European Journal of Education, Vol. 45, No. 1, 2010, Part I

Three Educational Scenarios for the Future: lessons from the sociology of knowledge

MICHAEL YOUNG & JOHAN MULLER

Introduction

This article is concerned with 'possible educational futures', not as a futuristic or predictive exercise, but through an analysis of current trends in educational policy (Young, 2009a). However 'futures thinking' has not been a major strand of research and theory in the sociology of education or in educational studies generally. As a result, it has been largely left to educationalists who give little explicit attention either to sociological debates about current social changes that are often masked by terms like globalisation and knowledge societies, or to how the question of knowledge is understood in these debates (Young, 2009b; Muller, 2009). The typical approach of such thinking is to identify what is seen as the increasing mismatch between the schools and some of the global changes in the wider society that are discussed in other articles in this Special Issue. Such approaches tend to be concerned with how the formal education system, and schools in particular, almost systematically resist such changes. Furthermore, the assumptions of such 'future thinking' tend to be that certain wider social changes are not only inevitable, but of positive benefit to humanity and that schooling in the future will have to follow them. This 'following' is invariably viewed as unproblematic.

The future of schooling in these scenarios is one of throwing off what is seen as its medieval past and adapting to global trends towards greater flexibility and openness to change from individuals; as a consequence, it is predicted that schooling will become less and less differentiated from other social institutions. The following two not un-typical, but in many ways very different examples of this kind of 'future thinking' will illustrate this point. The first is by Peter Mortimore, the former Director of the Institute of Education, University of London. In a recent Guardian column, he wrote:

> Many changes are affecting western societies. New citizens are importing different cultural and religious traditions, families are taking on different configurations, work hours are becoming more varied and the internet is taking over our shopping, entertainment and information-gathering activities . . . People have become more conscious of individual rights, but are less deferential to those in authority . . .
>
> Yet English schools . . . are slow to change . . . all but the most confident of headteachers are inhibited from experimenting with new approaches.

> Many aspects of schooling have changed . . . the abolition of corporal punishment and the introduction of a national curriculum . . . But should there be more fundamental changes in how pupils are educated in order to *better match* the way people live today? (our italics) Should issues such as the sustainability of the environment and the dangers of obesity, drugs and Aids and, in the light of current events, financial education be given more prominence? (Mortimore, 2008)

Our second more overtly academic example is a recent paper by the distinguished sociolinguist Gunther Kress (2008), who argues that global social changes are calling into question the appropriateness of:

- our dominant myths about education that are derived from an already quite distant past; and
- our assumptions about the homogeneity of the audience for education and . . . about the ontological/epistemological security of 'knowledge'.

The school is increasingly left, Kress argues, 'without its legitimating purposes'. It is faced with 'an emblematic shift in the emphasis of educational rhetoric from teaching to learning . . . No institution (any longer) regulates *what is to be learned* . . . *no clear curriculum exists* . . . and knowledge is made by learners in relation to their needs, as tools to solve problems encountered by them in their lifeworlds' (our addition in brackets).

Kress goes on to claim that 'a significant proportion of the young are alienated from school — they no longer judge school to be of relevance to . . . the world as they experience it . . . What the school actually offers is . . . no longer of interest to these young people . . . the responsibility (for the transition from school to work) now falls on the young themselves' (Kress, 2008).

Mortimore is pointing to a greater emphasis in a possible 'curriculum of the future' on 'relevant' and contemporary themes. His argument is not unlike that of the UK's Qualifications and Curriculum Authority in their new curriculum proposals which shift the balance in school science from subject content to topics which might be relevant and have personal meaning for pupils. However, neither the UK's Qualifications and Curriculum Authority nor Mortimore tell us how such themes might be addressed by teachers in ways that go beyond a sharing of opinions on issues such as the HIV/AIDS epidemic that involve complex bodies of specialist knowledge in fields such as micro-biology.

Kress tells us that the future is here today and that it is largely educationalists, unlike young people, who are too blinded by tradition to see it. Whether this future in which schools adapt and respond to the 'demands' of the next generation will really empower and enthuse them is another question.

In this article, we will draw on some ideas in the sociology of knowledge to tell a rather different story about schooling and its possible futures in an increasingly global society. We shall argue that a focus on the conservative nature of educational institutions, their resistance to change, and their perpetuation of anachronistic forms of authority and archaic curriculum priorities that bear little relation to the demands of the contemporary world, is very limited as a basis for 'future thinking'. First, it fails to distinguish between the inherently 'conservative' role of schools as institutions involved in the 'transmission of knowledge' from one generation to

another and 'conservatism' as a tendency of all institutions to resist change and preserve the privileges of more powerful groups. We need to distinguish between these two forms of conservatism if we are to envisage how schools will continue to transmit knowledge (and values) from one generation to another in the fast changing societies of today. Secondly, a focus on changes in the wider society, and on how schools should adapt to them plays down the extent to which, if schools are agencies of cultural transmission, they will have a logic of their own which may go against the immediate demands of young people even it is in their long term interests.

Education and the Sociology of Knowledge

Research in the sociology of knowledge has had a significant if controversial influence on debates about education in the UK and elsewhere, at least since the early 1970s. Although this influence can be traced back to the appointment of Karl Mannheim to the Chair in Sociology of Education at the Institute of Education in 1946, it was not until the 1970s that sociological ideas about knowledge began to be taken seriously in educational studies. Furthermore, it has only been in the last decade that a distinctive social realist research tradition began to emerge in the UK (Moore, 2007; Young, 2007), in South Africa (Muller, 2000; Gamble, 2006), in Australia (Wheelahan, 2007), and in a number of Latin American and European countries such as Portugal and Greece. The major resource for this work has been the ideas/theories of the English sociologist, Basil Bernstein, who died in 2001, and the inspiration that he found in the ideas of the French sociologist Emile Durkheim writing a century ago. However, this emerging tradition in the sociology of education has also drawn on a number of wider developments in (i) sociological theory (Collins, 2000; Bourdieu, 2004; Hall & Jarvie, 1996), (ii) the sociology of science (Collins & Evans, 2007), (iii) philosophy (Norris, 2006; Bachelard [see Tiles, 1984]) and (iv) linguistics (the Sydney Systematic Functional Linguistics Group who explicitly tie the notion of knowledge to the wellsprings of language [Christie & Martin, 2007]).

This article begins by locating the intellectual origins of a specifically ***realist*** sociology of knowledge in the early 20th century work of Emile Durkheim (1984). However, we will suggest that its emergence as a strand of research within the sociology of education in the last two decades has been as much a critical response to other developments in the broad field of educational research and in educational policy as a re-discovery of a social realist tradition in mainstream sociology. These developments in social and educational research include:

i) social constructivist/post modernist views of knowledge and truth that are found in much recent sociology of education, as well as more broadly across the humanities and social sciences (Kronman, 2007).
ii) socio-cultural theories of learning that have, implicitly and sometimes explicitly, dominated educational research in a range of fields such as science education, work-based learning and diversity studies (Boghossian, 2007).

These theoretical developments have been paralleled by a number of policy developments that have their roots in the new neo-liberal politics and its celebration of markets. Examples include:

a) the increasingly 'instrumental' focus of educational policy which conceptually, albeit not politically, has many affinities with (i) and (ii) above. For example, it is increasingly difficult to make a public case for 'education for its own sake' — i.e. 'to promote young people's intellectual development'.
b) the uncritical enthusiasm of research funders and policy makers for the educational potential of digital technologies and the challenge that this poses for specialist educational institutions and the role of teachers (Keen, 2007; Sharples *et al.*, 2007).

The distinctive implications of the sociological ideas discussed in this article follow from their recognition of (a) the ***necessary objectivity*** of knowledge as a condition for any kind of enquiry or reliable prediction about the future and (b) that knowledge is ***emergent from*** and ***not reducible*** to the contexts in which it is produced and acquired. At the same time, a social realist approach implies an explicitly historical approach to thinking about future trends. Without such an historical approach to knowledge, predictions are likely to be little more than extrapolations from the present, as if the present itself had no history.

The dilemma posed by a recognition that knowledge is both 'objective' and historical is not new and takes us back at least to Hegel. It lay at the heart of the sociology of knowledge that was established a century ago by Durkheim, Weber and Mannheim and has been continued more recently by Habermas, Randall Collins and others.

We argue that it is important to distinguish what we refer to as 'social realist' theories of knowledge from the two approaches that have set the terms for most recent debates about knowledge in the social sciences and in philosophy. The first of these approaches — symbolised perhaps by logical positivism and its empiricist parallels in the social sciences — can be described as invoking an a-social or ***'under-socialised'*** epistemology that defines knowledge as sets of verifiable propositions and the methods for testing them. It treats their ***social*** production in particular historical contexts and within the boundaries of particular disciplines as implicit or taken for granted. The second approach which arose in direct response to the first — what we here refer to as ***'over-socialised'*** — plays down the propositional character of knowledge and reduces questions of epistemology to 'who knows?' and to the identification of knowers and their practices. In contrast, a ***social realist*** theory sees knowledge as involving sets of systematically related concepts and methods for their empirical exploration ***and*** the increasingly specialised and historically located 'communities of enquirers' (an idea first expressed by the American philosopher Charles S. Pierce) with their distinctive commitment to the search for truth and the social institutions in which they are located.

A Social Realist Approach to Knowledge and its Educational Implications

The emergent, non-reducible and socially differentiated character of knowledge has, we suggest, potentially profound educational implications. Examples of such implications, which deserve a paper in themselves, and which we can only list here, include the importance of:

- the distinction between curricula and pedagogy.
- the 'non-arbitrariness' of boundaries between knowledge domains and between school and non-school knowledge.
- the 'objective' basis of the authority and professionalism of teachers and other experts.
- the inescapably hierarchical nature of pedagogy.
- the conditions for and definitions of creativity and innovation.
- the epistemological constraints on the scope of policies for widening participation and promoting social inclusion.
- the limitations of 'generic skills' as a model for 'general education'.
- the crucial importance of 'subject-specific content' and the importance of distinguishing between 'subject content' — as the relatively stable component of subject knowledge — and 'information' (such as what is available on the internet) which is never stable and always changing.

Running through all these themes is an emphasis on the irreducible ***differentiatedness*** of knowledge. Knowledge is structured, in part independently of how we acquire it, and knowledge fields differ in their internal coherence, their principles of cohesion, and their procedures for producing new knowledge. These internal differences are mirrored in the different forms of social relation between the actors that practice in the institutions of those fields: knowledge relations and social relations vary in tandem.

The distinction between the 'structural' and 'social' conservatism of education institutions referred to earlier is important for identifying the epistemological 'constraints' on curriculum design. Social realism views the former as a condition for progress and innovation and the acquisition of knowledge. However, it is easily confused, especially by those seeing themselves as educational radicals, with the '*social conservatism'* of educational institutions which preserves the power and privileges of particular groups. Gramsci's well-known critique of the Gentile reforms of Italian education in the 1920s makes this distinction clearly. He defended the structural conservatism of the old curriculum against the 'progressive' changes proposed by Gentile which would exclude subordinate classes from access to knowledge via spurious forms of 'vocationalism' (Entwhistle, 1979).

The second distinction that we want to make is between two meanings of the idea of education as 'cultural transmission'. In everyday language, transmission refers to 'passing on' — of a signal, a message or a disease. Education also involves a 'passing on', of knowledge, or more broadly, a culture. However, whereas the everyday meaning of the transmission of a signal is a one-way movement in which the receiver is the passive recipient, the cultural or knowledge transmission that is associated with education is a much more complex process that involves the active role of the 'recipients' in making the knowledge their own. The research literature mistakenly polarises these two meanings of transmission. An example is Anna Sfard's well-known and in many ways perceptive essay on theories of learning (1998). Her analysis leaves the polarity un-resolved because she treats learning as a generic process separable from 'what is learned'. In contrast, we would argue that 'learning' always implies 'learning something'; there is a parallel here with Alasdair MacIntyre's (2002) argument that teaching as a generic concept is empty — we always 'teach something'. It follows that learning necessarily involves cultural transmission or the transmission of knowledge. The transmission of culture,

increasingly but not exclusively through educational institutions, from generation to generation, is what distinguishes human from animal 'societies', and enables the former to reproduce progress. Cultural transmission is always reproductive and but potentially although not necessarily progressive.

We argue that a social realist approach which gives priority to the knowledge that is (or is not) being transmitted in the curriculum, while at odds with much contemporary educational thinking which focuses largely on learners and their experience, provides a more reliable basis for identifying underlying trends and imagining possible futures or, (in Eric Olin Wright's (2006) evocative phrase, 'real utopias' (Wright, 2006)).

By emphasising the ***social differentiation*** of both knowledge and institutions, social realist approaches challenge the widely shared assumption that boundaries are always barriers to be overcome rather than also conditions for innovation and the production and acquisition of new knowledge. As Bernstein (2000) argues, boundaries play an important role in creating learner identities and are thus the conditions for acquiring 'powerful knowledge' as well as being barriers to learning. It follows that:

- the global future of education is not necessarily one of greater flexibility, portability, and transparency;
- it will continue to be important to ***differentiate*** learning in schools, colleges and universities from learning in homes, workplaces and communities;
- experience itself cannot be the sole or primary basis for the curriculum; and
- as learners cannot actually 'construct' their own learning (because, in Foucault's pithy phrase, 'they can't know what they don't know') the role of teachers cannot be reduced to that of guide and facilitator rather than as a source of strategies and expertise.

Three Scenarios for the Future

The role of boundaries and the social differentiation of knowledge are the key principles which we draw from the sociology of knowledge in identifying possible future scenarios. Bearing these assumptions in mind, the next section explores the implications of three possible futures scenarios for the next 20–30 years.

The Three Futures (or Scenarios for the Future)

Future 1 — Boundaries are given and fixed — the 'Future' is associated with a naturalised or 'under-socialised' concept of knowledge;

Future 2 — The end of boundaries — the 'Future' is associated with an 'over-socialised' concept of knowledge;

Future 3 — Boundary maintenance as prior to boundary crossing. In this 'Future' it is the variable relation between the two that is the condition for the creation and acquisition of new knowledge.

Future 1 — Boundaries are given and fixed — a naturalised or under-socialised concept of knowledge

Every mass education system has its primary but not its only origins in an elite system[1], that is, a system for transmitting elite cultural knowledge to the 'select

few', sometimes the 'elect', who are most usually the offspring of the dominant classes. Such systems involve induction into the dominant knowledge traditions that keep them dominant. These traditions are overwhelmingly static because their boundaries are fixed by social imperatives that override the conditions for knowledge and its innate dynamism, fecundity and openness to change. They are socially conservative in this dual static sense. By the end of the 19th century (at least in Europe), three democratising social forces bore down on this elite template. The first was the generalised demand from below for access to schooling — the demand for it to massify. The second was the explosion of knowledge about the social and natural worlds. This explosion of 'powerful knowledge' challenged the traditional idea of the curriculum as 'knowledge of the powerful', and gradually but steadily eclipsed the outmoded canons of the old elite system. Much later, the priorities of social movements, both feminist and post colonial, began to be incorporated. Elite educational systems that are found in every country had to deal with this triple challenge. **Future 1** represents attempts to continue the elite system whilst opening access to broader social forces as marginally as possible.

At some point, expanding elite systems meet a number of in-built limits with which they have to contend. These limits include:

(i) the inability of labour markets to absorb any more workers trained in the same conservative mould.
(ii) the limits of a mass schooling system to induct all children with equal success into elite knowledge traditions that depend on the middle class home as a critical adjunct and condition for that success.

To widely varying degrees all mass schooling systems have failed to overcome these limits and failed to 'compensate' for the unequal distribution of conditions for success that they give rise to.

The default position to deal with this on-going scandal has been one or other type of tracked or streamed system which preserves the elite track for the elite and a trickle for the mass. For the rest, one or more kinds of vocational track is provided, that in their worst forms represent 'dumbed down' versions of elite knowledge — for example, mathematical literacy, communications or 'popular science' (Young, 2007; Wheelahan, 2007). This so-called 'vocational' curriculum becomes proceduralised, increasingly so with technology (Both Lauder's 'digital Fordism' (Lauder *et al.*, 2008) and Newfield's 'cognotariat' (Newfield, 2009) show that this 'proceduralism is not limited to the disadvantaged) — and access to 'powerful knowledge' is blocked for the mass. The result is a system overtly stratified along social class lines, with schooling as its principal instrument of stratification. Its destiny is to be perpetually seen as unfair, and hence resisted. In this sense, **Future 1** is a recipe for social divisiveness, inequality, unhappiness, and conflict. The mechanism producing the injustice is perceived by those who oppose it to be the form of the elite curriculum — overt, strictly stipulated and paced. Its boundedness is seen to be the main problem, and the condition for greater social justice and less inequality, at least as far as the **Future 2-ists** are concerned, is the removal of these boundaries.

In the **Future 1** scenario there are few new sources of innovation within the education system. Education and the wider context will continue to exist as two parallel worlds. We can however predict increased differentiation based on locality and the conservatism of traditional cultures, increasing divisions between North

and South, and, for example, between different fundamentalist cultural and religious traditions. Treating boundaries as given, not social, becomes in this scenario a basis for maintaining and legitimising existing power relations and restricting sources of debate. There are, of course, no pure forms of **Future 1** even in autocracies; however it would be a mistake to think that **Future 1** has no future. Many elements of **Future 1** linger in the English system, as indicated by Fitz, Davies & Evans (2006) and it is probable that they will linger on well into the future. The worst case consequence of this scenario is expressed most stridently and evocatively in Samuel Huntingdon's Clash of Civilisations (1998) and more colloquially in George Bush's 'War on Terror'.

Future 2 — the end of boundaries — an 'over-socialised' concept of knowledge

As we have already indicated, **Future 2** is born in 'progressive' opposition to **Future 1**. It envisages a steady weakening of boundaries, a de-differentiation of knowledge and institutions, a blurring of labour market sectors, and a greater emphasis on generic outcomes rather than inputs as instruments of equalisation and accountability. Elements of the ideals of Future 2 can be seen in the scenarios suggested by Mortimore and Kress which we referred to at the beginning of this article[2].

To the extent to which such learner-directed trends, coupled with the wider introduction of digital technologies, are endorsed, we shall see a de-professionalisation of teaching at all levels and the de-specialisation of research. It is a trend that will meet resistance from the forces underpinning **Future 1**, but it is a trend everywhere gaining ground in Europe and beyond.

The curricular 'instrument of choice' for those seeking to pursue boundary-weakening and de-differentiation is, using the term in its broadest sense, modularisation. Among the expressions of this boundary weakening, various combinations of the following are likely to be found:

- *the 'integration' of school subjects* — as boundaries between subjects and between school knowledge and everyday knowledge are weakened;
- *the stipulation of curricular content in generic, usually skill or outcome terms* — also as a consequence of boundaries between subjects and knowledge fields being weakened;
- *the promotion of formative over summative assessment* — as boundaries between the achievement scores of different learners are weakened;
- *the introduction of unified national qualification frameworks* — as the boundaries between different (especially academic and vocational) qualifications are weakened;
- the promotion of facilitative rather than directive teaching — as the boundaries between experts and neophyte learners are weakened.

Our position, as we stated above, is that educational boundaries are social but also ***real***, not arbitrary, that is, they cannot be dissolved, at least in the short term, without serious consequences for most if not all learners. What such de-differentiating mechanisms are most likely to achieve is not to dissolve the boundaries, but to render them invisible — an invisibility that is exaggerated for the more disadvantaged. That is to say, against their best intents, the main effects of **Future 2-ists** — those endorsing progressive pedagogy and its variants — are to

render the contours of knowledge and learning invisible to the very learners that the pedagogy was designed to favour — namely the learners, invariably but not always those from low income homes, who fall behind their peers. Where **Future 1** produces stratification and resistance, **Future 2** also produces stratification; however, this time it is of a covert kind, because the overt targets associated with **Future 1** are now submerged, and the unfortunate learners who stumble — for stumble they do — cannot see what it is, this time, that causes them to stumble. This too causes disaffection, a disaffection that, together with more specifically material factors, lies at the root of much of the youth apathy described so well by Gunther Kress we referred to earlier, as well as its more destructive cultural forms, such as self- and other-directed violence. In other words, whereas the **overt** stratification of **Future 1** leads, at least optimally, to opposition and the 'voice' of the excluded, the **covert** stratification of **Future 2** leads increasingly to a variety of individualised 'exit' strategies that feed a disintegrating public culture. The proponents of **Future 2** find themselves unwittingly becoming the legitimisers of this trend in their denial of the special worth of expert knowledge, in their at least implied validation of all cultural forms as equal[3], and in their uncritical celebration of experiential forms of knowing.

The 'end of boundaries' scenario of **Future 2** is unlikely to lead to access to specialist knowledge disappearing in the elite and private sectors and institutions. What is more likely is that public education will replace unequal access to knowledge by increasing access to qualifications leading to credential inflation as qualifications are competed for but have less and less worth — either as use value or exchange value.

A critical exploration of the role of boundaries in the production and acquisition of new knowledge enables us to argue that, despite clear political differences between neo-liberals, who are obsessed with promoting markets and individual choice at any price, and the radical social constructivists, who want to free learners from what they see as the authoritarianism of expertise, both share an underlying epistemological similarity. Both end up with an instrumental view of knowledge with its inevitable relativist consequences. **Future 1** and **Future 2** are in this sense epistemological mirror twins: they may differ in their proclaimed rhetorics, their means and desired goals, but their end result is, uncannily, the same.

Future 3 — Boundary maintaining and boundary crossing as conditions for the creation and acquisition of new knowledge in the emerging global context

Future 3 arises out of the critique and analysis we have made of **Futures 1 and 2**. It will in a sense be a demonstration of what a social realist theory of knowledge can offer and why it is needed if our alternatives for the future are to have any degree of reliability. **Future 3** is based on the assumption that there are specific kinds of social conditions under which powerful knowledge is acquired and produced. These conditions are not given; they are historical but also objective. Whereas their historicity is denied in **Future 1** — boundaries are given and taken for granted, the historicity and objectivity that are embodied in the critical role of specialist communities are denied in **Future 2**. At best **Future 2** offers an increasingly boundary-less and fragmented global de-differentiation, together with a naïve optimism about the potential of new 'bottom up' social movements and epistemologies located in a metaphorical 'South' (Hardt & Negri, 2000; de Sousa

Santos, 2001; 2008). In contrast, **Future 3** emphasises the continuing role of boundaries, not as given entities, whether in the brain (neuro-science), in the mind (a-historical rationalism) or in the world of human practice (pragmatism and dialectical materialism), but in defining domain-specific but increasingly global specialist communities as a basis both for the acquisition and production of new knowledge and human progress more generally. The contemporary British philosopher Christopher Norris expresses this scenario, following Habermas, as the 'unfinished project of modernity'. We find it, albeit expressed in different ways, in the theories of both Max Weber and Emile Durkheim writing over a century ago.

The last section of this article explores a number of the features of **Future 3**, their implications and how they may change. We shall consider, although our list makes no claim to be comprehensive, the following:

- Boundaries and their types — in relation to both knowledge and institutions and their interdependence — with particular reference to the case of disciplines and their future.
- **Knowledge** as real (powerful knowledge) and **the social** as real (knowledge of the powerful) and how the two ideas might be held together.
- Preferred curriculum and pedagogic models.
- Implications for educational inequalities.

Boundaries and their Types — The Future of Disciplines

The most critical point about knowledge in the next 50 years will be to understand why some forms of knowledge tend towards **specialisation** and others towards **variation** or **diversification**. These different tendencies in the development of knowledge have critical implications for the curriculum and education more generally. The first tendency poses questions about sequence, pace, and hierarchical organisation, whereas the latter poses questions predominantly of choice, of what to include in the curriculum and, at its extremes, of the absence of any objective criteria at all. The intimate link between knowledge form and curriculum organisation is what a social realist approach to the curriculum seeks to elucidate.

It has become fashionable to proclaim the end of disciplinarity (Gibbons *et al.*, 1994; Nowotny, Scott & Gibbons, 2001), but disciplines seem almost obstinately to linger on. They do, it is true, morph and adapt, as do all robust social forms, but reports of their end are much exaggerated. This does not mean that new disciplinary formations do not periodically appear. They do. However, new formations invariably arise from existing disciplines, first in the form of 'regions' (Bernstein, 2000) or groupings of existing disciplines around new problems; only later do they form into discrete identifiable formations, with their own stable communities. The reason for this is that, as we said earlier, knowledge boundaries are not arbitrary, and the internal forms they foster and the social relations that sustain them shake down over time into stable socio-epistemic forms. These forms are determined by the strength of boundary appropriate to each form and consequently by how each form of knowledge develops or grows.

Disciplines differ, first by their form of **conceptual advance**; and secondly, by their form of **objectivity**. As to the first: some disciplines tend towards robust, conceptually justifiable advances. Their knowledge structure is determined by their ever-advancing conceptual spine which tends towards unity (which does not mean

that there is only one conceptual spine in the discipline). The curriculum implications of this type of conceptual advance is that these disciplines in their mature form develop long 'hierarchies of abstraction', what Vergnaud (2009) calls a 'conceptual field', and which are best learnt in sequence under the guidance of specialists (Mathematics and the Natural Sciences are the most obvious examples). We may say that these disciplines are, in a specific sense, concept-rich. It is not that they necessarily involve large numbers of concepts (the number of concepts does not distinguish them from a wide range of disciplines). It is that that they have long sequences of hierarchically-related concepts. For students, getting stuck at any rung of the hierarchy usually means that conceptual learning stops. Other disciplines tend towards advance through variation or diversification of concepts; this, however, is less about concepts than it is about different contents or content-clusters, although there is usually a macro-conceptual organising principle (the 'past' (or more abstractly time) for History and 'space' for Geography, for example) involved. Still others develop practically by developing new skills and ways of doing things. Practical development may refer to new practices within traditional manual crafts like cabinet making or to new forms of conceptual practice such as software development or website design. Concepts, content, and skills are embedded in each discipline, but their relative salience is what differentiates them.

All disciplines, in order to be disciplines, have shared objects of study, and in order to be robust and stable, display objectivity — that is to say, they possess legitimate, shared and stably reliable means for generating truth (Young & Muller, 2007). Truth is, by this account, a stable relationship between the objects of study and an informed community of practitioners. Disciplines, however, display differing albeit equivalent kinds of objectivity, depending on whether their object is natural or social[4]. The more social the object, the greater is the limit on the object being subsumed by the concepts of the discipline. Each form of objectivity nevertheless has to meet the same criteria of analytical adequacy — the simplest, maximum degree of subsumption by the disciplinary concept without distortion of the particular object.

The reason for rescuing a strong notion of objectivity from the **Future 2-ists** is so as to re-instate a strong and trustworthy notion of expertise (Collins & Evans, 2007). The erosion of expertise and the loss of trust in specialist knowledge has been an inadvertent consequence of the relativism of boundary-less thinking (Muller, 2000). Trust in reliable knowledge and in the judgements of specialist knowers has been hollowed out by common sense scepticism. Amongst adults in Europe, at least those born post-WW2, this has led to a peculiar form of self-deception — we deride specialised knowledge and knowers even as our lives are ever more dependent upon them. For example, we live in ever-more medicalised worlds even as medical litigation rates grow exponentially.

The youth of our society have not yet evolved the protective strategies of self-deception; many inherit a social derision towards strong knowledge from their parents and the media; as a consequence they fail at school for lack of trying hard enough to master something they perceive as meriting such widespread diminishment (Menand, 1995). Even as specialist knowledge grows apace at the cutting edge borders, the English education system may finally be failing to produce enough highly specialised practitioners of the future because the young have inherited the popular wisdom that the prize is not worth the effort. This underwrites too the swing to instrumentalism. If knowledge is not valued in its own right,

then its social worth can only be measured by its usefulness. It is sobering to reflect that this corrosive popular wisdom is wholly absent in the emerging economies of South Korea, China and India. Silicon Valley in California could not have happened without a majority of engineers recruited from the East. Another such leap forward will almost certainly emerge in the East rather than the West if **Future 2** prevails. Thus, decisions about the 'curriculum of the future' will have lasting long term effects.

Preferred Forms of Curriculum and Pedagogy

To say that we live in a knowledge economy has two principal implications for schooling: the first is that the economy and the society that supports it place a premium on advances in knowledge, though paradoxically not necessarily on its reproduction, as we have shown above. This means that in a time of accelerated knowledge development, specialisation and variation (or diversification) become the dominant social codes, and the curriculum comes under increasingly frequent pressure to constantly adapt. This is less apparent in the university curriculum because their communities of practitioners live close to the nexuses of advances in knowledge — indeed, they are driving them. What it does mean, and where this becomes visible, is that this marks a new distinction between those higher institutions that are driving advances in knowledge and those that are not. This hierarchy is currently very crudely marked by global rankings, and far more sophisticated measures are certain to be developed in due course. There is no doubt that the economies and societies of the future will continue to require robust signaling mechanisms for ranking the productivity of knowledge producers. The second implication is that, even in those disciplines where concepts have traditionally taken a back seat — like History for example — advances will increasingly be conceptually driven. This does not mean that new historiographical approaches will be plucked from the air, rather that new digital technologies will allow forms of investigation that produce facts not previously able to be brought to light and require new conceptual advances. The MRI scans that are driving new advances in neurology are an example. There are parallels in demography, the Large Hadron Collider in physics and in nano-technology across a range of sciences.

These developments have some specific implications for the curriculum and for pedagogy. The elite curriculum, developed at a time when knowledge changed very slowly, was content-driven, and in its worst pedagogical form, it was memorisation and rote-learning driven. Consequently, the main alternative to the elite curriculum, which finds its most sophisticated expression in **Future 2** thinking, has taken a stance against 'mere' content and 'mere' rote — and in its radical forms against all stipulation of content and all forms of rote learning or memorisation. This opposition finds expression in the emergent **Future 2** consensus around generic skills and outcomes based curricula (Mangez, 2008; Lundahl *et al.*, 2008). In other words, in articulating an alternative to the rigidities of **Future 1**, **Future 2** has swung from content-based to skills-based priorities. In both of these formats, especially in the latter, concepts get short shrift. This is because conceptual progression can only be signaled or stipulated in conceptual not skill-based terms. Because concept-based stipulations necessarily involve content (what is being conceptualised), this looks, at least to **Future 2** sensibilities, far too like the old content-based priorities of **Future 1**. The result is that even in concept-rich

subjects like science, the curriculum becomes under-stipulated in a **Future 2** world as is indicated by the latest curriculum proposals for school science from the Qualifications and Curriculum Authority in the UK (Perks, 2007).

These tendencies are not insurmountable obstacles for well resourced schools that are able to recruit teachers with strong subject qualifications who can fill in the gaps. It is, however, inevitably a problem for schools servicing poor communities that cannot attract such teachers. What happens in such schools is that teachers lack clear markers in the curriculum and fall behind without knowing it, or miss out conceptual steps that may be vital later on (Reeves & Muller, 2005; Smith, Smith & Bryk, 1998). At the same time, students fall behind until a conceptual terminus is reached and they lack the resources or motivation to progress. This tendency is exacerbated by the favoured non-directive (facilitative) pedagogy of **Future 2** that eschews strong signals from the teachers, especially regarding evaluation and assessment. Contemporary research shows unequivocally that in the concept-rich subjects, strong signaling in assessment is critical for improving the performance of pupils from both poor as well as well off homes (Morais, Neves & Pires, 2004; Hoadley, 2007; Bourne, 2004; Muller & Gamble, forthcoming).

Implications for Educational Inequalities

Future 3 argues for the importance of recognising the 'differentiatedness' of knowledge. Two implications follow. First, curricular formats that are too ideologically fixed on only content (**Future 1**) or skills (**Future 2**), gives some subjects short shrift, as well as having implications for the distribution of educational opportunities and achievement. Second, recognising the differentiation of knowledge makes explicit that concepts, skills and content are all important and must be stipulated in the curriculum. Failure to do so means a slowing down of any progress that has so far been made towards equalising epistemological access. This has implications for both social justice and the viability of a knowledge-based economy in the future.

A Concluding Note

We have framed our predictions for the future of education in terms of three scenarios and on the basis of a social realist theory of knowledge. We have indicated our preference for the **Future 3** scenario on both social justice and epistemological grounds and pointed to the negative outcomes that are likely to follow if **Future 1** or **Future 2** continue to remain dominant. As we have implied, these Futures are ideal types rather than predictive descriptions and must be judged as Max Weber pointed out long ago, in terms of how useful they are in identifying the tendencies and possible unintended consequences of current policies.

On the other hand, we have said little about which Future is most likely to dominate in the next 30 years. This is both a political and an educational or cultural question. It is political because it relates to questions of power and the reality that the curriculum inevitably expresses 'knowledge of the powerful'. Insofar as the neo-liberal combination of markets and accountability and institutional ranking continue to dominate educational policy, **Future 2** is likely to dominate. Neo-liberalism, however, is under challenge, at least in the field of economics and financial management. It is difficult to predict the impact of such

changes on educational policy. One possibility is that a greater skepticism about the growth possibilities of the financial services may lead to a resurgence of manufacturing and a greater valuing of science-based knowledge. However that leaves open the question 'where are the markets for these new manufactured goods?'.

Predicting likely futures is also a cultural question because, for better or worse, epistemological constraints will shape what curriculum policy can do, whoever has power and whatever the economic constraints. In a sense we might re-phrase Marx's famous but ambiguous aphorism about 'men making history . . . ' in recognising that epistemological constraints, like historical circumstances for Marx, are not 'of our own choosing'. This paper (and the research tradition that it is part of) is an attempt to re-assert the long term educational importance of these constraints. Our purpose is not to defend a conservative position or to look back to a 'golden past'; far from it. It is to confront the view (which we share) that access to powerful knowledge is a right for all not just the few, with a theory of 'powerful knowledge' and how it is acquired and the crucial role of formal education in that process. Not surprisingly, this leads us, at least in the short term, to a pessimistic view, similar to the one presciently expressed by Gramsci 80 years ago:

> We are still in the romantic phase of the active school, in which aspects of the struggle against mechanical and Jesuitical education have been unhealthily emphasized for reasons of polemical contrast; we must now enter the 'classical', rational phase, and discover in the ends to be attained the natural source of new methods and forms (Gramsci, 1965).

The short term possibilities of **Future 2**, like Gramsci's 'active school', present a seductive scenario for governments and international organisations as well as appearing to offer short cuts to some learners — perhaps real learning is easy and fun and more like a game. This, we are convinced, is a false dawn and likely to punish the disadvantaged most. There is no sign of it catching on in our elite schools — quite the opposite.

Futurology is in its nature a highly inexact science, because we never have all the facts at hand. That being said, two things do not necessarily follow: because we do not have all the facts at our disposal does not mean the trends we discern are not probable; more pertinently, because the scenarios we sketch and their projected consequences have a certain apocalyptic ring to them does not mean they are necessarily exaggerated or wrong. As the novelist Philip Roth (1984) once said, 'Any satirist writing a futuristic novel who had imagined a President Reagan during the Eisenhower years would have been accused of perpetrating a piece of crude, contemptible, adolescent, anti-American wickedness, when, in fact, he would have succeeded, as prophetic sentry'. That prophetic sentries are still welcome is certainly an encouraging sign.

NOTES

1. They are never entirely immune from the influences of working class and other movements.
2. This does not mean that we imply that either Mortimore or Kress would endorse our characterisation of Future 2.

3. An example is the influential Portuguese sociologist Boaventura de Sousa Santos in his 'epistemology of absent knowledges' which he claims goes beyond what he sees as the 'blindness' of Western science. Here is how he refers to it in a paper in the *European Journal of Social Theory*: '. . . the epistemology of absent knowledges starts from the premise that social practices are knowledge practices . . . (and that) non-science-based practices, rather than being ignorant practices, are practices of alternative rival knowledges. There is no apriori reason to favour one form of knowledge against another' (de Sousa Santos, 2001).
4. This does not deny, of course, that in a deep sense, even the concepts of the natural sciences are social.

REFERENCES

Bernstein, B. (2000) *Pedagogy, Symbolic Control and Identity* (Oxford, Rowman and Littlefield Publishers).

Boghossian, P. (2007) *Fear of Knowledge: against relativism and constructivism* (Oxford, Clarendon Press).

Bourdieu, P. (2004) *Science of Science and Reflexivity* (London, Polity).

Bourne, J. (2004) Framing talk: towards a 'radical visible pedagogy', in: J. Muller, B. Davies & A. Morais (Eds) *Reading Bernstein, Researching Bernstein* (London, RoutledgeFalmer).

Christie, F. & Martin, J. R. (2007) *Language, Knowledge and Pedagogy* (London, Continuum).

Collins, R. (2000) *The Sociology of Philosophies* (Cambridge, Harvard University Press).

Collins, H. & Evans, R. (2007) *Re-thinking Expertise* (Chicago, University of Chicago Press).

de Sousa Santos, B. (2001) Towards an epistemology of blindness: why the new forms of 'ceremonial adequacy' neither regulate nor emancipate, *European Journal of Social Theory*, 4, pp. 251–279.

de Sousa Santos, B. (Ed) (2008) *Another Knowledge is Possible: beyond northern epistemologies* (London, Verso).

Durkheim, E. (1984) *Pragmatism and Sociology* (translated by J. Alcock) (Cambridge, Cambridge University Press).

Entwhistle, H. (1979) *Antonio Gramsci: Conservative schooling for radical politics* (London, Routledge).

Fitz, J., Davies, B. & Evans, J. (2006) *Educational Policy and Social Reproduction* (Oxford, Routledge).

Gamble, J. (2006) Theory and practice in the vocational curriculum, in: M. Young & J. Gamble (Eds) *Knowledge, Curriculum and Qualifications for South African Further Education* (Pretoria, HSRC Press).

Gibbons, M. *ET AL.* (1994) *The New Production of Knowledge: the dynamics of science and research in contemporary societies* (London, Sage).

Gramsci, A. (1965) Editorial, *New Left Review*, 1, p. 1.

Hall, J. A. & Jarvie, I. (Eds) (1996) *The Social Philosophy Of Ernest Gellner* (Poznan Studies in the Philosophy of the Sciences and the Humanities 48) (Amsterdam-Atlanta, Rodopi).

Hardt, M. & Negri, A. (2000) *Empire* (Cambridge, Mass., Harvard University Press).

HOADLEY, U. (2007) The reproduction of social class inequalities through mathematics pedagogies in South African primary schools, *Journal of Curriculum Studies*, 39, pp. 679–706.

HUNTINGDON, S. P. (1998) *The Clash of Civilizations and the Remaking of World Order* (New York, Simon and Schuster).

KEEN, A. (2007) *The Cult of the Amateur: how today's internet is killing our culture* (London and Boston, Nichols Breasley).

KRESS, G. (2008) Meaning and Learning in a world of instability and multiplicity, *Studies in Philosophy and Education*, 27, pp. 253–266.

KRONMAN, A. (2007) *Education's End:Why our colleges and universities have given up on the meaning of life* (New Haven and London, Yale University Press).

LAUDER, H., BROWN, P. & BROWN, C. (2008) *The Consequences of Global Expansion for Knowledge, Creativity and Communication: An Analysis and Scenario* (Beyond Current Horizons). http://www.beyondcurrenthorizons.org.uk/the-consequences-of-global-expansion-for-knowledge-creativity-and-communication-an-analysis-and-scenario/.

LUNDAHL, L. *ET AL.* (2008) Curriculum policies of upper secondary education: the Swedish case. Paper presented to ECER 2008, Gothenburg, 10–12 September 2008.

MANGEZ, E. (2008) *Curriculum Reform in French-speaking Belgium*. Paper presented to ECER 2008, Gothenburg, 10–12 September 2008.

MENAND, L. (1995) Marketing postmodernism, in: R. ORRILL (Ed) *The Condition of American Liberal Education: Pragmatism and a Changing Tradition* (New York, College Entrance Examination Board).

MACINTYRE, A. (2002) Alasdair MacIntyre on Education: In Dialogue with Joseph Dunne, *Journal of Philosophy of Education*, 31, pp. 1–19.

MOORE, R. (2007) *Sociology of Knowledge and Education* (London, Continuum).

MORAIS, A., NEVES, I. & PIRES, D. (2004) The what and how of teaching and learning, in: J. MULLER, B. DAVIES & A. MORAIS (Eds) *Reading Bernstein, Researching Bernstein* (London, RoutledgeFalmer).

MORTIMORE, P. (2008) *Time for bold experiments*. http://www.guardian.co.uk/education/2008/oct/07/schools.teaching.

MULLER, J. (2000) *Reclaiming Knowledge: social theory, curriculum and education policy* (London, RoutledgeFalmer).

MULLER, J. (2009) Forms of knowledge and curriculum coherence, *Journal of Education and Work*, 22, pp. 205–227.

MULLER, J. & GAMBLE, J. (forthcoming) Curriculum and structuralist sociology: the theory of codes and knowledge structures, in: B. MCGRAW, E. BAKER & P. PETERSON (Eds) *International Encyclopaedia of Education*, 3rd edition (Elsevier).

NEWFIELD, C. (2009) *The Silence of the Cognotariat* (University of Los Angeles, unpublished).

NORRIS, C. (2006) *On Truth and Meaning* (London, Continuum).

NOWOTNY, H., SCOTT, P. & GIBBONS, M. (2001) *Re-thinking Science* (Cambridge, Polity Press).

PERKS, D. (2007) *What is Science Education for?* (London, Institute for Ideas).

REEVES, C. & MULLER, J. (2005) Picking up the pace: variation in the structure and organisation of learning school mathematics, *Journal of Education*, 37, pp. 97–125.

ROTH, P. (1984) The art of fiction no. 84, *The Paris Review*. Quoted by Simic, C. (2008) The nicest boy in the world, *New York Review of Books*, 55, 9 October.

SHARPLES, M. *ET AL*. (2007) A theory of learning for the mobile age, in: R. ANDREWS & C. HAYTHORNTHWAITE (Eds) *The Sage Handbook of E-learning Research* (London, Sage).

SFARD, A. (1998) On two metaphors for learning and the dangers of choosing just one, *Educational Researcher*, 27, pp. 4–13.

SMITH, J., SMITH, B. & BRYK, A. (1998) Setting the pace: opportunities to learn in Chicago public elementary schools. Consortium on Chicago Schools research report. http://www.consortium_Chicago.or/publications/pdfs/p0d04.pdf.

TILES, M. (1984) *Bachelard: Science and Objectivity* (Cambridge, Cambridge University Press).

VERGNAUD, G. (2009) The theory of conceptual fields, *Human Development*, 52, pp. 83–94.

WHEELAHAN, L. (2007) How competency-based training locks the working class out of powerful knowledge: a modified Bernsteinian analysis, *British Journal of Sociology of Education*, 28, pp. 637–651.

WRIGHT, E. O. (2006) COMPASS POINTS. Towards a Socialist Alternative, *New Left Review*, 41.

YOUNG, M. & MULLER, J. (2007) Truth and truthfulness in sociology of educational knowledge, *Theory and Research in Education*, 5, pp. 173–201.

YOUNG, M. (2007) *Bringing Knowledge Back In: From social constructivism to social realism in the sociology of education* (London, Routledge).

YOUNG, M. (2009a) *Alternative education futures for a knowledge society*. Keynote address presented at the European Councill for Educational Research Conference, Vienna, Austria, September 2009 (to appear in the *European Educational Research Journal, Vol 9, No 1, 2010*).

YOUNG, M. (2009b) Education, globalization and the 'voice of knowledge', *Journal of Education and Work*, 22, pp. 193–204.