuate social stratification: direct access to the different tiers goes largely along class and ethnic lines, a community college qualification has less value than a full Bachelors degree in terms of life-chances, and upward progression between tiers can be beset with hurdles (see for example Adelman 1992; Brint and Karabel 1989).

The issue of institutional differentiation has come to the fore at various times in South Africa. The binary divide between universities and technikons (or trinary, if specialist colleges are taken into account) represented a particular form of differentiation which has only just been dismantled through the restructuring of the institutional 'landscape'. In the last years of the apartheid government, the 'Education Renewal Strategy' (DNE 1991), conceived of by senior officials of the then-education departments, proposed a higher education structure that included 'edukons', new community college-style institutions that would accommodate aspirant higher education entrants from disadvantaged educational backgrounds. (The proposal was overtaken by the political transition.) The CHE's 'Shape and Size' task team advocated a regulated set of institutional tiers (CHE 2000: 32-43), but these proposals were not accepted by the DoE. Most recently, the issue has been broached again by individual academics, particularly on the grounds of developing national research and innovation capacity through a policy of concentrating high-level resources in a relatively small number of research-orientated universities (see for example Vaughn et al 2007; Jansen 2005).

The idea of structured institutional differentiation is clearly present in the consciousness of the academic community. It is attractive to some key constituencies perhaps not only because of focusing research resources but also because it may be seen as a way of substantially reducing the diversity

of the student body in terms of educational background, and hence making teaching more manageable. There is already a considerable degree of informal differentiation in the South African system that has arisen from different institutional histories, locations and missions, often linked to past inequalities. While such differentiation is probably inevitable and there is no doubt value and creativity in diversification of mission, there are arguments that intensifying or formalising differentiation in the South African context would not be in the interests of the educational obligations of the sector. It is not within the scope of this paper to discuss this topic in detail, but it is worth noting some points that have a bearing on improving graduate output, particularly in relation to equity of outcomes.

- Given the persistent realities of race and class in South Africa, if access to a firmly tiered institutional structure were controlled on the basis of achieved educational performance alone, students disadvantaged by educational background or language of instruction (the great majority of whom would be black) would not gain entry to research-oriented institutions or the high-level academic and professional programmes that are generally these institutions' preserve. Racial as well as class stratification in the system would be further entrenched.

- The negative effects of stratification can theoretically be overcome by providing for student mobility between tiers, through articulation arrangements. In practice, however, this often involves students' having to progress via sub-degree qualifications and a succession of selection hurdles. In comparison with the situation in developed countries (where differentiation is increasingly advocated), in South Africa historical inequalities affect the majority, and as the participation rates indicate, only a small proportion of the academic talent in the majority population group gain entry to any form of higher education. In this context, it seems neither fair nor productive to expect a talented but relatively underprepared black student (such as a top matriculant in a township school, who is likely to be in the top decile of his or her group in terms of academic potential) to have to take an indirect route – via different institutions or introductory qualifications – to try to gain entry to, say, an engineering degree programme.

- In the case of many programmes, there is a layer of black applicants who are close to but do not meet the regular admission criteria. AD experience has shown that, while these students are underprepared for the regular curriculum, many of them are able to succeed in an extended version of the same programme. It is students in this category who need to be successfully accommodated in order to increase representivity and significantly raise overall graduate numbers, particularly in highly selective subject areas where (as the cohort studies show) growth through equity of outcomes is most needed.

The significance of this is that it is both viable and responsible for all categories of institution to admit students on the basis of academic potential as well as achieved performance, provided that alternative curriculum structures are in place to cater for the resultant diversity in the intake. The advantages of this include: (a) that talented

students from all sections of the population are not denied direct access to programmes because of educational disadvantage rather than their potential to succeed; (b) that representivity at programme level is increased and racial stratification in the sector is reduced; and (c) that such interventions are a key means of improving graduate output in professional and other highly selective subject areas. We would argue that these contributions to output and transformation justify the effort involved in institutions' putting in place the required curriculum structures as well as selection and placement measures.

However, the value of alternative curriculum frameworks as an educational strategy does not depend on every institution employing them or on how the issue of institutional differentiation evolves; as argued earlier, a large proportion of the students in the sector could benefit from them wherever they are located. The main purpose here is not to offer comprehensive discussion but rather to challenge the view that institutional differentiation is in itself a viable response to educational disadvantage and diversity, avoiding the need for change in the educational process. Institutional differentiation is not a substitute for systemic curriculum reform. Alternative frameworks need to be in place in the sector as a whole, and available to all categories of institution, including the most selective, as a means of increasing equity and output.

It is recognised that institutions will choose the forms of provision they offer on the basis of their own missions and strategic goals. Since the combined effects of these choices will influence the educational opportunities and life-chances of many people, particularly those from historically disadvantaged groups, the state has a key responsibility for establishing enabling curriculum frameworks, together with policies that encourage the institutions to make choices that foster equity and substantial growth in graduate output. This matter is discussed in section 8.5 below.

7.1.5   Summary and recommendation

The main points of the case for the reform of curriculum frameworks may be summarised as follows:

- The sector-wide performance patterns, together with extensive institutional experience, reflect underlying structural problems in the interface between secondary/further education and higher education and in assumptions about the student intake that underlie higher education curricula. Since they relate to insufficient continuity between these major educational phases, the problems are essentially systemic, and call for structural rather than peripheral or 'remedial' responses.

- The performance patterns indicate that these systemic problems are affecting the majority of the current student intake. Despite the likelihood that the black students currently gaining access to higher education have high academic potential, the system is working least well for the most under-represented groups. This stands in the way of improving graduate output, not only by affecting the performance of the current intake but also by

inhibiting successful future growth, especially in the subject areas where high-level skills development is considered to be most necessary.

- While the importance of developing the school sector cannot be minimised, higher education needs to take a share of the responsibility for improving the effectiveness of the system, for principled as well as pragmatic reasons. A central aspect of this responsibility is for the sector to develop capacity to cater successfully for diversity in the student intake, at sector and institutional level. In the South African context, the intake will necessarily be highly diverse in terms of students' educational preparedness if the linked goals of equity and growth in graduate output are to be achieved. Diversity in preparedness needs to be accommodated not only in the sector as a whole (for example though different institutional missions) but also in many individual institutions (particularly the most selective universities where high-level professional and research-oriented programmes are generally offered) if representivity and growth are to be fostered in all the main programme areas.

- Given the systemic nature of the challenge, a necessary condition for catering for diversity is the establishment of more flexible curriculum frameworks. The inherited traditional frameworks are proving not to be optimal for the majority of the intake, and unitary structures are not effective for a diverse intake. Foundational provision and additional time have proved to be key means of enabling students to overcome underpreparedness arising from educational inequalities, and curriculum frameworks need to be flexible enough to accommodate such provision, for all students who will benefit from it.

- There are thus two interlinked aspects of structural reform that are key to allowing for diversity: (a) the provision of alternative entry levels, with additional foundational provision for those who need it, to directly address the need for effective articulation through taking realistic account of the differentials in students' prior educational experiences; and (b) provision for flexibility in pace of progression through the programme, without in any way diluting the required component courses or programme-level outcomes. These structural reforms require additional formal time in degrees and national diplomas. It follows that, to allow for the necessary flexibility, variants of the traditional three- and four-year programmes, carrying an additional year of formal time, need to be recognised and regulated within national higher education policy.

- Institutional experience of extended programmes has provided evidence that this kind of development can make a significant difference to performance patterns, and represents a valuable basis for further development. However, the scale of the structural challenge, as indicated in the performance patterns, calls for flexibility in curriculum structures to be fully incorporated within mainstream provision. This means that provision for alternative curriculum structures needs to be included in key policy instruments such as the HEQF, HEMIS and the higher education funding framework. Regulatory policy would need to be developed, but it is envisaged as a principle that policy on placement should be based on assessment of what entry level would maximise the student's probability of successfully completing the

> qualification. The performance patterns suggest that extended curriculum structures could suit the majority of the current and future intake, and could conceivably become the norm.
>
> It is therefore **recommended** that the Department of Education, advised by the Council on Higher Education and other relevant organisations, constitute a formal investigation into the need for incorporating alternative higher education curriculum frameworks – designed to cater for educational diversity in the student intake and thus to reduce existing systemic obstacles to improving graduate output – into higher education policy, with particular reference to the Higher Education Qualifications Framework, HEMIS and the higher education funding framework.

As noted earlier, curriculum structures are critical in that they strongly influence the effectiveness of teaching and learning. However, as experience with the DoE's foundation grant scheme has underlined, capacity in the sector to make optimal use of opportunities arising from structural innovation cannot be taken for granted. Other key aspects of what it would take to foster substantial gains in student performance are discussed in the sections below.

7.2   EDUCATIONAL EFFECTIVENESS IN MAINSTREAM COURSES

It has been argued that the reform of curriculum frameworks is a necessary condition for addressing diversity and thus improving graduate output. However, this is not to suggest that it is a sufficient condition. Sound curriculum structures provide enabling frameworks but there remains a need to design and deliver the component courses[22] in ways that will foster improved performance in the student body as a whole.

Improving the quality and effectiveness of teaching and learning in higher education is a major topic on which there is an extensive and rapidly growing body of international literature, with developmental projects being undertaken in a number of countries. Detailed discussion of the topic is not within the scope of this paper but some challenges that are particularly relevant to the South African context are outlined here, by way of example.

As discussed earlier, traditional educational approaches continue to prevail in South African higher education despite the far-reaching changes that have taken place in the student intake. This applies not only to curriculum frameworks but also to routine academic teaching practices, from course design to delivering lectures. It is commonly the case even in institutions (or sections of merged institutions) where virtually all of the intake come from educationally disadvantaged backgrounds. The main educational challenge in these circumstances is not so much diversity as tailoring the standard teaching-and-learning processes to the realities of the great majority of the students. In

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22   The term 'course' is used here, for convenience, to refer to any unit of provision that is assessed: for example, courses, modules, research projects, experiential learning blocks or field studies.

these settings, a high proportion of the intake would benefit from foundational provision and extended programmes, and a key goal would be to ensure that the mainstream courses and teaching approaches are designed to make the most of alternative curriculum frameworks.

In many institutions, however, diversity in the intake is a central challenge. This has been the case for some time in historically advantaged universities that have diversified their student bodies, and is a growing issue in a number of merged institutions that are seeking to unify their programmes across campuses with historically different intakes. Institutions of this kind are to some extent microcosms of the higher education sector, and unitary approaches have the same limitations there as in the system as a whole.

While a central purpose of alternative curriculum frameworks is to make provision for different (foundational) courses at entry level, there is no intention to advocate parallel tracks through the undergraduate programme as a whole. This would not be practicable or desirable. On the contrary, it is important to bring the diverse intake together in common mainstream courses as early as it is educationally sound to do so. In other words, flexibility beyond first-year level comes primarily from enabling students to take different formal workloads – allowing for varying forms of support – rather than through providing alternative senior courses. It follows that, in the South African context, many regular courses will include students from diverse educational, language and social backgrounds.

Preparedness for higher education is a complex phenomenon, and it is seldom that the negative consequences of educational and social inequalities are eliminated rapidly, even with substantial foundational provision. This means that the effects of different educational and social backgrounds will continue to be experienced in many regular courses, including senior courses, potentially influencing student performance significantly. Issues such as the relationship between linguistic background and academic literacy, cultural capital and skills development may be persistent, or may arise in new forms as students reach more advanced levels, and need to be addressed. The influence of educational background on performance should, and can, be substantially reduced as students progress through the curriculum (see for example Sikakana 2006), but this depends on the effectiveness of curriculum and course design and teaching at each level, and cannot be taken for granted.

Successfully tailoring mainstream teaching-and-learning to take account of students' educational background and enable them to realise their potential – an ongoing process that may be termed 'mainstream educational development' – is thus a second necessary condition for improving performance and graduate output. In a growing number of institutions, this means catering effectively for diversity in the classroom, in individual courses and programmes. Given the importance of higher education outcomes, this should be a key challenge for academic leadership, middle management and academic staff.

Strategies for educational development are many and varied, and it is not feasible to discuss them in any detail here. However, a brief outline of key areas of educational development that are relevant in South Africa provides an overview of the scope of the work at institutional level.

The main areas are as follows:

- Curriculum and programme design: particularly in relation to the structuring of curricular frameworks to accommodate different levels of preparedness for higher education.

- Student selection and admissions: including innovation in approaches to selection and admissions, placement and diagnostic assessment, and the iterative relationship between student selection and curriculum design.

- Course design: including ensuring that courses and modules are constructed on a sound educational basis, in relation to the student profile and the desired learning outcomes.

- Teaching approaches: including the use of educational technology, and with particular reference to dealing effectively with the realities of diversity and large classes.

- 'Generic skills' and literacies: provision for Language Development and Academic Literacy, Quantitative Literacy and Information Literacy as tools for learning as well as desired graduate attributes.

- Assessment: particularly the alignment of assessment with curriculum/course design and learning outcomes.

- The management of teaching and learning: including leading and co-ordinating design and delivery at faculty, programme and course level (especially in relation to large courses), and ensuring that the teaching-and-learning process is research-informed.

Historically, educational development has been directed mainly at the undergraduate level, but the principles and some strategies are relevant to postgraduate studies as well. This applies particularly in the case of coursework and 'professional' postgraduate programmes, but research supervision is also gaining recognition as an area of educational development in its own right. As the need for improving postgraduate output and equity is likely to grow, educational development at this level may increase in significance.

Institutional experience and data analysis show that the specific challenges of improving student performance and graduation rates can vary considerably between different faculties, programmes and disciplines within the same institution. Since programme design and teaching are primarily in the hands of regular academic structures and subject specialists, selecting and implementing effective educational interventions relies ultimately on local knowledge and co-operation. This highlights the importance of building educational capacity within the institutions, not just in specialised educational development bodies but also in the regular faculties, schools and departments. The key issue of how to develop this capacity, and stimulate academic engagement with improving the educational process, is discussed in section 8.

8. APPROACHES TO BUILDING EDUCATIONAL CAPACITY IN THE HIGHER EDUCATION SECTOR

We argue, on the basis of the significance of higher education and the performance patterns discussed above, that decisive and concerted action is needed to make a substantial difference to the capacity of the higher education sector to improve graduate output to meet national needs. The systemic nature of key obstacles to such improvement makes it essential for there to be a comprehensive but focused approach involving policy, planning, resourcing and capacity building, within an effective blend of incentives and accountability.

The development of a comprehensive approach constitutes a considerable undertaking for the sector and its key stakeholders, and will by its nature require consultation and negotiation as well as leadership. It is thus not the intention of this paper to present a comprehensive plan but rather to propose some key considerations and elements that analysis of the situation suggests must be taken into account.

8.1 A COMPREHENSIVE APPROACH TO IMPROVEMENT

Because the existing performance patterns in the sector are embedded in long-standing systemic conditions, changing them calls for a multi-faceted and multi-level approach, including the following key elements:

- **Clarity and commitment in national goal-setting and planning**
  A clear focus in setting output goals and strategic direction for the sector, together with aligning policies and resource distribution accordingly, is a necessary condition for achieving significant positive change. Goal-setting must of course be dynamic and informed by the constraints of our context, but it must be equally strongly informed by rigorous and evolving assessment of what the country needs from higher education. A central argument of this paper, arising from educational development experience, is that performance in the higher education system does not have to be deterministically confined by factors outside of the sector's control, influential though they are; on the contrary, change in the educational processes within higher education can produce significant change in outcomes. The political will to negotiate broad goals that are not unreasonable but nevertheless increasingly challenging is consequently a key means of mobilising energy and innovation towards meaningful progress.

  The DoE's recent shift towards a greater emphasis on output goals, and negotiation with individual institutions on their mission and targets, represents an important step in this direction.

- **Establishing effective frameworks for teaching and learning**
  The evident ineffectiveness of the traditional curriculum structures in South African higher education may serve as an example of how an inappropriate framework restricts achievement. The need for effective frameworks applies not only to structures within which formal teaching and learning take place but also to professional development and capacity building in higher education. Without effective frameworks, effort and resources are not well utilised.

Existing frameworks are usually embedded in the system and consequently resistant to change. However, being prepared to examine them and change them as necessary is particularly important in the South African context, where inherited systems and approaches have some significant shortcomings in relation to contemporary conditions, and can in themselves be an obstacle to development. It is ultimately the responsibility of the state to establish effective frameworks, but given the nature of higher education, the involvement and expertise of the sector are critical.

- **Identifying key educational strategies for improving graduate output**
  Unsatisfactory performance in the higher education sector is long-standing, and the obstacles to improvement – particularly the tensions between widening participation, increasing success rates and enhancing quality – are commonly seen as intractable. Identifying educational strategies that can address these tensions and contribute to significant improvement of outcomes is thus a central challenge for the sector which neither traditional teaching approaches nor isolated initiatives are likely to be able to meet.

  Developing the kinds of educational expertise needed to identify and implement interventions that will be effective in our context should be a priority, and should provide the rationale for an educational capacity-building approach for the sector.

- **Establishing an effective approach to professional development**
  Since the progress of the sector ultimately rests with the staff, creating a successful professional development system is a key investment for higher education. As will be argued below, the establishment of structures for this purpose is a necessary but not sufficient condition, since a central challenge is to create an environment where professional development is valued and sought. Approaches to how this might be achieved are discussed below.

8.2 THE SIGNIFICANCE OF 'EDUCATIONAL EXPERTISE'

It has been argued that the challenges for the sector, particularly those inherent in the four elements of development outlined above, are primarily systemic. Key problems, such as the tension between equity and efficiency, are ones that the sector has not been able to resolve over many years. This indicates that simply continuing with current approaches – doing more of the same – will not change the embedded patterns. The substantive question, then, is to what extent the sector has the capacity, in terms of expertise as well as resources, to develop and implement fresh and more effective approaches and strategies.

It appears that the systematic knowledge of the educational process that is necessary to do this is currently not in adequate supply in the sector at large. As is still the case in many countries, our higher education sector relies predominantly on 'craft knowledge' of the educational process, with academic staff teaching much as they were taught and with traditional approaches strongly reinforced by departmental cultures. Craft knowledge of this kind has served higher education well in conditions of

stability and continuity, but, on the evidence of the output patterns, is failing to help produce solutions to the educational problems of the contemporary context. These problems confront many academic staff with challenges for which their own academic backgrounds have not prepared them – such as the challenge of developing students from highly diverse educational and linguistic backgrounds, or the growing demand for e-learning. The key limitation of craft knowledge is that, lacking a systematic or theoretical basis, it does not provide conceptual and analytical tools for dealing with 'non-traditional' situations. As discussed earlier, traditional teaching approaches are not working optimally for many students The new educational challenges in higher education call for research-based and scholarly approaches to be brought to bear on teaching-and-learning practice in areas where craft knowledge is not sufficient.

Kreber's (2002) distinction between 'excellence' and 'expertise' in teaching provides valuable insights into the nature of our current capacity and what is additionally needed in the sector. 'Excellence in teaching', of the kind celebrated in traditional institutional teaching awards, is commonly associated with high levels of craft knowledge, excellence in the discipline, and personal charisma. 'Teaching expertise', by contrast, is based on systematic knowledge of teaching and learning processes in higher education, acquired through literature, reflection and research, and is associated with the post-Boyer (1990) concept of 'the scholarship of teaching and learning'. Kreber and others in fact distinguish between teaching expertise and the scholarship of teaching and learning, in that the latter involves publication and formal peer review. In the interests of brevity, however, we use the term 'educational expertise' here to refer broadly to the application of systematic knowledge or research to the development and implementation of educational processes, whether or not it involves peer-reviewed publication.

In arguing for the importance of educational expertise in our context, we are not suggesting that there should be an expectation that all academic teaching staff should become specialists in the scholarship of teaching and learning; there is of course a range of key contributions that academics need to make to society. What we believe to be essential for effective educational development, however, is that there should be a level and spread of educational expertise in the sector that is sufficient for leading, designing and implementing educational processes that lead to the outcomes the country needs. This expertise needs to be available at different levels and in different forms, including the following:

- There needs to be a sufficient number of educational specialists, at appropriate academic levels, to lead educational management and development at national and institutional levels, to provide specialised educational design and teaching services, to provide professional development opportunities, and to disseminate systematic educational knowledge within the groupings of academic staff – departments or programme teams, for example – that are responsible for mainstream provision. Educational specialists have aspects of the educational process as their main field of study and research, though they may come from, or work mainly within, specific disciplinary areas.

- There is an important need for a sound level of educational expertise in a number of 'mainstream' academic staff – that is, disciplinary specialists in regular academic departments, schools or faculties – sufficient for effectively leading and managing the design and delivery of mainstream courses and programmes, and guiding the selection and work of programme and large-course teams. Capacity to interpret and operationalise national and institutional

educational policy is a critical aspect of expertise at this level. Staff in this category continue to see their home disciplines as their main affiliation but develop interest and secondary specialisation in education in their subject areas.

- In addition, there should be an expectation that all academic teaching staff should in time gain a basic level of educational knowledge, sufficient for effectively implementing appropriate educational approaches. Some level of professionalisation of teaching is increasingly being required of academic staff in developed countries (whose educational challenges are not as demanding as South Africa's).

These are not intended to represent exclusive categories – there would normally be a continuum of levels of educational expertise in a system – but rather examples of areas in which capacity should be developed. It is acknowledged, however, that the place of educational expertise in higher education, as well as its relationship to standard disciplinary research and scholarship, remains controversial in South Africa. Dealing with this issue is thus a leadership challenge.

8.3 CONDITIONS FOR THE GROWTH OF EDUCATIONAL EXPERTISE: THE ISSUE OF ENGAGEMENT

If the need for educational expertise is accepted, it is necessary to consider what is in place and what conditions are required to facilitate its growth.

The CHE, through the HEQC, is the only statutory higher education body with an explicit mandate for capacity-building in relation to teaching and learning. The HEQC is now geared to taking this mandate forward, indirectly through the audit and accreditation processes and directly through its Quality Promotion and Capacity Development (QPCD) directorate. Other organisations with an interest in this area include professional higher education bodies (particularly HESA), various professional and disciplinary associations, and the institutions. A number of academic staff development initiatives, including postgraduate qualifications, have been introduced in institutions and regions. Outside of the sector itself, the ETD SETA has a contribution to make to facilitating professional development, though the nature and potential impact of this contribution has not been clearly established.

Despite the efforts being made, however, what is presently in place is inadequate for meeting the needs of the sector, in terms of both structures and resources. There is, for example, no national network to support teaching-and-learning development. Notwithstanding recent changes in the allocation of the 'Teaching Development' grants provided for in the national funding framework, funding for educational capacity building and research is very limited at national and institutional level. The thinness of our present structures is evident when they are seen against the networks that have been established in various first-world countries. While direct comparisons with developed countries may not be valid, it is important to recognise the implications of the fact that our relative shortage of capacity-building resources is compounded by the greater extent and significance of our developmental needs.

However, in the experience of many involved in this field, the main obstacle is not just structures and resources but the marginalisation of teaching-and-learning development in the higher education system, and the lack of engagement of academic staff in capacity-building in this area. Participation in formal and non-formal professional development initiatives is commonly limited to a small minority of intrinsically-motivated academics, and efforts to expand are frustrated by lack of recognition of educational expertise. This is by no means only a local concern – lack of engagement is an issue in higher education institutions in many systems, particularly in research universities (see for example Elvidge 2004) – but it has added significance in South Africa because of the high stakes involved.

As noted earlier, teaching (undergraduate teaching in particular) is by far the largest part of the core business of higher education in South Africa, so it is often puzzling to observers outside the sector that there are problems with the status and professionalisation of teaching. The issue is internationally recognised as complex, being rooted in competing conceptions of the purposes of higher education and what constitutes valid scholarship. In many institutions, the dominant values and attitudes are dismissive of educational expertise as an intellectual domain. Notwithstanding concepts like 'research-led teaching', tensions between teaching and research are manifested in a range of ways. Within institutions, teaching and research compete for academics' time.[23] While many academics are committed to their students and to teaching their disciplines, engagement with educational innovation, and with gaining the expertise needed to meet contemporary educational challenges, is commonly (and perhaps increasingly) perceived as contrary to career interests. At sector level, it is apparent that there are similar tensions between national output needs and the way institutions see their own identity and corporate interests. In these circumstances, the prospects of building the sector's educational capacity are not good unless there are changes in values and attitudes.

Given the nature of higher education, the aim has to be not to create conflict between teaching and research, which would be highly counter-productive, but rather to establish an effective balance between these (and other) key elements of higher education as legitimate and essential manifestations of scholarship (Boyer 1990). As suggested above, an effective balance can be reached by the valuing of different academic roles and levels of educational expertise – from specialist to basic understanding – and recognition that complex educational challenges can only be effectively met by collaboration between staff with complementary capabilities, in groupings such as programme teams.

In summary, capacity building in teaching and learning is not simply a challenge of appropriate provision but rather of how to ensure positive engagement on the part of institutions and individuals. The following section offers a view of how this might be achieved.

8.4   PROMOTING ENGAGEMENT THROUGH ACCOUNTABILITY AND INCENTIVES

Given the nature of the academic community, increasing positive engagement with educational capacity building depends on strengthening the recognition and status of 'teaching' and

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23   It appears also that in some institutions entrepreneurial pressures and inclinations are placing a growing emphasis on for-profit consultancy and professional short-course teaching, possibly at the expense of regular (particularly undergraduate) teaching.

educational expertise. We argue that, in the South African context, this depends in turn on ensuring that effective educational performance becomes important to both institutions' and individuals' status and advancement. This calls for a combination of push and pull factors: on one hand, promoting fair accountability for educational outcomes across the sector, and on the other, establishing educational expertise as an intellectually stimulating and rewarding area of academic work.

We contend that a key reason why educational performance, and hence educational expertise, is not experienced as a priority in the sector is that there is a lack of real accountability for the outcomes of the educational process, particularly in the institutions. Institutions accept responsibility for the exit standards of their qualifications (though these are benchmarked and measured with differing degrees of rigour). There is also debate on and a general sense of responsibility for the appropriateness of the content of programmes and disciplinary majors. There is, however, little accountability for the 'size and shape' and representivity of the graduate output at any institutional level, and in many programmes there is no assessment of, and thus no accountability for, overall graduate attributes. Institutions have been predominantly input-orientated in their planning, and in many cases output data that are pre-requisite for accountability – particularly longitudinal performance data such as cohort studies – have not been readily available or analysed in depth in the institutions. The DoE has placed greater emphasis on output by setting broad national output goals in the NPHE, establishing funding incentives in relation to efficiency, and, recently, requiring institutions to include output targets in their formal enrolment plans. However, the national goals do not translate readily into institutional goals, and while institutions may be focusing more on efficiency, it is not apparent, at the time of writing, that there is a concerted effort across the sector to substantially improve output in line with identified national needs.

In the absence of clear accountability for improving graduate output, many institutions have not placed a premium on improving the effectiveness of their educational processes or, consequently, on investing in the capacity-building necessary to achieve this. In a number of universities, despite some awards for teaching, the reality is that disciplinary research, particularly in its traditional manifestations, remains the predominant route to status and access to funding. While the technikons historically placed greater weight on teaching, it appears that the new Universities of Technology are increasingly emphasising research and consultancy in an effort to establish new identities. The merger process itself has been a major distraction. Other forces that might be expected to focus institutions' attention on improving teaching and learning are growing but still at an early stage of development. Examples include the national quality assurance system, which is in its first audit cycle, and market forces and consumer consciousness, which are becoming more evident but are still suppressed by a range of factors, including the instability arising from the changing 'institutional landscape'.

Establishing such accountability – with due regard to what can reasonably be expected of institutions – is primarily the task of the state, but should be supported by the sector itself as a key means of clarifying and fulfilling its public obligations and hence retaining public support. If improving output became psychologically and materially important to institutions in this way, it could be expected to influence values and practice significantly.

However, as experience in many contexts has shown, accountability by itself is not enough, and risks resulting in a narrow compliance that compromises quality.[24] We suggest that, to encourage academic staff to engage willingly and proactively in developing their educational expertise, there are two sets of motivating conditions that can be put in place:

- The first condition is ensuring that expertise in 'teaching', that is in all aspects of the educational process, is genuinely recognised and valued by the institutions as essential to the core business of higher education and the success of the institution. This involves recognition of the scholarship of teaching and learning as well as of expertise in practice. It would be manifested in concrete ways such as criteria for selection, promotion and scholarly awards at all levels, as well as in the overall institutional culture. The recognition and reward of teaching is primarily a responsibility of institutional leadership.

- Second, there need to be opportunities to show that 'improving teaching' can in fact make a significant difference to the outcomes of the educational process. Particularly because of the widely-reported difficulties of teaching in contemporary conditions, demonstrating to the academic community that the educational process is intellectually challenging as well as important, and that applying educational expertise can improve career satisfaction as well as results, is a key to creative engagement.

Experience in other contexts indicates that establishing incentives such as prestigious teaching fellowships, professional educational networks and stimulating projects can achieve much in establishing the credibility of educational expertise. (This is evident in the positive outcomes of initiatives such as the Carnegie Fellowships in the USA and the UK's Learning and Teaching Support Network and National Teaching Fellowships.)

In summary, raising the profile of teaching and learning, in terms of accountability, recognition and scholarship, is essential for successful capacity-building and hence for enabling the higher education sector to enhance its contribution to national development. Establishing a coherent framework for this work is a practical first step. Structures and initiatives that might give effect to a productive combination of accountability and incentives are suggested in the sections below.

8.5   ACCOUNTABILITY: DEVELOPING CHALLENGING EXPECTATIONS OF THE SYSTEM

It has been argued (in section 4) that improving graduate output should be accepted as a specific and unequivocal priority for the higher education sector, in terms of policy, planning, resourcing and implementation. Achieving this calls for complementary responsibilities on the part of the state and the institutions. In order to establish graduate output as a focal point for the sector, we suggest that the state and sector roles should include the following:

- A central state role is to identify and continue to refine broad graduate output goals that reflect national needs, in consultation with the sector and other stakeholders. It is recognised

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24   There is a growing body of critical literature on this key topic, much of it in response to the imposing on institutions and academics of various forms of accountability that are seen to be intrusive and counter-productive to the academic project. An example of a comprehensive treatment of this topic is D'Andrea and Gosling (2005).

that, since the future is unpredictable, goal-setting must be flexible and responsive while still providing clear guidance for the sector. Planning approaches related to the concept of 'strategic direction' may be relevant here. While broad shape and size goals are clearly important, the lack of certainty about what specific skills will be needed in the future means that graduate attributes such as quality and adaptability are at least as important as the shape of the output.

- Given the many possible distractions, resource shortages and competing interests affecting the sector, we would argue that it is desirable for the state and the sector collectively, through its representative bodies, to enter into a professional compact designed to enable key output targets to be met, in the national interest. This would call for the negotiation of demanding but attainable output targets, for sector commitment to focusing efforts on meeting the targets, and for state commitment to creating conditions, including fair resourcing arrangements, that make the targets achievable. Such a compact would be in the national interest, and would be advantageous for the state and the sector in clarifying goals and responsibilities and gaining public support.

- Notwithstanding the desirability of the sector's accepting collective professional responsibility for improving output, institutional autonomy means that negotiating goals and strategic direction with the individual public universities is key to meeting national needs. The output of the system, being the aggregate of the output of the institutions, is at present dependent on decisions taken in the individual institutions that may be more strongly influenced by internal interests than by national needs. While there are arguments that the market's invisible hand is effective in shaping graduate output in large, developed economies (see for example Williams 2003), judging from the performance patterns this has evidently not been the case in South Africa. Similarly, while the new funding framework may not have been in place long enough to assess its effects, the steering mechanisms it incorporates may not be sufficient in themselves. The performance patterns suggest that, in current South African circumstances, improving graduate output should not be left to market forces and indirect steering.

  The negotiation of output goals must of course take full account of institutional capacity and mission but should also be strongly informed by the institution's potential to contribute to meeting national needs. For example, while a national goal may be that 30% of graduates should be in SET, the universities with the strongest SET establishments should be expected to produce a much higher percentage. It will clearly be a central state responsibility to monitor progress and ensure that the aggregate of the institutions' output moves closer to meeting the national goals as a whole.[25]

- As discussed in section 7, it is also a state responsibility to establish frameworks and conditions in which the sector can work effectively towards meeting its goals. A fundamental element of this is to ensure that policies and resourcing mechanisms are well aligned with

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25 Since the time when the main research for this paper was completed, the DoE has begun to negotiate some aspects of provision differentially with individual institutions, making special funding available to boost expansion in some strategic subject areas. As it takes account of differential capacity to contribute, this is a welcome development which, it is hoped, can be taken further in future.

the central strategic goals, with particular reference to graduate output. Major policies bearing on this include the higher education qualifications and funding frameworks.

The state and central sector bodies, particularly the CHE and HESA, also have a key role to play in building educational capacity. First, clear goals and expectations, together with positive and well-informed bilateral relationships between the DoE and the institutions, can in themselves contribute to institutions' acceptance of the profile of the student body they need to take responsibility for, and can hence stimulate innovation. Further, judging from experience in other countries, national structures and networks can be vital in enabling the sharing of good practice and the development of educational expertise, as discussed in section 8.6 below.

Successful performance of these central roles, which is critical for the improvement agenda, requires substantial capacity in the national bodies concerned. Research-informed interactions with the institutions and other stakeholders, on sometimes complex issues, call for strong educational and technical expertise as well as a sound planning and monitoring system. While there are individuals with advanced expertise in these areas in the DoE and the CHE, it would appear that the existing resources do not match the growing scale of the work that is needed. Capacity development in this area may thus be a priority.

It is acknowledged that building commitment to improved performance through clarifying and strengthening roles and responsibilities is a complex and potentially contested undertaking. However, establishing some appropriate form of professional, development-oriented compact between the sector and the state, as suggested above, may be a key means of focusing the institutions' efforts and creativity on meeting the sector's main challenges. It is also in line with the changing relationship between the state and the institutions in the provision of public services.

As far as individual institutions are concerned, it is of course their responsibility to devolve accountability to their academic units in whatever ways are effective for them. A pre-requisite, however, is that all institutions need to have an effective and as far as possible standardised system for tracking and monitoring student performance, with the capability to generate the kind of data needed not only for reporting purposes but also as a basis for educational interventions. There may well be a need for capacity building in the institutions in this regard.

A mechanism which has been identified by the HEQC as having the potential to focus the educational agenda effectively is the institutional Teaching and Learning Strategy. The Teaching and Learning Strategy is a comprehensive statement of an institution's educational philosophy, mission, goals, approaches and resources. It is intended to bring the institution's various education-related policies into a coherent framework. It explicitly reflects the level of priority the institution attaches to its educational role and goals, and addresses the way the institution sees the relationship between teaching and research. Used well, therefore, it can be a key tool for aligning the institution's major policies and strategies with its central educational goals.

Teaching and Learning Strategies thus have the potential to enable successful devolution of responsibility and accountability for educational outcomes within the institution. They can also have a strong developmental role, as noted below.

8.6   A FRAMEWORK FOR CAPACITY BUILDING

8.6.1   Some key characteristics

Establishing appropriate accountability for educational outcomes is, we argue, a necessary condition for highlighting the importance of teaching in higher education, and should in itself improve the recognition of educational expertise and hence engagement in professional development. However, as international experience with quality assurance indicates, approaches that are predominantly compliance-orientated have limited success, may have unintended consequences, and do not offer stimulating conditions for creativity (see for example Rowland 2006; D'Andrea and Gosling 2005). It is essential, then, that a system of positive incentives should be built up as an integral part of the approach to capacity building.

In the first instance, strengthening the definition and recognition of teaching, in its full sense, in institutional appointment, promotion and performance management criteria is essential for demonstrating that educational expertise is valued, and for promoting positive engagement. However, since there is no material substitute for intellectual status in higher education, a comprehensive approach to improving teaching needs to include not only interesting opportunities for professional development but also mechanisms for stimulating and celebrating high achievement. Like conventional research awards, some capacity building initiatives can serve more than one of these purposes.

While little systematic research has yet been done on this subject in South Africa, a preliminary needs-analysis investigation carried out for the HEQC in 2002 (D'Andrea et al 2002), together with the experience of some institutional and regional initiatives, suggests that the following would also be important considerations in the development of a capacity building framework for our context:

- **A multi-level approach**
  Formal and non-formal professional development in South Africa is at present characterised largely by small-scale regional or institutional projects, often driven by a group of committed individuals. To increase impact, there is a pressing need for a form of national co-ordination that can provide coherence while retaining the benefits of local initiative. This can best be achieved through a multi-layer approach that operates at the level of national and regional networks, discipline-specific networks, institutions, and individuals.[26] Possible initiatives at the different levels are outlined in section 8.6.2.

- **Dedicated funding**
  Given the importance of the educational function of higher education to South Africa's development, it is noteworthy that only a very small fraction of the total budget is earmarked for educational development and capacity building. The DoE's introduction of foundation programme grants is an important step in the direction of curriculum reform but – even taking account of recent changes in the allocation of the Teaching

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26   A strong example of a multi-layered approach that operates at these levels is the system that has been put in place in the UK, particularly through the agency of the Higher Education Funding Council for England.

Development subsidy – there is little national funding for mainstream educational improvement initiatives or educational capacity development, particularly at national level.

In contrast, developed countries are investing major and growing sums in improving teaching and learning, even though the needs in those contexts are not as acute. The differential in available state resources is of course acknowledged, but at the same time, given the high financial and opportunity cost of poor performance in higher education in South Africa, there is a strong case for substantial state investment in improving graduate output through educational capacity development. Dedicated, accountable funding is a pre-requisite for such initiatives to be undertaken on a professional, committed and sustainable basis.

- **Formal study and research programmes**
  In higher education, a theory- and research-informed approach to professional development is essential, and the provision of high-quality formal study and research programmes, leading to recognised qualifications up to doctoral level, must be at the heart of this. Given that the great majority of students of higher education studies will be academic staff, there is a particular need for adequate resourcing of such programmes and the research projects within them.

- **A networking rather than didactic approach**
  A finding of the HEQC's 2002 needs-analysis investigation was that a majority of the academic staff interviewed indicated a strong preference for the provision of networking opportunities – allowing for learning through co-operative projects and interchanges with peers – rather than didactic workshops. While the investigation was not a formal representative study, and while there are shortcomings in the preferred approach (see below), the underlying call for authentic situated learning as the basis for capacity building should be seriously considered.

As noted earlier, the development of an approach to capacity building that is best suited to the South African context must be strongly consultative. It should also, however, be professionally driven and informed by knowledge of relevant theory and research as well as experience in other contexts. A recommendation for initiating a process of determining an appropriate approach is offered in section 8.6.3.

8.6.2 Possible elements of a capacity building framework

This section provides an outline, informed by practices in some other countries, of the kind of structures and initiatives that might go into a framework for a capacity building system in South Africa. It is not intended to be comprehensive or prescriptive but rather to provide examples for debate.

- **A national body as driver**

  The significance and complexity of improving teaching and learning in South Africa calls for a central body to take responsibility for leading and co-ordinating the establishment of an educational capacity building system. As is the case with dedicated funding, the importance of the task and the consequences of continuing under-performance justify investing in structures that can begin to do for educational capacity development what the NRF does for disciplinary research.

  It is not suggested that a new national body should be established for this purpose. There appears to be a case for expanding the HEQC's Quality Promotion and Capacity Development Directorate to take on this role. In any event, the responsible body would need to establish strong relationships with the DoE and other sector bodies, as well as with the institutions.

  Its responsibilities could include:

  - establishing a policy and resourcing framework for capacity building that will enable professional development to be undertaken in accordance with strategic priorities, through peer networks, in institutions, or by other means;

  - leading or stimulating the identification of educational strategies that can be used to significantly improve student performance, and of the kinds of educational expertise needed to implement them;

  - promoting the establishment of national and regional peer networks;

  - administering an educational innovation fund – perhaps arising from the existing Teaching Development funds – designed to support substantial initiatives in professional development and educational research;

  - leading or stimulating developments in the field, such as the establishment of professional standards for higher education teaching.

- **National and regional networks**

  National and regional peer networks dedicated to improving teaching and learning may well be the core of a capacity building system, with adequate resourcing and professional co-ordination being key to their success. On the basis of the experience of other contexts and to some extent of local professional and academic associations, the most successful networks may be those that are discipline-specific or represent cognate clusters of disciplines. Such networks have obvious advantages such as common discourses, and are often intrinsically motivated (Saunders *et al,* 2004). Their main shortcoming may be over-emphasis on craft knowledge, which would need to be addressed through professional leadership. There would also be significant organisational and logistical challenges involved in running such networks in South Africa, given our geography and infrastructure. In addition to disciplinary networks, the same kind of approach could provide a basis for

supporting a range of other key groups or practice communities, such as senior and middle academic managers, academic planners, and professional staff that have an influential role in teaching and learning.

- **National educational innovation funding**
  The establishment of a national educational innovation fund for higher education would enable priority development initiatives to be designed and implemented across the system in a co-ordinated way, with need-driven capacity building as an integral element. It is common for funds of this kind to be administered by a central agency, with major initiatives being identified in accordance with national priorities, and institutions bidding for funding on agreed criteria. Dedicated funding of this kind has a unique role in stimulating positive change.

- **Initiatives in the institutions**
  Institutions will remain a key site for professional development – for the provision of formal and non-formal programmes and as hosts for national and regional networks. Apart from being the major beneficiaries of innovation funding, institutions can be motivated to promote professional development through their reward and performance management systems. Teaching and Learning Strategies are particularly valuable for identifying key goals and what is needed to achieve them, and can thus provide a valuable basis for capacity building.

- **Initiatives focusing on individuals**
  Finally, there are a range of initiatives such as fellowships and other awards for educational expertise that are designed to recognise the achievements, leadership or leadership potential of individuals. Such awards can be controversial if seen as divisive or failing to recognise the collective effort involved in most educational initiatives. If they are linked to the scholarship of teaching and learning, however, they can have a positive role in both stimulating and honouring advances in theory and practice. In this way they can serve as an example of capacity building and raising the status of educational expertise going hand in hand.

8.6.3　Summary and recommendation

The main elements of the case for building educational capacity in the higher education sector are as follows:

- Educational expertise, at different levels and in different forms, is necessary for successfully addressing central challenges in South African higher education, for substantially improving the current performance patterns, and thus for meeting the country's high-level human resource needs.

- Building capacity in educational expertise depends not only on the provision of effective professional development opportunities but also, critically, on positive engagement on the part of the academic community. Engagement, in turn, depends largely on raising the status of educational expertise through strengthening accountability and incentives.

- Accountability for the educational outcomes of the higher education sector can be strengthened in various ways, particularly, it is argued, through developing professional compacts between the state, the sector and the individual institutions. A clear focus on graduate outcomes, in terms of quality as well as quantity, is justified by the importance of meeting national needs.

- Incentives for developing educational expertise are linked to the status of 'teaching' in all its facets and to the intellectual and material rewards for quality and expertise in this area. Clear recognition of educational roles in the core business of higher education, together with support for initiatives that can demonstrate the effectiveness and intellectual challenge of the 'scholarship of teaching', are key to positive engagement.

- Alongside promoting engagement, capacity building calls for the provision of effective professional development opportunities and networks at different levels in the sector. The priority now is for leadership and co-ordination through national structures and dedicated funding. As is the case with all significant endeavours, investing in capacity development, particularly in periods of transformation, is called for and warranted by the importance of ensuring positive outcomes.

It is therefore **recommended** that the CHE, in consultation with the DoE and relevant sector bodies, develop detailed proposals for structures and projects that would constitute a comprehensive approach to educational capacity building in the higher education sector. This is not intended to obstruct or delay specific initiatives but rather to create a framework for support and co-ordination. This paper has suggested key parameters for such a development.

# 9.	IN CONCLUSION

While acknowledging the major achievements gained in South African higher education since the political transition, this paper identifies patterns of performance in undergraduate educational outcomes that indicate that the sector is not meeting key needs in respect of national development and equity. It argues that the development and equity agendas are in fact converging, in that the overall need for high-level human capacity building cannot be met without catering effectively for diversity in the student intake, which makes it possible for the potential of academically talented people from all communities to be realised. The importance of these needs warrants making the improvement of graduate output a priority in the sector.

Based on analysis of the performance patterns as well as institutional experience, the paper argues that systemic responses are essential for improving the educational outcomes of the sector in line with national needs, and that the higher education sector should accept a share of the responsibility for this. Broad strategies that are seen as necessary conditions for substantial improvement include: the reform of core curriculum frameworks; enhancing the status of teaching and building educational expertise in the sector to enable the development and implementation of teaching approaches that will be effective in catering for student diversity; and clarifying and strengthening accountability for educational outcomes.

It is recognised that this represents a substantial undertaking, which will probably depend primarily on attitudes, values and understandings in the academic community. Some traditional views may have to be challenged. For example, a concept that is central to changing embedded structures and practices is that the educational process in higher education – including curriculum frameworks, the assumptions on which these are based, course design, and approaches to delivery and assessment – constitutes a significant variable affecting performance and determining who gains access and who succeeds. The way things are done is historically constructed and not neutral. However, there is often resistance to seeing the educational process as a variable, at least partly because changing embedded structures and practices is seen as eroding standards.

Given the high stakes attached to higher education, we argue that it is critical for the sector – particularly the mainstream academic staff who carry the major responsibility for teaching – to come to terms with the profile of the student body that the sector and each institution needs to cater effectively for, in the national interest. If this does not happen, it is likely that there will continue to be a mismatch between what the institutions are prepared to offer and what many students actually need to facilitate their learning. On the other hand, if the realities and obligations of our context are generally accepted in the sector, it could be a real stimulus for recognition of the importance of educational effort and expertise, and hence for creative initiatives that make a substantial difference to the outcomes of the system.

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APPENDIX 1: METHODOLOGY

The student performance data used in this paper were derived from longitudinal records compiled for each first-time-entering student entering the higher education system in 2000. The longitudinal records included key biographic information extracted from the 2000 HEMIS student files for each institution, and information on the qualification for which they registered in that year, to which abbreviated academic records (year, programme code, programme type, entrance category and completion status) for the years 2001 to 2004 were appended. It should be noted that the 2001 to 2004 academic records were those relating to the institution at which the student first registered in 2000. Students who transferred to other institutions therefore appear as drop-outs in this analysis. Students taking an absence of a year or more from their initial institutions were however tracked into 2004 in these institutions. Pivot tables were used to summarise the data in the longitudinal databases , and the tables shown in the paper were drawn up from these summaries.

Student programmes were identified by the programme type as well as by the first order CESM (Classification of Educational Subject Matter) within the first of four possible CESM area of specialisation fields in the 2000 HEMIS returns. The first order CESM (the first two digits of the relevant field in HEMIS) indicates the broad area of specialisation, e.g. CESM 08 represents 'Engineering and Engineering Technology', CESM 06 includes all 'Computer Science and Data Processing'.

It should be noted that no order is specified in the HEMIS returns where a student has more than one area of specialisation, and it is therefore assumed that the first CESM area of specialisation field provides a reasonable indication of the student's subject area.

It should also be pointed out that the CESM classification system dates back to 1982 and that it is recognised that disciplinary shifts and developments since that time may make it difficult to accurately classify some contemporary subject matter according to the existing system.

APPENDIX 2: THE 2001 COHORT

As noted in the body of the paper, the 2001 cohort study done by the DoE covers only four years and is not complete in that data from some institutions are not available because of merger complications. However, the following tables are offered as examples. Distance education students are not included.

1. GRADUATION WITHIN 4 YEARS, BY CESM

The following table covers contact students entering four-year professional Bachelors degrees. It thus shows the proportion graduating in regulation time.

Professional first B-degrees, by selected CESM: All first-time entering students excluding UNISA

CESM	Grad within 4 years	Still registered after 4 years
04: Business/Management[27]	51%	27%
08: Engineering	28%	46%
12: Languages	38%	27%
13: Law	26%	38%

The following table covers three-year degree programmes in contact universities:

General academic first B-degrees, by selected CESM: All first-time entering students excluding UNISA

CESM	Grad within 4 years	Still registered after 4 years
04: Business/Management	49%	21%
15: Life and Physical Sciences	35%	30%
16: Mathematical Sciences	43%	24%
22: Social Sciences	48%	18%
12: Languages	45%	17%

The following table covers contact students entering three-year national diploma programmes:

National diplomas, by selected CESM: All first-time entering students excluding Technikon SA

CESM	Grad within 4 years	Still registered after 4 years
04: Business/Management	30%	20%
06: Computer Science	22%	23%
08: Engineering	17%	34%
21: Social Services/Public Administration	18%	16%

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27 This category contains significant numbers of students who transferred to and completed three-year degrees within the period., so the completion rate for the qualification type may be somewhat inflated.

2. EQUITY OF OUTCOMES

These tables show graduation within 4 years by race.

Graduation within 4 years in professional first B-degrees, by selected CESM and race: First-time entering students excluding UNISA

CESM	Black	White
04: Business/Management	29%	69%
08: Engineering	10%	40%
03: Law	19%	30%
12: Languages	32%	56%

Graduation within 4 years in general academic first B-degrees, by selected CESM and race: First-time entering students excluding UNISA

CESM	Black	White
04: Business/Management	34%	65%
15: Life and Physical Sciences	19%	55%
16: Mathematical Sciences	23%	59%
22: Social Sciences	32%	61%
12: Languages	30%	63%

Graduation within 4 years in National Diplomas, by selected CESM and race: First-time entering students excluding TSA

CESM	Black	White
04: Business/Management	28%	42%
06: Computer Science	20%	43%
08: Engineering	14%	32%
21: Social Services/Public Administration	17%	8%

3. GRADUATION IN REGULATION TIME

The following tables show graduation within 3 years in 3-year programmes, for contact students only. The corresponding figures for 4-year professional degrees are shown in the earlier tables.

Graduation within 3 years: General academic first B-degrees, by selected CESM: First-time entering students excluding UNISA

CESM	All	Black	White
04: Business/Management	30%	16%	46%
15: Life and Physical Sciences	19%	5%	38%
16: Mathematical Sciences	25%	8%	39%
22: Social Sciences	31%	14%	44%
12: Languages	31%	15%	50%

Graduation within 3 years: National Diplomas, by selected CESM: First-time entering students excluding TSA

CESM	All	Black	White
04: Business/Management	17%	15%	31%
06: Computer Science	10%	9%	29%
08: Engineering	6%	4%	15%
21: Social Services/ Public Administration	10%	9%	4%

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