

# The relationship between the constitution/construction of knowledge and identities, community

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## Abstract

There is a great variety of contexts within society that continuously create, recreate and reproduce knowledge. The knowledge that is produced in society is enormously diverse as can be seen from the typology of forms of knowledge summarised in Table 1.0 (note 1)

## 1.0 Knowledge construction within society

**Table 1.0 Typology of forms of knowledge**

Knowledge form	Historical legacy	Purpose	Medium in which it circulates	Institution
<b>Text and discourse</b>	Trivium (Greek) Grammar, logic, rhetoric	Exploration of the word  Elite, abstract knowledge	Texts (initially, sacred and ancient texts, latterly the canon)	Church Monasteries Libraries Universities
<b>Scientific</b>	Quadrivium (Greek) Arithmetic, astronomy, geometry and music  Renaissance	Exploration of the world  Applied: to build, master and know the world	Manuals, text books  Techniques Specialist equipment	Specialist Institutions  Monasteries Church Hospitals Royal Societies Universities

	Enlightenment			Polytechnics
<b>Technical (regions Bernstein)</b>	Industrial Revolution  Interface between scientific and market	Economic production		Industry Universities Polytechnics Hospitals
<b>Crafts</b>	Initially was not counted as 'know mundane world'	Trades  Applied Know-how to produce artefacts,	In practice passed on from individual	Guilds Communities of practice
<b>Generic skills</b>	Created by new market contexts  globalisation  Relatively unstable, rise and disappear with shifts in market, niche	eg Service industry	Learned on the job, innovative, entrepreneurial passed on in practice	FE colleges  New jobs, eg (travel and tourism, interior design, leisure, the night time econ
<b>New communication media, eg virtual technologies</b>	Information revolution	New creative Media, ICT	Internet, manuals	WWW 2.0 technologies
<b>Expressive art</b>	Contemporary Multi media	Installations	Information flows	Hybrid, virtual and self orga groups, ritualistic
<b>Common sense</b>	every day knowledge gained through perso experience		Family, friends, media, living in society	No specialist institutions

However, there has always been a strong boundary between the knowledge(s) produced within society and the knowledge that has been taught through official instruction in educational institutions. This is partly because education has been expected to fulfil a range of often competing functions which extend well beyond the passing on of knowledge.

Schools have always taught and transmitted a selected range of knowledge according to the social, political and economic needs that are perceived to be important in a specific era. As Hargreaves points out:

Since the emergence of compulsory schooling and its spread across the world, state education has repeatedly been expected to save society. Schools and their teachers have been expected to rescue children from poverty and destitution; rebuild nationhood in the aftermath of war; to develop universal literacy as a platform for economic survival; to create skilled workers even when little suitable employment has beckoned them; to develop tolerance among children where adults are divided by religious and ethnic conflict; ... to eliminate drugs and violence and make restitution for the sins of the present generation by reshaping how education prepares the generations of the future.' (Hargreaves, 2003, p3)

Thus the purposes of education are multiple, although we might identify three elements: to foster a particular kind of citizenry, to prepare a future workforce, and to provide young people with ways to reflect on and navigate pathways through life. These purposes are not necessarily compatible and in different eras and circumstances some, yet not others, may be prioritised. Furthermore, rather than being able to 'save society' it has to be recognised that learning takes place in social contexts that cannot be fully insulated from the social, economic and personal situations in which young people experience life. There is a growing sense that educational institutions need to be more open to the experiences that young people have if they are to foster successful learning, especially for groups whose everyday lives are insecure, chaotic and limited due to poverty and other forms of disadvantage. Young people who are secure, safe and materially comfortable are likely to benefit from education in whichever institution they find themselves. Schools can probably make the greatest difference to groups whose everyday lives are marked by disadvantage. Yet, such groups historically gained access to formal schooling later than groups with higher socio economic status (SES) and so traditionally have not been imagined as legitimate participants within educational institutions. A recent report published by the Rowntree Foundation found that white, British boys from poor families (Cassen and Kingdom, 2007) achieve less well in secondary education than any other group including working class girls and Afro-Caribbean boys. A recent report by the Sutton Trust in conjunction with the LSE found 'that social mobility has stagnated and is at its lowest point for decades' (ibid., 2007). Furthermore forms of instruction have changed little across the long history of schooling. A 'deep grammar' has remained at the heart of schooling in which teaching is 'conducted from the front, through lecturing, seatwork and question and answer methods, with separate classes of age-like children, evaluated by standard paper-and-pencil methods'. (Hargreaves, 2003, p4). Major challenges for education in the future will be to develop school curricula that are more inclusive and to broaden the repertoire of instruction (pedagogy) and assessment.

### **The school curriculum and working class groups**

In the following section I shall describe the origins of the relationship between the academic curriculum and elite masculinity: that is, masculinity valued by groups with high SES. In this section I shall point to some issues that relate to working class masculine identities. There has long been a powerful association between masculinity, skill, and work of the body rather than of the mind in working class communities. Since the industrial revolution, being skilled was associated with being independent and being a good man (Schwartz Cowan, 1997, cited in Murphy and Whitelegg, 2006). Skills were learned in workplace apprenticeships and therefore were tied to specific fields of production and their earning power gave them value (Willis, 1977). Technical competence was associated with masculinity in opposition to femininity (Wajcman, 1991). Because the high status of manual and technical skills derived from their relationship with fields of productivity they were not associated with educational qualifications (Ivinson and Murphy, 2007 p67). This remains a challenge when it comes to teaching work related skills within schools (Brown, 1987; Brown and Lauder, 1992, 2001; Brown and Hesketh, 2004; Brown et al, 2001)

Debates about whether the school curriculum should be taught as subject content or skills including 'technical skills' and 'life skills' can be traced back to the end of the 19<sup>th</sup> century (Barnes, 1982; Brent, 1978; Green, 1990; Green et al, 1995, 1997, 2003; Hirst, 1974; Hodgkinson, 1998, 2000; Hogarth et al, 2003; Illich, 1973; Jones et al, 1995; Lawton, 1980; Lloyd et al, 2003; Moore et al, 1995; Pring, 1976; Young, 1977). However, the UK, in comparison to other European countries, has been slow to develop technical education as a specialist field requiring specific expertise (Green, 1999; Green and Steedman, 1997; Hobsbawm, 1968; Roderick and Stephens, 1978; Sanderson, 1994; Steedman et al, 1995) and the secondary school curriculum has remained dominated by subject content. There are expectations that the future workers within the

so called 'knowledge economy' will be required to integrate forms of knowledge in order to act in an uncertain world with ingenuity, invention, initiative, flexibility and creativity (Brown et al, 2001a, 2001b, 2004; Hargreaves, 2003, Leitch, 2006). The gap between what is taught in schools and what will be required for the future appears to be widening as traditional canons, and ways of producing knowledge are changing due to the information revolution. The new skills based curriculum with personal learning pathways has been proposed as one solution to the disparity between practices inside and outside schooling.

The specific skills relating to workplaces are hard to teach in schools because the learning contexts need to replicate some of the conditions of laboratories, workshops and retail environments where specific skills are practiced, including the authentic production of goods that can be sold. It is easier for schools to teach generic skills, such as problem solving, communication, planning, and flexibility required for a wide range of occupations (Felstead et al, 2002, 2007). Such skills have become associated with the citizen-workers of the new 'knowledge economy' (DfEE, 2001b; DTI, 1998, 2001). These skills are meant to be delivered through all subjects and at all levels of the national curriculum in England and Wales, and referred to as 'Key Skills' in curricular documents.

As dominant political discourses struggle to change the nature of curricular knowledge, rhetoric about generic skills as transferable commodities is growing. We tend to talk as if knowledge can circulate like money. However, the notion that skills are disembodied and can be learned in any context irrespective of their relevance to such contexts is highly problematic. Bernstein (1990, 1996) has predicted that the focus on generic skills as transferable commodities has created an illusion that somehow skills can be removed from the person and from the process of knowing. The creeping shift in curricular knowledge towards skills-led qualifications points to a weakening of traditional boundaries (Bernstein, 1990; 1996) between school and work. There is a danger that the link between education and production will only be effective for the higher levels of education experienced mainly by groups with high SES. We are in danger of producing a new division of labour arising from the information technology revolution: those who work and those who train (Bourne, 2000, p42), with working class groups being prepared for a life time of retraining rather than a life time of employment (Jones et al, 1995; Willis, 1984).

I wish to argue in the following section that subject knowledge(s) taught in schools are cultural constructions that have long historical legacies. Any proposed or imagined shift in curricular content and teaching method needs to take into account the values, including class and gender values embedded within the cultural streams that make up the elements of the curriculum. Subject knowledge, such as physics or literature, was historically produced through practices that included and excluded particular social groups from participation in the construction of subject based, ideas, logic and meanings. These legacies remain active today (Ivinson and Murphy, 2007). Therefore when subject knowledge is made available to students in classrooms it acts as cultural material that provides resources for constructing social identities. For example, some middle class girls may find it liberating to gain access to historically male territories such as physics and mathematics, while some middle class boys may find that participating in domestic or vocationally oriented courses clashes with their endeavours to conform to high status masculinity within peer and other social groups. Yet, as Walkerdine (1988, 1990, 1998, Walkerdine et al, 2001) has shown even when girls cross into historically male, high status, territory there is a cost. Our ethnographic work backs up Walkerdine's findings that when girls and indeed boys cross into knowledge territories that have the opposite gender value to their emergent gender identities, they experience conflict. Managing this conflict takes effort and requires support and back up. Schools can provide this support yet traditionally they do not because they are influenced by the historical legacies that associate certain groups with specific knowledge forms and not with others.

Curricular interventions that wish to shift the school curriculum in order to meet the needs of the future knowledge economy have to recognise the historical legacies attached to different forms of subject knowledge. The following section alludes to the cultural legacies of knowledge as a first step to planning curriculum change and to predicting which kinds of curricular intervention are likely to succeed or fail.

## 2.0 Knowledge and learning

Within academic institutions formal instruction is differentiated from people's practical experience. The subject disciplines that make up school and university curricula can broadly be classified as 'scientific' knowledge. Scientific knowledge, in contra-distinction to knowledge gained through personal experience, has publicly available criteria which govern how ideas are aligned within the discipline. These criteria are usually maintained by the communities that practice disciplinary knowledge and are often recorded in texts and manuals and embodied in the practices of members of scientific communities. 'Scientific and common sense knowledge are often viewed as an opposition between abstract and concrete thinking' (cf. Dowling, 1998). Universities and schools continue to value abstract knowledge over applied know-how. This distinction is maintained within the school curriculum as academic and vocational subjects. However the distinction does not reflect how people learn nor does it capture the way knowledge in any domain was, is and will be produced in the past, present or future. One of the major challenges for educational institutions will be to break down the hierarchy between abstract, applied and personal knowledge, in order to promote ingenuity, invention and creativity required for future 'knowledge societies' (Hargreaves, 2003). The classification of knowledge into the broad categories of 'abstract', 'applied' and 'personal', although useful for analytical purposes does not reflect the way people learn. Learning is a process in which knowledge, whether of mathematics or art, changes form as the learner encounters, absorbs and recreates knowledge. For example, coming to have abstract subject principles can be achieved through a process of continuous practice in which personal experiences provide the means for recognising and grasping unfamiliar concepts. There is a need to make a distinction between the classifications of forms of knowledge - the curriculum - and how knowledge is *learned*.

Learning is a process that takes place over time in which what is learned passes through many different states, including practice, making links, applying to different contexts and abstracting principles. Learning a subject in school can not be divorced from the personal experiences of the student (Lave, 2008). Even learning how to manipulate symbols in abstract systems such as mathematics involves desire, affect and personal investment.

The struggle over the curriculum and pedagogy has taken a new turn in late modernity as a battle between the world-view of the Enlightenment project and post-modern relativism. The post-modern turn rejects that there is a central meaning to the universe that can be discovered through scientific investigation and that instead there are multiple truths depending on the perspective of the learner/observer. This entails that in any situation there is no one meaning; there are multiple meanings. We are struggling to find pedagogic approaches that can do justice to the post-modern condition. If every voice is to be heard in the classroom then how will formal knowledge be produced? Yet if subject principles are imposed as rules then we risk alienating many groups such as working class boys, girls and minority ethnic groups who may not recognise the dominant code of academic culture (Bernstein, 1996; Keddie, 1971). One recent solution proposed by the Twenty-twenty Society is to individualise education so that each student has a personal tutor and sets their own learning targets. This places the responsibility for learning with the individual.

A socio-cultural approach to learning views the problem in a different way: not as a problem of individual identity, so much as a problem of culture. The emphasis is placed on the multiple settings that the student inhabits across the school day and week. Through their participation within a diversity of settings such as science, English and technical subjects such as Design and Technology, students develop an understanding of the specific codes, concepts and activities that belong to a diverse range of communities of practice (Lave and Wenger, 1991; Wenger, 1998; Ivinson and Murphy, 2007). Learning comes from becoming a competent actor in each community and it is the contrast between what is acceptable practice in one setting, such as the science laboratory, that enables to students to recognise what is acceptable within a different setting, such as a drama studio. Learning takes place as students move between settings and experience the specificity of the practices that belong to each community. Students have to develop identities reflecting membership in multiple subject communities of practice. Identity is as much about recognition and validation as it is about self expression (Duveen, 2001). How a boy or girl is recognised within a specific subject community of practice is marked by the legacy of who in the past was identified with that knowledge. These legacies exert an influence that can be referred to as the core gender-knowledge identities carried by different subjects of the curriculum (Ivinson and Murphy, 2007). Learning involves becoming a competent participant in multiple communities of practice within the school. Disciplinary and vocational subjects carry and offer pedagogic identities that have gender values attached to them. As students move between subjects they have to negotiate social identities based on the possibilities and restrictions offered within each community of practice. A socio-cultural approach recognises that learning is fundamentally social rather than an individual process.

The problem with reclassifying elements of the curriculum as skills is that it confuses two issues, namely the classification of knowledge and the process of learning. Given the deep historical roots attached to different elements of the curriculum, which are maintained and reinforced by elite universities, it is most unlikely that renaming subjects as skills will achieve any significant change in which groups achieve and which do not in a subject. However, the term 'skill' suggests *process* as opposed to subject *content* and therefore appears to offer a useful way forward. However, instead of focussing on skill there is a need, first, to recognise how the learning process takes place, and second, to recognise that groups are differentially positioned with respect to subjects even before they enter the classroom due to the class and gender identities that are brought into school by students. These are not fixed identities although society sets up limits on how, for example, a working class boy can express himself if he wants to 'get it right' (Davies, 2003 pp9-10) as a boy in the face of peers, teachers, parents and the other social groups to which he wishes to belong (or not). Participating in a school subject has consequences for the construction of class and gender identities because subjects offer cultural material for expressing, performing and being recognised as the one 'who is good at', or 'no good at' activities. Activities such as 'writing romance', 'using sanding machines in Design and Technology', or 'painting pink coloured flesh in Art' are not class or gender neutral. To be seen painting pink flesh can be quite threatening for a working class boy (Ivinson and Murphy, 2007, p138-140). Students have to manage these identities and we have seen them protect themselves by refusing to participate in activities that challenge, for example, a working class male or an elite feminine identity. By recognising the historical roots and legacies of subject knowledge it is possible to take account of the class and gender associations that elements of the curriculum carry even today.

### **3.0 Class and gender connotations attached to curricular knowledge**

Elements of the curriculum have class and gender associations that derive from deep historical legacies about practice, ie who had access to educational institutions in the past. Within educational institutions which class and sex groups had access to high status academic subjects and to vocational or other applied subjects remained at the heart of the school structure arguably up until very recently.

The hierarchical valuing of abstract knowledge within the academy can be traced back to the Greco-Roman curriculum inherited by Western Christianity. Manual practices were never integrated into 'formal public systems of knowledge transmission' but were passed on through family and guilds (Bernstein, 1996, p 22). The dichotomy and hierarchical valuing of abstract and applied knowledge goes back a long way. Greek society gave the Trivium (logic, grammar and rhetoric) high status and the Quadrivium of applied knowledge (geometry, arithmetic, astronomy and music) lower status. The Trivium is the exploration of the 'word' or text. The Quadrivium is abstract knowledge about the structure of the 'outer' world, broadly speaking 'mathematics'. The final set of subjects in the ancient curriculum, known as the mechanical disciplines, included medicine and architecture which were dropped from the classification of formal knowledge in the 5<sup>th</sup> century (Ovitt, 1987) and reappeared again much later. There was a strong classification of knowledge into mental and manual practice (Bernstein, 1996, p22). This distinction can also be mapped onto social representations of masculinity and femininity.

Elite or esoteric masculinity became associated with abstract knowledge. Cultivating interiority through practices of contemplation and meditation with the aid of sacred texts became central to the Christian tradition practiced in the medieval monasteries which were the first institutions of learning. Within the medieval monastery, monks and priests removed themselves from the mundane necessities of everyday life, dressed in sack cloth and denied the flesh and their appetites. Development of inner consciousness or interiority was privileged and the work of the body was downgraded. The mental-manual dichotomy has remained tied to social class distinctions. By the 13<sup>th</sup> century this duality was reinforced by the total exclusion of women from the high offices of the church and hence from contemplation and the development of interiority. Woman became associated with exteriority, the world, caring, nurturing and containing. The idea of passive 'mother earth' as a realm which man manipulated and controlled remained central to how technology was imagined. Notions that girls are not technical still circulate today.

The Trivium dominated the secondary school curriculum from the first Grammar schools in the 14<sup>th</sup> century up until around 1870 (Jarman, 1963). The resilience of school curricula to resist the inclusion of new subjects despite the rise of the scientific method in the 17<sup>th</sup> century and the enormous advanced in engineering technology that fuelled the Industrial Revolution is a remarkable phenomena and draws attention to the deeply conservative nature of school knowledge. The academic school curriculum remained divorced from the sphere of economics right up until the 1870s so that no one would have expected a grammar school boy to emerge from education equipped to take up his position in the world of work (see Ivinson and Murphy, 2007, pp75-76).

The most abstract systems of knowledge such as mathematics and logic carry strong masculine associations (Willis, 1989). If the Trivium aimed to forge a certain kind of citizen, it was most definitely that relating to elite masculinity to the exclusion of other social groups. 'In the seventeenth century the discourse about the scientific method mapped versions of masculinity onto cultural representations of scientific ways of knowing and acting that were celebrated by the scientific community' (Brawn, 2000,

cited in Ivinson and Murphy, 2007, p69). Abstraction, objectivity and logic became associated with masculinity and the mind.

Women and the working classes were not considered worthy of proper education until the 20<sup>th</sup> century. Femininity became associated with the lived world, nature and holism. Because women were imagined as nurturers concerned with people, so they became less imaginable as scientists. Even today girls struggle with the conflict between the personal and caring values of femininity and being good at science and mathematics (Walkerdine, 1988, 1998). English did not become a subject in universities until the 1930s and up until then it was considered 'fit for women, workers and those wishing to impress the natives' (Eagleton, 1983 p29, cited in Ivinson and Murphy, 2007, p76). The purpose of education for upper and middle class girls was further influenced by the strict demarcation of life into the public and private realms. This resulted in an education designed for no purpose beyond attaining a husband and the culturally valued accomplishments required to entertain his friends' (Purvis, 1991, cited in Ivinson and Murphy, 2007, p20). 'These included conversational knowledge of some foreign languages, the ability to play musical instruments, to sing and to embroider. The greater the extent of her accomplishments, the greater a woman's cultural capital would be in the marriage marketplace' (Ivinson and Murphy, 2007, p20).

In contrast, working class children's education was generally tied to their future lives as labourers and it was only recently that working class children gained access to an academic curriculum as a legal entitlement. This historical legacy created an allegiance between working class groups and non academic knowledge, ie knowledge gained through the family, guilds and personal experience. Before the Education Act of 1870 only a minority of working class children were in full time schooling and for girls it was approximately 10% of the female population (Purvis, 1991). Working class children were educated to spell and to read the Bible but not to write their own texts. If the masses could write, it was argued, they might be tempted to produce texts of their own (Hunt, 1972, cited in Robinson, 2000). If the masses could not write, the state could at least control the texts that they read.

Social class values are attached to knowledge domains and as with gender values they remain active in contemporary classrooms and are reinforced unwittingly by teachers. Furthermore, students choose to align themselves with particular subjects depending on where they feel they have a legitimate sense of belonging or allow them to express an emergent class and gender identity (Ivinson and Murphy, 2003, 2007). For example, we have found middle class boys limiting their involvement in Design and Technology as activities that activity aligns with working class traditions (Ivinson and Murphy, 2007, p112). The interaction between the social identities extended to students by teachers' pedagogic instruction and the identities students bring with them into school as class and gendered citizens tends to reinforce the hierarchical stratification of subjects. Relationships between middle class boys with science and mathematics and working class boys with vocational courses, between middle class girls and the humanities and languages and working class girls with domestic vocational courses are strong patterns that can be detected in achievement measured by GCSE subjects taken and grades attained. Such longitudinal trends alert us to the conservative nature of educational institutional change. Despite speculations about new forms of curricula, such as skills-based curricula, the values carried by subject cultures are likely to be intractable and possibly may become further exaggerated over the next 40 years.

### **3.1 Present Curricula**

Throughout the history of schooling social groups have had a differential access to and experience of curricular subjects. The notion that all students should have access to all

subjects of the curriculum up to age 16, lasted for only a brief period of time, peaking with the national curriculum in England and Wales in 1988. The national curriculum in England and Wales made the full range of curricular subjects available to all students for the first time. The subjects of the curriculum were classified as core (science, English and Mathematics) and foundation (History, Geography, Modern Foreign Language Music, Art, Design and Technology, Physical Education, Religious Education)

Over the last decade a range of new subjects have entered the curriculum and there has been some relaxation on the compulsory need for all student to take all subjects. Some groups may be exempt from taking a Modern Language at GCSE. New subjects such as applied technologies have grown, as has generic training. The new applied subjects are assessed and accredited GCSEs or VGCSEs and are supposed to address skills in applied fields. In this new curricular organisation GCSE Art can be studied as a VGCSE in Applied Art and Design, and GCSE science as a VGCSE in Applied Science. Generic (training) pedagogies represent knowledge as a transferable commodity that has exchange value in the market.

The new 14-19 education documents signal a diversification in learning pathways to encompass academic, applied and vocational routes. This suggests a transformation of the 'ideal' student from one who can master 'academic' subject principles towards the new citizen-worker of late modernity who ideally possesses generic skills, flexibility and heightened individuality. New pathways to learning introduced in the 14-19 curriculum (QCA, 2000, WAG, 2002) such as Vocational GCSEs were part of a range of hybrid academic/vocational courses aimed at addressing the low status of 'applied' subjects. The increasing use of the term 'skill' in curricular documents points to a weakened of traditional boundaries between school and work, (Bernstein, 1990, 2001). The multiplicity of new vocational courses in secondary schools is supposed to fulfil two aims: to re-engage disaffected groups, and to provide appropriate silks for the globalised economic market. However, we found that 13/14 year old boys still value traditional masculine skills rather than 'generic' skills (Ivinson and Murphy, 2007).

### **3.2 Future curricula?**

It is most likely that over the next three decades elite universities will continue to exert considerable control over what counts as high status knowledge, regulated by entry requirements that will remain tied to academic subjects. It is likely that elite universities will continue to recognise academic rather than vocational qualifications for a range of reasons. Their allegiance will probably retain vestiges of the Greek ideal that scholars should learn to think before applying knowledge to the world. The main function of a university is to advance knowledge, and pure research requires some autonomy from the state and economic markets. The 1980s and 1990s have been characterised as an era of plenty that has seen the rapid expansion of the number of students in higher education. This increase is possibly not going to be sustainable in a coming era of scarcity. The school curriculum will probably not continue to be a purely academic curriculum as recent policy documents have pointed out. There will therefore be a further fragmentation of curricular knowledge. However, this fragmentation will be experienced differently by different groups. If strongly defined subject disciplines give way to hybrid knowledge forms this will probably not affect groups with high SES who will continue to follow a traditional academic curriculum.

For some students much learning in school is viewed as irrelevant and this is exacerbated in locales where there is high unemployment. In such areas even gaining certificates will not lead to a job making it difficult for students to invest in and feel any sense of belonging in schools. With the collapse of the industrial base and the scarcity of apprenticeships the group of students who find education irrelevant and who find it difficult to imagine viable economic futures will probably increase.

## 4.0 Changes in Pedagogy and Communication

The right hand column of table 1.0 lists the institutions where knowledge resides and is created. If knowledge is codified and recorded in texts which are stored and available in libraries and universities such knowledge is potentially available to all, even if access to books is variable. The capacity to store data in digital and virtual forms exponentially increases society's ability to codify and retain information for future generations.

Knowledge that is codified and stored in texts is enduring and so accessible across a long time frame. Some ancient Greek and Roman texts are still available for scholars to access today. Universities are institutions that codify and record knowledge, and therefore are the sites where knowledge is produced, although this may be changing. The capacity to store knowledge electronically may well shift the central role of universities as the places where new knowledge is produced. The role of the WWW is likely to increase. One effect of the WWW is that knowledge becomes democratised: all citizens can potentially access 'all' information.

The subjects of the school curriculum were versions of university knowledge up until recently, before the curriculum became diversified to include vocational subjects and, more recently, generic skills. Such knowledge was passed on to the next generation via pedagogic instruction, usually a via transmission model. According to this model students are relatively passive recipients and teachers drill, instruct and explain subject principles to them. This style of teaching has been around for 4,000 years (Cole, 2003) and will remain a form of instruction in schools in the future.

A 'child centred' pedagogic intervention grew up in the 1920s and had some influence on the primary school curriculum after WWII, epitomised in the Plowden Report (1961). According to this model the child is viewed as an active learner who is given artefacts and problems to solve. Although this model has some influence on the primary school curriculum it has been far less prevalent in secondary schools. Although a transmission model has tended to dominate in practice students undertake a diverse range of activities in subject lesson only some of which are dominated by reading texts and writing. Practical work takes place in science, D&T, art, music and ICT, while independent research, project and coursework takes place in the Humanities, English, Modern Languages and Religious Education and Citizenship. However, assessment tends to be dominated by written test, despite the various attempts to broaden the media through which assessment takes place. The assessment practices in a subject will always have a strong influence on the pedagogic modality adopted by teachers.

In the future, new pedagogic practices involving virtual media, designed virtual classrooms and specialist software for teaching, for example, literacy and numeracy skills will be developed. These media will only dominate in schools if assessment practices also use such media. If university entry requirements change to incorporate electronic assessment tasks, these will rapidly become available in schools. However, due to the limitations of marking assessments electronically (eg multiple choice questions and answers) it is unlikely that elite universities will choose electronic marking in the near future. Electronic assessment for basic skills such as some literacy and numeracy skills is available and is likely to increase in schools for non-academic courses. Such forms of assessment are cheap, easy to apply and efficient. However, they can de-skill teachers and remove the human face of learning from disaffected groups who are likely to become increasingly disengaged. Once the novelty of working on a computer wears off, computer-based learning becomes mechanical and repetitive. The language laboratories introduced into secondary schools in the 1970s were heralded as a pedagogic break-through yet their appeal lasted less than a decade. There will remain a need for face-to-face human interaction in good quality teaching and learning. We may already be unwittingly further alienating disaffected groups of students by teaching

through electronic media. Such groups are arguably those who most need human interaction as part of their learning.

The growth of online discussion fora for mature learners has been developed and is likely to increase. Many young people already use online chat rooms and fora such as Facebook to do homework. Different groups of young people will have differential access to, and ability to use, such media including web 2.0 technologies to enhance their learning. The following section turns to this problem and links to changes in family structures.

## **5.0 Changes in family structures**

We are moving 'increasingly into second, third and even fourth partnerships with extended families of a complicated and demanding nature. The family as a supporting environment will change, though how is unclear' (Harper, 2008, p4)

Already many students live between two and sometimes three households. Some children live in households with siblings from two, three or more partnerships. They have relationships with parents who live in different households and see them occasionally. Sometimes over the course of their schooling young people will live with a variety of parents in a variety of different households. The range of parenting patterns is becoming increasingly diverse. Some households are busy and noisy because there are siblings from two or three or more relationships, making it difficult for students to find the space and quiet to do homework. At the other end of the spectrum there are children who have stable parenting experiences and due to decreasing fertility rates parents can support their children with high levels of cultural and economic capital. For some children, preparation for schooling starts early and parents provide a higher level of learning support than in previous generations, because they have high levels of education themselves. There is a wide variation in children's experiences of home life and parental support and this will most likely continue to widen. The gap between children in poverty and affluence is widening and will be exacerbated by differential fertility rates between social groups. In some socio-economic groups women become mothers early and in others late. Even although the population is not rising in the UK the pattern of fertility is different across social class groups. These trends suggest that childhood poverty will most likely rise.

One of the important issues for educational achievement is how much support young people get from home. Some parents are able to provide a range of support based on their knowledge of the education system, their willingness to structure time for homework and pay for tutors. Other parents lack time, financial resources and knowledge of the education system.

Access to ICT at home is likely to become increasingly important as virtual media are used for pedagogic purposes. However, access alone is not enough in itself to ensure educational support. Some groups of young people access ICT for leisure activities dominated by game playing. Other groups of young people use ICT to meet, chat and exchange information including homework information. However, it is likely that using ICT for educational support will not be spread evenly across socio-economic groups. In some communities the WWW is viewed with suspicion and is associated with pornography. In other homes access to the WWW is seen as an important source of information and children are encouraged to become ICT literate. There is a third group of young people, often boys, who are using ICT to create websites and fora for mobilising and exchanging information. These groups are practicing skills that will help them to gain high level symbolic resources and prepare them for jobs in the new creative,

technological industries. This may change as the technologies become main stream. Middle class groups have been more readily associated with the creative aspects of literacy that allow them to construct new meanings while working class groups have tended to be given less encouragement to use literacy to assert autonomy, negotiate and create meanings. This pattern is likely to be replicated with respect to ICT literacy. Schools will be presented with a serious challenge to make ICT technologies and media available to groups with low SES so they can use ICT to mobilise, create and be inventive. Historical legacies suggest that only with enormous political will backed by considerable resources will this be achieved in the future. It is much more likely that ICT technologies will be used in schools to control disaffected groups (cf. Apple, 2000).

## 6.0 Discussion around the skills curriculum

Harper (2008) predicts a future skills shortage due to changing demographics. By 2020 almost half the population will be aged 50 and older, creating a mature population. There will be a shortage of young people.

The skills required in the global market are not the same as the manual and technical skills valued in traditional working class communities. Research points out that instead of motivating disaffected boys many school-based vocational courses have led to cynicism because they fail to provide boys with the skills needed for work or for their imagined futures (Stanton and Bailey, 2005; Nuffield, 2008a and b). There is a mismatch between the ways boys recognise skill and the way skills are presented in school. The political intention to raise the school leaving age to 18 by 2015 places schools under increasing pressure to develop pedagogic practices appropriate to boys with low SES. If we are to re-engage this group of boys in school we will have to develop appropriate pedagogies that value work of the body and hand as well as of the mind (Arendt, 1998/1958; McWilliam 1995 cited in Bourne, 2000, p43). However, there is deep confusion over the meaning of the terms "skill" and "vocational". According to Bernstein neither term can adequately provide a meaningful education as they are interpreted and instantiated in school curricula at the moment.

The increasing use of 'skills' as a synonym for both VET and its outcomes - eg 'Education and Skills', 'Learning and Skills' causes confusion in policy and provision (Stanton and Bailey, 2005). Stanton and Bailey (2005) argue that blurring the boundaries between schooling and work may be counter-productive because the higher status academic qualifications, assessments and pedagogies will most likely dominate in schools and the vocational courses will lose their distinctive qualities and become 'cheap' training grounds for low level basic literacy, number and ICT skills (Bernstein, 2001, Bourne, 2000) or more pessimistically prepare boys for life long training rather than work (Keep, 2002, 2005).

In contrast to skills required by employers in specific areas of business, such as leisure and finance, 'generic' skills are said to be required by the citizen-workers of the new 'knowledge economy' (DfEE, 2001; DTI, 1998, 2001) and include flexibility and heightened individuality (Goldthorpe, 2003). In curriculum documents generic skills include literacy, number, and ICT skills on the one hand and communication skills on the other. These are skills that are supposed to be transferable between school and work. Prior research demonstrates however, that the contextual framing of skills dominates so that young people do not recognise skills acquired in one context when they move to another (Whitty, Rowe and Aggleton, 1994a and b). Research questions whether skills can be transferred between school and work places (Lave, 1988; Lave and Wenger, 1991; Stanton and Bailey, 2005; Nuffield, 2006, 2007, 2008a and b). The Nuffield Foundation Review of the 14-19 Education and Training has expressed serious doubts

about the quality and relevance of the learning experience for low achieving young people following vocational courses (Nuffield, 2008a). Early research suggests that "vocational" aspects of vocational courses get diluted in schools due to lack of resources and expertise (Stanton and Bailey, 2005; Nuffield, 2007, 2008a and b). It is costly to reproduce work place scenarios in schools. There is a danger that vocational courses will merely inculcate 'generic' skills that neither employers nor students value (Bourne, 2000).

Rhetoric about generic skills as transferable commodities creates a fiction that learning can be disembodied and disconnected from persons, bodies and communities of practice. Bernstein (1990, 2001) has predicted that the focus on 'generic' skills as transferable commodities will have the effect of removing the person from the process of knowing. Bourne points out that a shift to 'life-long learning' could replace productive work for lower class boys who will be expected to substitute training for work (Bourne, 2000, p42). One way out is to develop pedagogic practices that are distinctly different to academic pedagogies and the first requirement is to recognise the embodied element of skills learning (McWilliam, 1995, cited in Bourne, 2000, p43). There is a need to make visible the full range of practices that are required for learning to take place. Learning requires work of the body, mind and head even if the balance is differently organised according to curricular subject. For example, training in the scientific method requires learning to 'look' at phenomena in new ways. This practice requires training the eye, the body and the mind.

## **7.0 Future scenarios of schooling**

In the following future scenarios I have taken account of changing knowledge forms, demographic shifts, an increasingly diverse range of curricular forms, pedagogic modalities and changes in family structures. I am assuming that scarcity will replace plenty.

### **Key drivers**

- As the gap between the rich and poor increases, so social differentiation will increase
- As family structures become more complex and more class embedded due to differential fertility rates between groups, children will have very different childhood experiences
- Changes in knowledge structure and availability based on the information revolution will change the role of universities as the primary repositories of knowledge and a plurality of knowledge creating spaces will burgeon. However, knowledge hierarchies will be perpetuated and access to high status knowledge and rich pedagogic experiences will continue to reflect historical patterns that reflect social class and gender divisions
- The economy will be characterised in terms of scarcity rather than abundance which will make it increasingly difficult to fund high quality education for all students.

Given the long historical legacies attached to forms of knowledge outlined in section 2.0, I have assumed that some aspects of schooling will not change' for example, high status knowledge will remain text and discourse based rather than virtual, access to elite universities will remain restricted ensuing that the academic curriculum will not become skills-based, and the need for face to face human interaction in learning will not be replaced by virtual pedagogies in academic curricula. A series of hierarchies will endure between elite and low status forms of knowledge that can be traced to deep historical

legacies. For example, access to high and low status forms of knowledge will continue to reflect class and gender patterns.

## **Scenario 1**

This scenario reflects increasing diversification in times of scarcity. A decrease in young people by 2020 will require fewer schools making the possibilities of providing a diverse range of schools in a locale unlikely. The broad range of subjects on offer in secondary schools will settle into three broad streams reflecting the old tripartite education system. An elite academic curriculum will be available to a minority, a mixed academic and technically oriented curriculum will be available for the majority and a vocational and skills based curriculum will be available to the remaining group. However, scarce resources will ensure that the academic curriculum will remain traditional with the development of relatively few virtual pedagogic tools. The vocational curriculum will not develop pedagogies to teach trades and crafts authentically. Instead there will be an increasing reliance on virtual pedagogic tools to drill students in basic literacy and numeracy skills. Schools remain relatively insulated from the economic market. Elite students continue to be taught to think, the majority will receive a broad and balanced curriculum as outlined in the National Curriculum 1988 Act, and the third group will receive a watered down version of vocational education focussing on basic literacy and numeracy skills.

## **Scenario 2**

In a time of scarcity this educational scenario predicts increasing social disintegration. There will be a move towards a skills based curriculum. Disciplinary subject boundaries become blurred as the curriculum becomes defined in terms of skills and competencies. However, even although academic subject curricular documents will use rhetoric of skills and competencies they will continue to be taught as subject content aimed at teaching subject principles in relatively traditional ways. This conservation of a traditional academic curriculum will be driven by entrance requirements for elite universities. Even students following academic curricula will be required to take a minimal number of technical or vocational courses and there will be a rise in uptake of ICT-related and business management courses especially by boys. The majority of students will follow a mixed skills and competency led curriculum. This second group will become the knowledge workers in skilled jobs. The inherent conservatism within school cultures (see section 2.0) and scarce resources will ensure that the potential for creative virtual pedagogies will not develop rapidly. Exceptions to this will be schools close to relatively new university departments of education in which virtual pedagogic technologies will develop, led by the US and the Pacific Ring countries. Support from families in terms of paid outside school tuition, access to, and encouragement to be creative with, web based 2.00 technologies in the home will increase. However, this kind of 'top-up' support from families will be available to children with relatively high SES. Students with relative stable home environments will allow the second group to supplement school educational provision. There will be an increasing uptake in subjects related to new media and virtual technologies with students aspiring to jobs in creative industries. The third group will have a different experience of schooling.

Due to scarcity, declining roles and the shrinkage in the number of secondary schools, strong skills based vocational education will not develop in secondary schools and increasingly this third group will move between FE colleges and schools. These groups will spend less time in traditional school classrooms requiring increasing forms of surveillance, tracking and recording. New forms of assessment will be developed for the third group. There will be a growing group of students with low SES who will not receive top-up provision and who will become increasingly dependent on state education provision. However, schools will not invest in educational provision for groups with low SES due to the pressure to achieve good examination results. Schools will continue to

focus extra support on students who they judge to be on the borderline between grades 'D' and 'C'. Groups with low SES will continue to be those most excluded from school and they will continue to resist educational practices that they perceive to be 'irrelevant' to their lives and futures. Due to changes in family structures, this group will experience increasingly nomadic lifestyles exacerbated by spreading curriculum across sites. Coupled with the increase in use of technologies for pedagogic purposes this group will experience less human interaction in learning processes. Less social solidarity will be experienced in homes and in schools leading to increasing social alienation. This will exacerbate a rise in alliance to sub-cultures and outlaw groups as young people search to find a sense of belonging. They will not access web 2.0 technologies creatively and instead will become the 'victims' of increased use of ICT technology to deliver basic skills practice and to control and monitor movement. Industry and the private sector will take increasing control of education for traditional working class groups as schools fail to 'engage' them in learning. The rise of the role of the learning mentor will lead to increased surveillance on individual learning pathways. Many students will slip through the surveillance nets developed by schools and social services and will enter sub-cultures and unofficial local economies. If they live in areas of high unemployment, they will increasingly live outside official institutions, work places and community structures. Unlike the other two groups they will remain tied to their localities, travel less widely and become reliant on locally available resources.

This scenario depicts a widening of the gap between social groups, in which young people will increasingly lead parallel lives, with hugely different access to symbolic, human and educational resources. This will lead to a small elite upper class gaining access to the few professional jobs, majority middle groups entering a diverse range of jobs in new industries (regions in Bernstein's typology) and an underclass that will have experienced a very different educational world to the other two groups. Ostensibly the (school) curriculum embraces the concerns of industrialists by foregrounding skills and competencies. Employers such as MacDonalds will take on the role of educating the third group. Therefore control over education of the traditional working class group will move away from schools and universities towards employers and the private sector.

### **Scenario 3 – A possible way forward?**

A commitment to social justice drives this educational scenario. Scarcity of energy, clean water and non-contaminated food will drive this moral imperative. This scenario is unlikely to come about by 2020 but may come about by 2050. Fears about global environmental sustainability introduce a new moral imperative in schools making a break with traditional religious moralities and post-modern secular relativism. A recognition of locale-global connectivity and the interconnections between economic systems ushers in a realisation that national citizenry has given way to global citizenry. It will become apparent that a skills and competency based curricula cannot fulfil the educational aims of teaching citizens to deal with complex social and political problems. It will be recognised that competencies reflect neo-liberal philosophies that over-emphasise the individual and neglect the social and community contexts on which societies depend. Attempts to mine the inner potential of the person usually referred to as 'gifts and talents' ignore the socially embedded nature of learning. A few schools will adopt this philosophic approach before 2050 forging a new curriculum although these schools will remain in the minority and are more likely to be primary rather than secondary schools. Curricula will foreground thinking and will not address the concerns of industrialists but of environmentalism and global politics. Thematic and project work will blur disciplinary subject boundaries. The principles of philosophical enquiry and new forms of artistic creativity will underpin school activities. This process-based approach to learning will be reminiscent of previous child centred approaches to learning. Divisions between social groups will become less apparent, as learning will be based on bridging students' local indigenous knowledge and culture with a curriculum based on 'thinking' principles. This type of curriculum will only become apparent in secondary schools if the principles that

underlie its philosophy are adopted in the entry requirements of elite universities. Therefore a radical change to our understanding of teaching and learning will have to be led by HE. Schools will become well insulated from the immediate concerns of the market yet not from long term social needs. Creating the knowledge workers of the future can best be achieved by increasing, rather than decreasing the boundary between schools and work. Allowing schools to operate according to different principles to those of the economic market allows them to do a fundamentally different job, that is, to teach thinking skills before applying them to the world. Students need time to develop critical thinking skills required to approach complex social, moral and political problems. Ironically this kind of curriculum would nurture the critical, creative and innovative thinking skills required for workers in the new knowledge economy. Returning to some of the educational ideals within the Greek curriculum might not be such a bad idea.

### **Footnotes**

Note1 The typology of forms of knowledge was compiled with reference to Bernstein's 1990 paper *The Structuring of Pedagogic Discourse* (see refs), from Bernstein's chapter in the Greek curriculum, 1996 chapter 4 'Thoughts on the Trivium and Quadrivium: The Divorce of Knowledge from the Knower' and from Tresilian, N. (2008) *After Capitalism*, Special Issue 21<sup>st</sup> Society, *Journal of the Academy of Social Science* 3 (2) 201-211.

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