A proposal for an epistemically diverse curriculum for South African higher education in the 21st Century

K Luckett
University of Natal

ABSTRACT
I begin this article by taking stock of international trends which impact on the higher education curriculum. I then briefly assess the South African responses to these challenges in the light of recent curriculum reforms. In particular, I attempt to assess the gains made for curriculum development in South African higher education by the imposition of the SAQA interim registration requirements and the outcomes based method of curriculum design. I also note the gaps not addressed by the SAQA reforms and suggest that the SAQA reforms lay the HE curriculum open to the global trends of the instrumentalisation and marketisation of knowledge. I also address two other internal epistemological challenges to the HE curriculum, namely post modernism and scientism. I then propose an epistemically diverse curriculum in which four ways of knowing and learning are developed for all HE curricula. These are the traditional cognitive learning of propositional knowledge; learning by doing for the application of disciplinary knowledge; learning experientially and fourthly developing epistemic cognition so as to be able to think reflexively and contextually about one’s learning. I suggest that such a curriculum could address both the local and global dimensions of a higher education curriculum and hold a necessary balance between Mode 1 and 2 knowledge production. Furthermore, I believe that one of the central educational challenges currently facing HE practitioners is the integration of the various desirable generic skills into a traditionally content based curriculum. I suggest that, if learners are introduced to all four ways of knowing and learning, these generic skills (both transferable and transferring skills) can be appropriately integrated into the HE curriculum. The article concludes by considering some of the key issues involved in implementing an epistemically diverse curriculum.

As the share of intellectual value added in economic processes continues to grow, the ability to think abstractly will be increasingly important across all professions. Education experience should span the natural and human sciences and promote the integration of knowledge. The resolution of many developmental problems is dependent on enquiry that is inter and multi disciplinary. The knowledge and adaptability and flexibility of skills acquired through lifelong learning can enable graduates in developing democracies to operate in diverse social settings and develop complex notions of identity and citizenship. Educational systems that are responsive to social needs and the development challenges are much more likely to be vibrant. Overall, higher education contributes to social and economic development by increasing the level of cognitive skills throughout the society. (CHE 2000:18)

INTRODUCTION
This article focuses on some of the curriculum development issues facing Higher Education Institutions (HEIs) in South Africa; and particularly on the nature of a “responsive” curriculum for South Africa in the 21st Century. It is well known in curriculum studies that curriculum change occurs most readily in response to major social change or crisis i.e. to changes in the milieu or context in which a curriculum occurs. In this article we discuss the changing context of higher education (HE) in South Africa and some implications of this for curriculum design, assuming that there is a cause and effect relationship between contextual imperatives and influences and what becomes legitimated as the curriculum. But despite this focus, it remains essential to think about curriculum as an experience rather than a product or a plan, as a process or a play rather than a script. We should never lose sight of the fact that it is the lecturers and students who remain key agents of the curriculum as they (re)interpret and reconstruct the curriculum plan in terms of their own interactions, inter subjectivities and lifeworlds, which in turn are, of course, shaped by the cultures, power relations and
contexts in which they live and work. This is captured by Cornbleth’s definition of curriculum as “contextualised social practice” which she explains as “an on going social process comprised of the interactions of students, teachers, knowledge and milieu” (Cornbleth 1990:6).

**CONTEXTUAL ANALYSIS**

**International trends**

We begin by briefly analyzing key international trends which impact on the higher education (HE) curriculum. According to Barnett (1994), the impact of globalisation has resulted in a shift in the relationship between HE, knowledge and society. Whereas previously, HE was allowed to impose its own definitions of knowledge on society, society is now demanding that HE provide more instrumental and operational definitions of knowledge. Furthermore, the academy no longer holds a monopoly on knowledge production which is increasingly market driven, competitive and diversified. The workplace is taking over more and more of the research and development function of science and technology from the HEIs who, in turn, are being forced to set up research partnerships with other players in the knowledge production terrain. We will argue below that our proposal for an epistemically diverse curriculum could turn this necessity into an advantage by providing access to students for a diversity of sites of learning where they could develop workplace skills and “know how”.

As the academy and the workplace are drawn into a closer relationship, the effect on the HE curriculum has been to focus a lot more on the teaching and learning of “general transferable skills” which are presumed to make graduates more employable and to facilitate their capacity for lifelong learning. In Australia, Candy et al have proposed an undergraduate curriculum with a compulsory core of generic skills with content subjects taught as electives. In South Africa, this trend is manifest in the South African Qualification Authority’s (SAQA) insistence that every qualification incorporate its “critical outcomes”, a list of general transferable skills (see Government Gazette 28 March, 1998 No 18787:8).1

Educationists have been quick to critique the assumption that generic skills can be taught generically and then unproblematically transferred from one domain to another (see for example Breier 1989 and Luckett 1999). Instead it is argued that knowledge and skills tend to be discipline or domain specific and that these are socially and culturally situated. Some of the more technical skills such as basic computer literacy may be transferable from one familiar context to another, but other more complex skills such as communication and interpersonal skills, problem solving and reasoning skills can only be acquired in the context of specific knowledge forms and discourses and require high levels of “transferring” ability, such as flexibility, adaptability, context sensitivity, meta cognition, meta knowledge and epistemic cognition before learners can successfully transfer them from the familiar contexts in which they were learnt to new unfamiliar contexts. The effective teaching and learning of “general transferable skills” is one of the key pedagogic challenges currently facing the HE curriculum, which this article seeks to address.

The need to teach and learn general transferable skills in HE is claimed to be one of the implications of the supposed shift in knowledge production, popularised by Gibbons et al (1994), from Mode I to Mode II forms of knowledge production. They define Mode I knowledge as homogeneous, rooted in the disciplines, hierarchically structured and coded according the canonical rules of specific disciplines, in which the scientific method is accorded a privileged place (see the ideology of scienticism below). This form of knowledge is usually transmitted from disciplinary expert to novice and problems are usually set and solved within the academic community. By contrast, Mode 2 knowledge is non hierarchical, inter or trans disciplinary, trans institutional, collaborative, contextualised and socially responsive. Problems arise in society and are solved in the context of application, using a diversity of research methods. According to these writers, the emergence of Mode II is calling into question the adequacy and relevance of the traditional Mode I. They suggest that it is only a matter of time before the traditional disciplinary HE curriculum is replaced with one based on problem solving methods, with the development of generic skills as its key function.

This concern for the relevance and applicability of the HE curriculum is echoed in the recent report by the CHE’s Size and Shape Task Team:

The knowledge economy and complex societal problems require inter disciplinary and multi disciplinary knowledge production and graduates that possess a range of competencies and skills. The production of graduates as critical citizens vital to a democratic society also requires education and training that is not narrow but spans and incorporates various disciplines and fields. Public higher education institutions should be multi purpose institutions and offer broad based higher education to achieve the goals set for higher education. Programmes should not be concerned in only one or two broad areas of study. This would enable institutions to accommodate newly developing areas of study, which in many cases arise from the combination of existing knowledge areas, more easily in their learning programmes. (CHE 2000:23)

However, in the South African context, whilst
supportive of the concern to make the HE curriculum more “relevant” to the needs of society and of the economy, following Muller (2000), we are also concerned that the development of socially responsive programmes in the HE curriculum does not result in the displacement of Mode 1 knowledge with Mode 2. Instead we suggest that Mode 1 knowledge still has an important formative role to play, particularly in the undergraduate curriculum, in inducting students into specific “ways of knowing and thinking” and enabling them to control particular discourses. The need to induct South African students into one field first is pedagogically important, particularly in the light of the poor schooling system from which the majority of South African students come. (In our context, learning for Mode 2 knowledge production may well be appropriate only at postgraduate level).

Mode 1 knowledge production is expensive and less marketable than Mode 2, but following Bawa (1997) and Muller (2000), we suggest that high quality Mode 2 knowledge production depends on its researchers being able to draw on sound, multiple, disciplinary foundations. What is problematic however, is the limitations of mono disciplinary perspectives and the ideology of scientism (see below); we are not suggesting that students remain locked into disciplinary ways of seeing the world, but we are concerned not to throw the baby out with the bath water! Furthermore, as Barnett points out, the answers to the (Mode II type) questions “what works?”, “what is effective?” and “what is useable?” are not neutral and are not determined technically, they depend upon underlying values and ideologies. (Barnett & Griffin 1997:170). It is therefore vital to include in the HE curriculum an opportunity for learners to think about their own values, ethics and social responsibility and to develop high levels of reflexivity, (the “good citizen” category of generic skills) so that they can work responsibly in Mode 2 teams, (we will argue later that this is best achieved via experiential and reflexive learning). If we fail in this regard, the HE curriculum, (as well as Mode 2 knowledge production) is likely to become colonised by market values.

Curriculum trends in post-apartheid South Africa

We now turn to examine the impact of the international trends described above on the South African context. These trends raise the question of the status and role of local/indigenous, subjugated forms of knowledge in relation to the dominant, universal/global forms knowledge; what role should local/African knowledge have in the South African HE curriculum? Whilst the National Commission on Higher Education’s Report (1996) raised this important issue, but left its resolution to disciplinary experts, the question has not been seriously addressed in recent curriculum debates in South Africa. (An exception to this rule may be some of the more

reflective work around the recognition of prior learning, see for example Michelson (1996), Harris (1997), Gawe (1999) and Luckett (1999) and the “great curriculum debate” at the University of Cape Town in 1998).

Instead, any debate on the content of the curriculum has been largely side lined by “disciplinary experts”’ preoccupation with meeting SAQA’s demands for the (interim) registration of their qualifications on the national qualifications framework; which is largely about meeting the globalisation and massification agenda. According to Breier (1999), other factors that have dominated the South African curriculum terrain in recent years are the White Paper (1997)’s proposal for a programmes based approach to curriculum design (and funding), an unexpected drop in student numbers in public HEIs and increased competition from private institutions leading to an overriding concern by public HEIs for recruitment, efficiency, viability and the meeting of market demands through their curriculum reform.

In its recent Annual Report, the Council for Higher Education (SA) notes the following:

The 1997 White Paper requires the higher education system to produce graduates for an economy that must be globally competitive and contribute to the reconstruction and development needs of society. This poses the question which is at the heart of the higher education curriculum: what are the capacities, skills and competencies that the South African economy and society require? This issue has received insufficient attention. The NCHE did not address the curriculum question directly. Instead, it seemed to assume that curriculum change would occur through the implementation of the NQF driven by SAQA. Subsequently, both the NCHE report and the White Paper have been criticised for their silence around curriculum transformation. Still, the call for greater responsiveness on the part of higher education institutions and for a programme based approach to higher education has contributed to vigorous debate around curriculum issues, some remarkably innovative activity in relation to programme and course development and new forms of academic organisation. These changes potentially have enormous implications for higher education learning and teaching, for the development, accreditation and registration of programmes and qualifications and ultimately, for how knowledge and institutions are organised. (CHE 1999:18, our italics).

The CHE raises a number of important issues here, and in particular, poses the question as to what are the capacities, skills and competencies that the South African economy and society require HEIs to develop through their curricula?2 We will return to this key
question below. But first, it is important to interrogate more closely exactly what the SAQA requirements for interim registration have contributed to curriculum reform or otherwise, and what issues remain to be addressed.

The SAQA requirements\(^3\) are mostly about the form rather than the content of the curriculum; the rationale behind the registration requirements is that the curriculum must offer qualifications which will mutually “articulate” on the NQF, thus allowing learner mobility and progression along multiple learning pathways. Linked to this establishment of a uniform curriculum framework, is the outcomes based method of curriculum design which imposes a linear, rational and ends means structure on the curriculum. As recognised by the CHE above, SAQA’s imposition of the OBE method has had many positive outcomes for the HE curriculum. For example, it has forced academic staff to articulate explicitly and publicly (often for the first time) exactly what their teaching intentions are, and by implication, to give more thought to how they are going to teach and assess these learning outcomes.

In terms of curriculum content, SAQA have stipulated only the following:

- that all qualifications be made up of 3 types of learning: fundamental learning (which ensures that the learner achieves the competence required to attain the qualification as a whole as well as providing the foundation for further learning),\(^4\) core learning (which gives breadth and depth to the curriculum, ie the content, related to a particular profession, career or field of specialisation) and elective learning (which enriches the curriculum, by meeting the learners’ own interests or by providing advanced specialisation to the qualification)
- that the critical cross field outcomes are infused into all qualifications at all levels on the NQF and that these are demonstrated by learners in integrated assessment tasks
- that this integrated assessment provide opportunities for learners to demonstrate applied competence which means that foundational competence (knowing that), practical competence (knowing how) and reflexive competence (knowing how you know that and how) are all necessary for the accomplishment of the task in a real world context.

This third requirement relating to the concept of applied competence and integrated assessment suggests a move towards preparing students for Mode 2 knowledge production. In sum, SAQA seems to be insisting that generic transferable skills be integrated into all curricula in South Africa in such a way that the relevance or applicability of the curriculum is ensured. Furthermore, SAQA aims to blur the distinction between education and training so that all learners become both “doers” and “knowers”. But SAQA is silent on how this should be done and on the content and substance of the learning outcomes; and perhaps appropriately so. Issues such as how the different disciplinary, cognitive and students’ developmental contexts affect the meaning of generic skills; how students will learn to transfer these skills from familiar to unfamiliar contexts; how a range of ways of knowing, which are not always compatible with the epistemology of the content in which the skills are to be embedded, are to be fostered and assessed are left for the “providers” to figure out. Clearly, these “how to” gaps need to be filled by curriculum expertise. But we may well discover that the solutions to these educational puzzles are too complex to be accommodated within SAQA’s prescriptive framework.

Clearly, the SAQA registration requirements and an outcomes based method of curriculum design cannot be a panacea for all of South Africa’s education problems. Commenting on the National Department of Education’s decision to introduce an outcomes based framework for schooling, De Clercq notes (prior to the Curriculum 21 Review Report): “(the Department) makes the strategic educational mistake of not linking this shell like curriculum reform to creative and fundamentally new ways in which to rethink and change the curriculum content and process as well as the role of educators in curriculum development” (1999:140).

But SAQA and OBE enthusiasts insist that “the what” and “the how” of the curriculum remains the preserve of “providers”. In fact, some NQF protagonists, glibly claim that the content, method of delivery and context of the curriculum are “irrelevant” all that counts is that learners demonstrate the achievement of the specified learning outcomes. Given the definition of curriculum in the introduction above, such claims appear educationally naive. The point remains that the SAQA reforms are limited to structural changes in curriculum design and they do not engage directly with current teaching and learning challenges, such as the need to build the capacity of educators and to empower learners to learn at meta cognitive and epistemic levels. SAQA has failed to engage with “the what” and “the how” of the curriculum and these issues require further debate, (as noted by the CHE above).

We suggest that despite good intentions, the SAQA reforms lay the HE curriculum open to the threats of both operationalism/instrumentalism and the marketisation of knowledge. By the former we mean that outcomes based education’s emphasis on what learners can do or demonstrate suggests that knowledge as a form of theorising about the world should give way to a form of knowledge as intervention in the world. A high quality HE curriculum should enable students to integrate theory and practice (praxis) and
to be aware of how they do so and of the ethical implications of their choices. Universities remain one of the few sites of intellectual endeavour where non-instrumental and non-commercial values and concerns can be fore grounded and developed. This is particularly important in a post colonial context where the gap between the middle and lower classes is extreme and where values other than market values are essential to hold the middle class (future graduates) to a commitment to democracy, nation building and reconstruction, (the CHE insists that HE has a role in promoting the values of democracy and good citizenship CHE, 2000:16). In any case, the ability to simply “get things done” will not be sufficient to meet the development challenges which South Africa faces in a globalised context. At a more general level, Ulrich Beck (1992) has warned in “Risk Society”, that more of the same ine technologisation (the application of scientific and technological solutions) to the problems created by science and industrialisation in the first place will not solve 21st century problems.

At the end of her critical reflection on post apartheid South Africa’s curriculum restructuring, Breier asks rhetorically,

Has there been the space and inclination to examine and revise curricula for epistemological reasons (to make way for new or subjugated knowledges), to promote citizenship and diversity and the culture of human rights and to foster the attitude of meta critique (Barnett 1994) which could, arguably, be regarded as the greatest preparation for a world of uncertainty? (1999:30).

The analysis above suggests that the answer is “no”.

We have suggested that there is nothing in the SAQA reforms which prevent the ideologies of instrumental rationality (operationalism, or performativity) from colonising the HE curriculum. Furthermore, SAQA’s structuring and packaging of the curriculum into uniform units and credits (eg unit standards) contributes to the marketisation of knowledge. Whilst this standardisation needs to be understood as a rational response to the massification of HE it obviously has enormous advantages in terms of enhancing the flexibility and diversification of the curriculum and the mobility of learners there is a danger that the pedagogical relationship gets reduced to that of supplier and consumer, in which lecturers see themselves as no more than the “providers” of educational goods and services and students in turn see themselves as simply the consumers of ready made educational goods and services, bought for a fee. There is a danger that the notion of joint interaction and knowledge creation in the context of the pedagogical relation gets lost, as does the students’ sense of responsibility for transforming the teaching received into meaningful learning. If public HE is to offer a curriculum which is in any way superior to that offered by the private sector, then it could be in the fostering of pedagogical relationships that are richer and more challenging than those of producer and consumer.

In response to its key question posed above “what are the capacities, skills and competencies that the South African economy and society require?” the CHE does begin to acknowledge the curriculum challenges in its report:

Ultimately, higher education institutions are chal lenged to generate the competencies that will be required from all graduates during the 21st century computer literacy, knowledge re configuration skills, information management, problem solving in the context of application, team building, net working, negotiation/mediation competencies and social sensitivity. Modern democracies also require graduates to be able to deal with and manipulate different cultural symbols, operate in diverse social settings and develop complex notions of identity and citizenship. A major task is to incorporate and integrate the diverse social skills and competencies required by graduates into disciplinary and field knowledge. (CHE 1999:19, our italics).

This quotation also highlights a range of desirable general transferable skills for our context. The list is noteworthy for its combination of skills for both categories of citizenship “globally competitive” competencies for economic productivity and locally defined “social skills” which are regarded as desirable for building a new multi cultural democracy. It is the “major task” identified in the last sentence which this article seeks to address.

The proposal below suggests one way in which a HE curriculum might cater for these concerns by de veloping in learners high levels of reflexive competence. If the HE curriculum is to be “higher” in any sense at all, then it is here, in the development of high levels of reflexivity (both individual and social) that HE should be distinctive. In fact, it is the competence of reflexivity which may save HE from offering an instrumental curriculum in which knowledge is valued only for its market price.

**Institutional epistemological contexts**

We have considered how the implications of globa lisation are leading to the operationalisation of the HE curriculum and to the marketisation of knowledge. We have suggested that despite many positive out comes, the SAQA reforms on the structure of the curriculum in SA have, if anything, encouraged these trends. Before turning to proposals for an approach to curriculum development in HE which may stem this tide, we need to deal with two further issues which currently hinder curriculum development in HE.
Whilst the threats dealt with above are external, these arise from the internal or institutional epistemological contexts in which the curriculum gets constructed. The first is the post modern condition and the second is the ideology of scientism which could be typified as discipline based Mode 1 knowledge production, described above. The postmodern condition tends to undermine curriculum development in the human and social sciences, whilst scientism is prevalent in the natural or “hard” sciences, and this fact makes it very difficult for the two groupings of academics to engage constructively in inter disciplinary curriculum development.

The emergence of the postmodern condition subverts the traditional justifications for the university and signals an end to academic knowledge as we know it. Traditionally, the HE curriculum has been based on bodies of knowledge known as disciplines with clear boundaries and coherent developmental structures. The existence of the disciplines is premised on notions of rationality and explicability, around which disciplinary discourse communities have developed. These communities have traditionally been held together by strong internal values (as well as institutional structures) and their norms and conven tions are often defended dogmatically. The disciplin ary curriculum structure of the modern university was strongly influenced by Comte’s “Positive Philosophy” (1853) in which he proposed a hierarchy of positive sciences beginning with mathematics, through the natural sciences to sociology (see Squires 1990:47 49). (We still talk about the “hard” and “soft” sciences!). A second 19th century influence was Newman’s “The Idea of a University” (1852) in which he proposed that all “educated men” should receive a grounding in the liberal arts and so be able to share a common discourse. But Newman’s understanding of the arts was based on a belief in a metaphysical realism which, according to postmodernists, is no longer tenable. This traditional approach to the meaning of the university, with a curriculum structured around the disciplines, has tended to reify knowledge and academics have tended to lose sight of the human constructedness of their disciplines. Alternatively, a constructivist approach to knowledge suggests that knowledge can be carved up in many different ways depending on the criteria one employs. (In fact it is difficult to tell whether the existing boundaries which we have constructed between our disciplines are genuinely epistemic as opposed to professional, institutional or simply conventional). However, the postmodern critique goes further than this. The notion of authoritative knowledge has been permanently undermined, for a postmodernist perspective suggests that all knowledge claims are local, partial and contextually specific. Postmodernism allows only temporary representations of meaning which are always, inescapably, linked to power. So all knowledge claims are ultimately linked to networks of domination and exclusion. But for curriculum devel opment, the problem is that only certain disciplinary communities in the universities are aware of the postmodern challenge, mostly those in the human and social sciences, whilst those in the natural and applied sciences continue to operate (mostly uncon sciously) from within the old disciplinary paradigm based on a positivist view of knowledge. If we are to develop multi disciplinary teams for curriculum develop ment in universities, then it is important that these epistemic assumptions are surfaced and discussed.

The loss of faith in “the Enlightenment project” means loss of belief in principled rationality (to be developed by education), the exercise of which, via science and democracy, was to free humans, both individually and socially. But, of course, the Enlightenment vision remains attractive to people in “under developed countries” and newly emerging demo cracies, where the goods promised by education, science, technology and democracy have still to be tasted by the poor majority. But the challenge in our context is to develop a curriculum which takes account of the postmodernist challenge without succumbing to either modernist naiveté or to post modernist relativity and paralysis. Following Griffin (Barnett & Griffin 1997), we suggest that the postmodern celebration of difference and its incredulity towards the old grand narratives, which underpinned the rationale of the 19th century university, can be limited by a value commitment to social justice and political principle which lies beyond the text. Thus, in our context, it should be possible to develop curricula in which we recognise the variety of communities and cultures which HEIs serve, the need to speak in a variety of languages and discourses and yet still build common multi discursive, multi purpose institutional communities which are under pinned by a commitment to common values. We would argue further that if the HE curriculum and institutional ethos encouraged the development of a meta language about different epistemologies, commu nication within and beyond our institutions would be greatly facilitated. We are arguing for the protection of HEIs as sites which can provide relatively democratic discursive spaces. HEIs should become sites that specialise in meta knowing (knowing about knowing), where competence in evaluating the validity and practicality of a plurality of knowledge frameworks and discourses is embraced (see Barnett 1997:178).

If this were achieved, then academics in the “hard sciences” would know how to emerge from the “ideology of scientism” and engage with inter disciplinary or Mode 2 strategic research teams and with curriculum development teams. “Scienticism” involves the inappropriate application of the scientific epistemology and methods to all human and natural problems. Science is based on a circumscribed set of methodological beliefs namely that inquiry into the
nature of nature is achieved via empirical observation and rational inference and that there is a “true” physical universe which is orderly and knowable via human reason. Within this paradigm, knowledge tends to be understood as objective, free standing, decontextualised, propositional and hierarchically classified and structured by the disciplines. This form of science is reductionist, (it believes that the whole can be understood by analysing its parts) and it is therefore strongly disciplinary; it tends to limit its research to well structured puzzles and problems defined by the discipline. This view of knowledge leads to a (usually implicit) theory of learning where learning is understood to happen inside the minds of individuals and most significant learning is assumed to take place within the formal education system. Learning is viewed as a process of accumulation and internalisation of knowledge (entities) which are deposited and stored, to be retrieved at a later date. Universal, abstract, “objective” and theoretical knowledge is privileged over “messy” individual experience. This often leads to a deficit view of non traditional students who come to the HEI with “inappropriate cultural capital”, and lacking the knowledge background and basic competencies required for acquiring propositional knowledge and for employing the scientific method in laboratories. Academics who work in this paradigm often have difficulty in recognising the more open ended, ill structured nature of problems in the human sciences and in Mode 2 knowledge production.

The CHE indicates its awareness of the limitations of scienticism and Mode 1 knowledge production in the following statements:

With respect to research,

the perception remains that the higher education system is not producing the amounts and kinds of knowledge workers required to expand and intensify research and innovation. Because of the way in which knowledge production has been organised, movement towards applications based research may require vigorous promotion. (1999:24)

With respect to the relevance and quality of the knowledge, competencies and skills transmitted throughout the (HE) system, it has been suggested that over all curriculum reform is possibly more important than, say, producing more science and technology students trained in outdated science curricula. The point of departure may be to establish the diverse knowledge needs of South Africa, the nature and level of the knowledge and cognitive skills that are relevant for different occupational or professional categories and reform the curriculum across the board. (CHE 1999:40).

A PROPOSAL FOR AN EPISTEMICALLY DIVERSE CURRICULUM

It is hoped that the model of curriculum design proposed below will contribute to the debate about what the CHE’s call for “over all curriculum reform” might entail. Whilst it may not be possible to map out “the diverse knowledge needs of South Africa”, we attempt here to outline a simple epistemic framework which could be used to inform such an endeavour. This framework could be seen as an elaboration of SAQA’s concept of applied competence, but it also needs to be linked to theories and methods of teaching and learning for its implementation. Given the postmodernist perspectives alluded to above, we are wary of proposing another grand integrative model, which seeks to “solve the curriculum problem”. Rather, this conceptual model is proposed as a possible “thinking tool” to inform the multiple, differentiated and diverse curricula that the South African HE system requires. The emphasis and combinations of each of the four ways of knowing would be different depending on the institutional mandate and mission8 and on the nature of the programme, students, profession, context, etc. But what we are suggesting is that designers of HE curricula should consider how each of these four ways of knowing are addressed. (See Figure 1)

Figure 1

Diagram to illustrate a Model of an Epistemically Diverse Curriculum¹¹

subjective/contextual

3 experiential knowledge
(personal competence)

learning by engaging personally, thinking reflexively

practice

3 epistemic knowledge
(reflexive competence)

developing metacognition, thinking epistemically, contextually and systematically

theory

2 propositional knowledge
(foundational competence)

knowing that, appropriating disciplinary knowledge

1 objective/reductionist

practical knowledge
(practical competence)

knowing how, application of disciplinary knowledge

learning by doing, apprenticeship

knowing that, appropriating disciplinary knowledge

traditional cognitive learning

objective/reductionist

11. I am indebted to Prof. Richard Bawden and Sid Luckett for their input and discussion on this diagram (personal communication).
As suggested above, the kind of teaching and learning that takes place in the first quadrant of the diagram—i.e., the learning of propositional knowledge—is that in which universities are traditionally good at dealing. It is based on the type of knowledge which Gibbons et al. (1994) have labeled Mode 1. As suggested above, knowledge production in this quadrant is often based on a positivist, empiricist epistemology and a reductionist methodology; knowledge is viewed as objective, true and rational. This is not to say that the learning of propositional knowledge is not important, on the contrary, it should remain a pillar of the HE curriculum; but the model suggests that this way of knowing needs to be challenged and complemented by other ways of knowing. The HE curriculum will often, although not necessarily, begin with the learning of propositional knowledge students will need to gain knowledge and theory from lectures and libraries and be assisted to build disciplinary conceptual frameworks. They will best achieve this if the epistemic rules, methods and conventions of the discipline (quadrant 4 type thinking) are made explicit by their lecturers. Students in HE should not be permitted to operate only within the first knowl edge paradigm. If they do, they may remain locked into mono disciplinary world views and their learning may fail to engage with real world problems and contexts and their personal lives. They may also continue to believe that science is value neutral, that their lecturers and textbooks are authoritative and so be content to simply reproduce given knowledge, often for instrumentalist ends (eg to pass an exam). Lecturers who themselves operate only within this paradigm, tend to adopt a deficit model of their students and see teaching as the transmission of information which students lack. Instead of simply reproducing disciplinary knowledge in this moment of the curriculum, students should be encouraged via epistemic scaffolding, to develop their own conceptual frameworks and understandings and to analyse and evaluate knowledge. They should be encouraged to undertake sound logical reasoning, to build arguments, think critically and to develop oral and written communication and presentation skills. At more advanced levels, they would begin to develop inquiry and research skills using the methods of the discipline. The integration of these generic skills into the discipline based curriculum is vital for all students, whether they are studying the human and social science or the natural or applied sciences or the professions.

The HE curriculum should also offer students opportunities to gain practical competence (see practical knowledge, quadrant 2 in diagram). All curricula should lead to some area of specialisation or career field which can provide a context for the application of knowledge learnt in quadrant 1 and for the performance of appropriate practical tasks. For example, learning in quadrant 2 could include the integration of the global, work based generic skills such as technical ability, computer literacy, numeracy, IT skills and the ability to retrieve, process and reconfigure large amounts of information (see H Griesel 2000, in progress).

The practical application of Mode 1 knowledge has traditionally been done in the professional and technical programmes, especially in the Technikons through co-operative education, internships or practicals. Whilst Technikons have formed partnerships with industry and commerce to provide students with opportunities for real world practical placements, universities have only done this in certain professions such as teaching and medicine. Science students have learnt by doing in university laboratories. But the limitation of many of these practices in both types of institution is that they are conceptualised as the application of disciplinary knowledge and theory (learnt in quadrant 1) to well structured problems. As the CHE has warned, the challenges of the 21st century will not be solved by reproducing well tried methods and techniques to puzzles defined by a single discipline. Obviously, novices need to begin their practice here, but the HE curriculum of the future should encourage students to take risks and to solve problems in unfamiliar situations that present themselves in unfamiliar forms. To do this, students will, in many cases, need to leave the safety of the classroom and the laboratory and be placed in real world contexts where they will have to adapt and recontextualise the learning gained in quadrant 1. Furthermore, once placed in complex, real world situations, the very concept of “problem solving” may become inappropriate. Students will rather have to learn to manage or improve messy situations. This takes the curriculum into quadrants 3 and 4.

The movement from quadrants 1 and 2, (where the HE curriculum has traditionally operated), into the ways of knowing represented in quadrants 3 and 4 is crucial; not only because experiential learning is one of the best ways to get learners to engage with and commit themselves to their studies and future careers, but also because this entails critical epistemic shifts. Students will need to be weaned away from dualistic, single loop thinking in which they accept given knowledge as authoritative. Instead they will need to understand knowledge as socially constructed, historically and culturally specific, and their own judgements as contextually contingent. This often requires a personal transformation which is often achieved through the cognitive dissonance caused by personal exposure to different interests, perspectives and subjectivities. The experience of some form of “learnership” or service learning as a teaching learning method for quadrant 3 could also provide an ideal learning context for developing and integrating some of the desirable personal and social generic skills such as self motivation and self confidence, innovation and creativity, team work, social sensitiv
ity, negotiation, mediation and leadership skills. Furthermore, it is in this quadrant that the contextualisation and Africanisation of the HE curriculum could best be developed. Here students could be exposed to ‘others’ and to other, non-dominant forms of knowledge. Students could be encouraged to develop the political, social and moral capacities that would enable them to function as ‘good citizens’ in a democratic post-apartheid South African society. In the South African post-colonial context, it is important that an HE curriculum offer students opportunities for some cross-cultural experience where they can begin to engage with issues related to the meanings of citizenship, identity and nation building.

Effective experiential learning often occurs in a pedagogical relationship of mentorship or mediation rather than the more traditional modes of tutelage or apprenticeship found in quadrants 1 and 2. Thus, in quadrant 3, the role of the lecturer is one of facilitator and mediator rather than instructor. In this quadrant students should begin to gain control of and accept responsibility for their own learning. The role of the teacher is rather to prepare for and structure the learning experience and then to assist the learner to process and reflect on it afterwards. The focus should be on developing the learner’s personal understanding. Skilled teachers would be required to assist learners in becoming aware of their own learning processes and to undertake ‘double loop learning’ or self-reflexive thinking.

The development of epistemic knowledge in quadrant 4 is the most intellectually demanding of the 4 ways of knowing represented in the model. This is the knowledge paradigm where learners are encouraged to develop what Kitchener (1983) has termed “meta-cognition” (an awareness of how and why one thinks and learns as one does) and then “epistemic cognition” (the capacity to think epistemically, to recognise and evaluate the assumptions and limits of theories of knowledge and to be able to suggest alternatives). This demands high levels of reflexivity (not always demonstrated by academics themselves). It is in this quadrant or moment of the curriculum that learners could develop the capacity for transferring (as opposed to transferable) generic skills. This requires an ability to stand back from one’s own frames of reference and epistemology and also to recognise the validity of other ways of knowing. This process could also challenge students to rethink their assumptions about values, ethics and social responsibility. The development of high levels of reflexive contextualism may well be the best means of achieving the desirable social skills mentioned by the CHE, such as the ability to manipulate different cultural symbols, operate in diverse social settings and develop complex notions of identity and citizenship. Students may also begin to think in systemic and transdisciplinary ways and to begin to see connections between different disciplines. Ultimately, it is the ability to engage with and evaluate different theories of knowledge which will equip students to deal with the complexities of human development in the 21st century. At more advanced levels, students learning in this quadrant may even be encouraged to explore ‘other’ ways of knowing, beyond the “safety” of Western rationalism. Further research will be required to understand what inter/transdisciplinary theories (eg systems thinking) might be appropriate to introduce students to at this moment of the curriculum. Further research will also be required to understand how to teach students to appreciate and deal with paradigmatic and discursive plurality.

We believe that students will find it difficult to operate in the 4th quadrant if they have not been exposed to the 3 other ways of knowing, and to the experiential learning in quadrant 3 in particular. It is in returning to theory and reflecting on theory in the light of meaningful personal experiences, practices or critical incidents, that learners will be encouraged to deal with epistemic plurality. This is especially the case if the experience causes some sort of cognitive dissonance in the learner. It is also important to note that order to develop high levels of reflexive competence, most learners will require safe spaces where they can take risks and write and talk dialogically. This can be achieved via journal writing, discussion groups, e-mail chat rooms, etc. Again a mentoring relationship often provides a context conducive to this form of learning.

If HE curricula are to be designed to take students through all four quadrants of learning, then there should be adequate opportunities for students to develop both the generic knowledge and skills required for economic productivity as well as the knowledge and skills required for political participation and responsible citizenship in a diverse democracy. Such a curriculum may also hold together the tensions between Mode 1 and 2 and between global and local forms of knowledge.

**IMPLICATIONS FOR IMPLEMENTING AN EPISTEMICALLY DIVERSE CURRICULUM**

**The nature of educational change and policy implementation**

Having dealt with what may be desirable in terms of curriculum reform, we now need to engage with what may be possible. Conventional wisdom has it that change is a process or a journey rather than an event or a blueprint. HEIs need to continuously adapt to their changing environments. Furthermore, it is well known in the literature on public policy that the relationship between policy formulation and policy implementation is never simple, direct or automatic. In fact writers such as Trowler (1998:102) suggest that policy is clarified and even re-made as it is implemented. This suggests that the policy process
involves continuous interaction, interpretation and contestation as it filters down from politicians, through government bureaucrats, through institutional management to academics and students (the policy implementers) on the ground. The process is laced with contradictions, power struggles and unintended consequences and the agency of those on the ground should not be underestimated.\textsuperscript{10} At the institutional level, systems models suggest that any successful change strategy must begin by clarifying the purpose of the system and then align the structure, processes and attitudes/culture of an institution to serve its purpose(s). But unilateralist or top down approaches to policy implementation in which senior management tries to impose a paradigm shift via structural change and “attitudinal adjustment” is now considered out dated.

One alternative method (proposed by Elmore (1980) quoted in De Clercq 1999:130) is called the “backward mapping approach”. Instead of focusing at the top, policy targets are set at the lowest level of the implementation process, as close to the source of the problem as possible. One then works backwards from the site of immediate implementation to determine what higher level structures need to do to support the policy change. Trowler (1998) also recommends beginning at the bottom of the system. He emphasises the importance of working with academics’ “situational logic”, ie understanding the change problem from “underlife” or local perspectives. He stresses that unless the policy change links in with the implementers’ personal visions, identities, cultures and pre-existing values (which are multiple), they will not own the changes and get involved in the experimentation, adaptation and innovation required to implement the policy. Thus, the literature suggests that a successful change strategy must involve dialogue and negotiation between the top and bottom of the system and that it has to engage with and take into account the “lifeworlds” of the actors involved which may mean that the policy gets re made in the process!

If we reflect back on the analysis of the SAQA reforms above, it would appear that there has been an over emphasis on structural reform and insufficient attention paid to the implementation process and the “situational logics” of those who are required to implement the changes. Thus a key principle for any curriculum reform in HE must be the recognition of the agency and educational professionalism of lecturers and students and ceding them the space to interpret, design and adapt the new curriculum to their own circumstances.

**Key implementation considerations**

If the model of an epistemically diverse curriculum outlined above were to be interpreted and adapted for implementation by academics in Southern African HEIs, there would be numerous consequences, and no doubt many unintended ones. Below we list just some of the more obvious consequences that would require attention in the implementation process. Such transformational curriculum change would have enormous implications for the ways in which the HEIs and the HET sector as a whole are structured.

1. A modular curriculum structure and a uniform credit weighting system would enable different types of learning in different contexts to be treated comparably in the system. Because of the need to accommodate all four ways of knowing in the curriculum, the unit of design would need to be a whole programme as opposed to the modules comprising it. This would require academic staff to work in programme teams, which many are not accustomed to. Institutional structures and processes would need to change to encourage group as opposed to individual creativity.

2. The implementation of such a curriculum would require extensive staff development and the building of academics’ professional capacity as educators, particularly in the design, teaching and assessment of learning in quadrants 3 and 4. But before this could happen, a shared vision of the curriculum would have to be built at institutional and school/departmental level so that academics’ commitment to and ownership of the process is ensured. Academic reward and promotion systems would need to change to accommodate the recognition of good teaching and innovative curriculum development.

3. The shape of the HET system as a whole would need to change. The distinction between Universities and Technikons (and education and training) would become redundant and different programmes would develop distinct curriculum niches or foci within a single but differentiated HET system. (If the CHE’s proposals on the “Size and Shape” of the HET system are implemented, then different institutional mandates and missions may encourage some HEIs and certain programmes to emphasise certain types of learning over others; but the goal should be to ensure that any learning pathway through the HE system exposes the learner, in differing degrees, to all 4 types of learning.

4. All HEIs would have to become more open institutions, with flexible boundaries and a willingness to recognise that they can no longer own all the human resources they require. If HEIs are to provide learning which goes beyond quadrant 1, then the need to place students in real world contexts suggests the need to form partnerships with other institutions and sites of learning in the public, private, civic and informal sectors. HEIs will also have to explore the training, recognition and rewarding of mentors from those sites. The building of such partnerships may well change
the HEIs’ research as well as teaching agendas, this is rather optimistically described by Gibbons as follows:

The challenge for the universities of the developing world is to use their Mode 1 resources to extend their capabilities by means of programmes of collaboration in which the sharing of resources is central. This effort at extension will draw these universities into the distributed knowledge production system, focus their attention on the needs of their communities, direct their efforts to the understanding of local and national complex systems, and, in the end, create a new culture of teaching and research ... with relevance built in! (1998:56)

5. The provision of learnerships or opportunities for experiential learning for all students would be costly in both human and financial resources. It requires organisational and administrative capacity, funding for travel, accommodation, site visits and possibly the training of field workers, mentors, assessors, etc. If this is to be feasible, then at a policy level it may be important to explore links with the Department of Labour’s promotion of “learnerships” in the training sector and also with the Youth Commission’s idea of national service. If the concept of “service learning” were to be built into student learnerships, so that there was some genuine benefit to the hosting organisation or community, then the argument for further public funding for such a curriculum would carry more weight. Given that the majority of students take 4 rather than 3 years to achieve the current undergraduate degree, it would seem realistic to explore the possibility of extending all Bachelor’s degrees to four years, but with flexibility built in so that able, well prepared students could still graduate after three years.

6. If teaching and learning in quadrant 1 and 2 is to change so that HEIs produce “knowledge workers” (as opposed to “knowledge collectors”) who can reconfigure knowledge to a wide range of applications, then the availability of computers, electronic communication systems and training in information technology becomes crucial. Donor funding may well be required to enable HEIs to offer training in these skills.

7. If adequate IT systems are established in all HEIs, then much of the teaching and learning in quadrant 1 (and in some cases in 2) could be achieved via information and communication technologies. Rather than disseminating textbook knowledge, academics’ expensive time could be more profitably and effectively used for facilitating learning in quadrants 3 and 4. The shift from knowledge accumulation to knowledge reconfiguration in quadrant 1 and the need to make time for learning in the other quadrants will also mean that academics will have to let go of some pet areas of propositional knowledge. These may no longer be able to be accommodated in the curriculum, and instead, staff will have to ensure that their students have the skills to access whatever information they may require.

8. The implications of encouraging learning in quadrants 3 and 4 for distance HEIs are considerable. Whilst learning in quadrants 1 and possibly 2 may be possible by interactive distance education texts, learning in quadrants 3 and 4 requires human interaction and would need to be enriched by learnerships, peer discussion groups, e-mail chat rooms and ideally some one on one interaction with a lecturer, tutor or mentor. This would mean that the establishment of local partnerships would have to be an essential strategy for any distance learning HEI.

9. The introduction of an epistemically diverse curriculum would have serious implications for assessment policies and practices in HEIs. HEIs would have to move away from the testing of the retention and reproduction of propositional knowledge to assessing a range of competencies via a range of appropriately selected assessment methods. Assessment in authentic contexts, whilst more valid than pen and paper tests tends to be more difficult and time consuming and runs the risk of compromising on the reliability of the test. To avoid this, the assessment paradigm would need to shift from an emphasis on norm referencing to an emphasis on criterion referencing and from the quest for generalisable results to a reliance on comparable and validated professional judgement. This would entail developing higher levels of local assessment expertise, both within and without the HEIs. Furthermore, the use of peer and self assessment could be introduced, particularly for the development of reflexive, evaluative and epistemic competence in quadrants 3 and 4.

10. Finally, students would need to understand themselves as actors and co creators of the curriculum. They would need to take responsibility for their own learning and be prepared for the effort involved in personal transformation. They would need to trace their cognitive development from basic information processing competence in quadrants 1 and 2 to meta cognition and epistemic cognition in quadrants 3 and 4. They would need to allow their understandings of knowledge to shift from dualism and objectivism to relativism and contextualism. This is often a painful personal process.
ENDNOTES

1. Muller (2000:70) notes that there are typically two categories of generic skills, those for economic productivity and innovation and then those for cultural, political and moral skills for “good citizenship”; but he suggests these two “citizenships” are rarely brought together in a common framework. However, as we show below, South African policy makers, in their desire to promote both economic growth and nation building, list desirable skills from both categories.

2. The CHE seems to be suggesting that skills from both of Muller’s categories are important for our context.


4. Does SAQA mean general transferable skills here?

5. A compounding difficulty is that whilst those academics who choose to adopt a post modern stance, do so deliberately, whilst those who adhere to the “ideology of science” tend to do so “naturally”, unaware of the ideological nature of their position, which is of course quite apparent to intellectually sophisticated post modernists.

6. Thabo Mbeki’s notion of an “African Renaissance” is one example of this modernist belief.

7. As opposed to postmodernism, we will term this approach one of “reflexive contextualism”.

8. See recommendations made in the CHE’s Task Team Report (July 2000)

9. I am indebted to the work of Anita Craig and the Teach Test Teach Project, University of Natal for this insight.

10. See Cornbleth’s definition of curriculum at the beginning of this article.

REFERENCES


Bawden, R 1999. Unity through the diversity of knowing: a systemic perspective, in Campbell, W J (ed) Education and values. UNESCO.


Breier, M 1999. Curriculum restructuring in higher education in post apartheid South Africa: a critical reflection. Education Policy Unit, University of the Western Cape, (Draft paper commissioned by the NRF).


Griesel, H 2000. Employers survey on graduate attributes (work in progress, University of Natal).


Luckett, K 1995. An investigation into some curriculum development issues to inform the University of Natal’s Curriculum Reform Project. Pietermaritzburg: University of Natal.


