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

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.

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

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.

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.

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

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.