Review of VET research in the UK

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Preface

Thanks, apologies and invitations for further comments

Undertaking this review has been a collective effort on a large scale. The authors of the report wish to place on record their thanks to a wide range of individuals and bodies who have sent us publications, completed forms, pointed us in the direction of other sources, and spared us considerable amounts of their scarce time to offer help and guidance on the overall shape of our review and the nature of the issues that we ought to be seeking to highlight. Without their help, the completion of this report would have been impossible. We owe a particularly deep debt of gratitude to those researchers upon whose earlier literature reviews of individual aspects of VET research in the UK we were able to draw.

Given the amount of time available to us to produce a substantive draft report for the COST conference in November 1998, we are aware that we were not able to review all the work sent to us. For those researchers who feel we did not do full justice to the range of their work in VET research, we apologise. We will work through all the material sent to us for the final report. We would also welcome comments from colleagues about this review, and in particular suggestions to help us address any gaps or weaknesses in our coverage.

This preface though should end on a positive note. The organisations that were particularly helpful included the CBI, FEDA, IES, Joseph Rowntree Foundation and the TUC. Most of all, however, it is the support of friends and colleagues in the UK VET research community that we would wish to acknowledge:

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0.   Background to UK VET research

0.1   Introduction: audience, purpose and guide to reading

This guide to UK VET research has been designed for use by European researchers, who are involved in the COST Action A11 on Promoting flexibility, mobility and transferability as targets of VET. As COST provides networking support, but does not provide funds for collaborative research, we thought it quite important to highlight for prospective collaborators the context within UK VET researchers operate. This we do in section 0: we chose this unusual start to our numbering system, such that our subsequent chapters 1 to 5 could map onto the work expected of the 5 COST working groups. However, not all VET research related to the promotion of flexibility, mobility and transferability as targets of VET fits easily within the sub-headings of the original COST framework, rather they permeate the whole field, so the final chapter acts to address these broader issues. We have written this report, as a source of reference, in the expectation that relatively few people will read the review straight through from the start to the end. Rather we expect people may wish to focus upon particular chapters, so we have built in a degree of overlap such that chapters 1 to 5 have been written such that each of these chapters is reasonably self-contained. This means the chapters could be read in order of interest for the reader.

0.2   Our approach to the field of inquiry

One of the problems with conducting this kind of literature overview is that there are always important questions to be asked about where to draw the boundaries of the area of scholarship under scrutiny. Are we to try to assimilate the broad range of literature that pertains to, or might have a bearing upon, issues concerning VET, or do we simply concentrate on the rather more narrowly-focused (though still very extensive) body of literature that directly addresses VET? In one sense, time and resource constraints have tended to make that choice for us. However, at various stages within this review we will point to bodies of literature and fields of scholarship which, although they lie outside the field of VET - in some cases quite distant from it - have important lessons to impart.

One example would be the work of Williams et al (1994), which is located within the fields of accounting and business economics. Their comparative study looks at the relative performance over time of different international motor vehicle manufacturing companies. It is not a piece of literature that would normally be associated with, or seen as germane to, the study of VET. Yet Williams et al have some important messages to impart to all those who seek to undertake comparative studies of the performance/outcomes of complex organisations. What they show is international data on relative levels of productivity, staffing, output, quality and profitability are extremely unreliable and require very detailed examination within the particular organisational and national contexts and conventions within which they are generated if any real sense is to be made of the story that they tell. Moreover, it is crucial to ground such studies in a detailed understanding of the historical context within which given institutions achieved certain outcomes and to study trends over comparatively long periods of time. Finally, Williams and his colleagues underscore the linkages between the performance of different firms at different periods and the impact of particular market conditions. Factors external to the firm, rather than management or production techniques, may play a large part in explaining the success of individual companies.

All of these points have a resonance for those seeking to compare and contrast the performance of different national systems of education and schooling, particularly for those who seek to infer the direction of policy from such studies. The kinds of caveats that Williams et al discuss seem very important when exercises such as the DfEE/Cabinet Office's *Skills Audit* (1996) are used to ostensibly benchmark UK VET performance against that in other developed countries. If it is hard to measure and compare on an international basis the relatively uncomplicated assembly activities and physically measurable outputs of a car plant, how much more difficult may it be to do the same for education systems and their rather more intangible outcomes and outputs. This is an issue to which we will return below.

A second difficult is the nature of the list of topics/issues/questions which this review has been asked to address. As various contributors to Jobert et al (1987) argue, different research traditions and approaches to the study of VET have developed and been brought to bear upon in different European countries and these provide a range of contexts within which the common set of questions may be interpreted and answered.

Even the terms used in a common list of research issues may mean very different things or carry very different connotations as between one country, its VET system and its VET researchers, and the next. A good example would be the use of the term 'labour market flexibility'. There is a general agreement within most EU member states that labour markets need to become more flexible, but this does not mean there is accord on the policy measures that should flow from this resolve, for the simple reason that different member states have very different understandings of what the term flexibility means or should mean. For some (for example, the UK) flexibility primarily means numerical flexibility, limited job security and enhanced wage flexibility. For others (for example, Germany), flexibility means multi-skilling without the kind of relatively far-reaching labour market de-regulation that the UK has embraced.

As a result of these differences in both the traditions of research approach and methodology, and the institutional and societal contexts within which the VET research is taking place, questions and issues that may make sense or be relevant to a policy agenda in one country, may be much less germane in another. These differences also mean that national research agendas may be divergent and that not all issues will be of equal interest and importance across a group of countries. This may be particularly so in the case of the UK, which has followed a distinctive approach to labour market and VET issues which has placed it at variance with policy and practice in much of mainland Europe.

Some aspects of labour market regulation reflect this fact quite neatly. The varying national regulatory regimes have a considerable impact upon the topics that are studied by VET researchers in EU countries. Questions that in one country would appear, by virtue of legislative underpinning, to be the 'bread and butter' of VET research are largely absent from research in another, where a voluntaristic approach reduces the salience of the issue. One example would be 'manpower' or human resource planning (HRP). In Germany or France, a relatively tightly regulated labour market, coupled with a variety of legislative requirements to consult the workforce and/or its representatives on variations in staffing levels, coupled with well-developed institutional mechanisms for developing forecasts of future labour requirements, means that HRP and associated issues figure within VET research (see, for example, Hoff, 1984). By contrast, in the UK, with highly de-regulated labour markets, limited costs associated with compulsory redundancies, and no significant legal requirement

to consult the workforce about staffing changes or to take active measures to avoid redundancy (Lloyd, forthcoming), HRP issues have tended not to figure prominently in VET research, (for a review of what is available, see Liff, forthcoming). This relative neglect has in part reflected the fact that many of the main policy actors in the UK deny that effective staff planning is possible (CBI, 1989).

As authors of this report, we also need to acknowledge our own implicit 'filters'. In seeking to come to grips with such a large and diffuse body of literature, we have undoubtedly sometimes tended to prioritise those areas with which we are most familiar or find most interesting and comprehensible. For example, neither of us are economists, and our treatment of the economics literature on training, particularly those parts of it which are based on detailed econometric analysis, may well be deficient. For this we can only apologise in advance.

With these caveats stated, our general approach to conducting this review has been to try to utilise, as far as is possible, the common set of issues and questions which were posed in the original COST Action A11 specification, in order that our review should share a common framework with that for other countries within COST, but to add onto this common framework a number of key aspects of inquiry that have loomed large within the context of VET research being conducted in the UK. Many of these additional items stem from the UK's national, regional and local policy agendas, but others are driven by concepts and debates coming from disciplines and subject areas, such as management studies, that have only latterly developed a direct interest in what might broadly be termed mainstream VET. An example here would be the concepts of knowledge management, the learning organisation and the knowledge worker, which has engaged the attention of a range of researchers within the broad fields of organisational behaviour, production systems, information systems, and personnel management.

0.3 VET Research in the UK - institutional and intellectual foci, funding and organisation

Before proceeding to review the research that has been conducted in the UK since 1989, it is important to first provide a brief overview of the institutional settings within which this research has taken place, and the sources of funding that have supported this activity. The overall picture that emerges is one of extreme fragmentation, with research located in a multiplicity of institutional and disciplinary settings, and supported by funding from a very wide range of sources.

The first point to note is that, in the UK, although there are research centres whose main focus of work is VET, the study of VET does not, of itself, constitute an academic subject or discipline in the accepted sense of that term. The vast majority of those who conduct research on VET do so from within a wide range of separate disciplines and departmental settings many of which would not immediately be associated with either education or training. For example, the Employment Department commissioned research on the meaning of the term 'training' from researchers with a background in linguistic analysis (see Campanelli and Channell, 1994).

Among the major disciplines and departmental affiliations that have contributed to UK VET research are:

- anthropology
- educational studies
- educational sociology
- the study of higher education policy
- sociology
- psychology
- industrial relations/human resource management/personnel management
- economics
- labour economics
- geography
- history
- politics and policy studies
- gender studies
- ethnic relations
- continuing education
- hotels, catering and leisure studies
- management studies
- engineering and manufacturing systems

To give just one impression of the dimensions of this organisational and disciplinary dispersion, at the University of Warwick alone there are research staff working on aspects of VET in no less than twelve separate departments and research centres.

This Diaspora is further reflected in the absence of anything resembling a single subject association for those working in the field. There are subject associations, such as the British Educational Research Association (BERA) and the Society for Research in Higher Education (SRHE), wherein VET forms an important element of their members activities, but VET issues are also likely to be debated within the British Academy of Management (BAM), the majority of whose members would be unlikely to be aware that VET was an area with which management studies was concerned.

Academic journals both mirror and reinforce the absence of a central disciplinary focus. Research on VET may appear in one of a number of journals where VET is either the sole or an important source of concern, such as the *Journal for Vocational Education and Training, Journal of Education and Work*, the *Journal of Educational Policy*, *Work, Employment and Society*, *College Research* or the *International Journal of Training and Development*, but it can also appear in journals, such as the *British Journal of Industrial Relations* , *British Journal of Management*, or the *Human Resource Management Journal*, that might not immediately be associated with VET.

Thus VET research in the UK can be regarded as a genuinely trans-disciplinary area of inquiry. This brings with it exciting opportunities, but it also carries significant disadvantages, not the least of which is that many of those working on VET find themselves operating at the margins rather than within the mainstream of their own subject discipline. This has the effect of sometimes making the career paths of such researchers relatively complex, and it also inhibits the development of large, well-integrated research communities and of what might be termed a 'critical mass' of research activity within any one institution.

It is also important, in this respect, to remember that much of the research reviewed in this paper has been produced by 'research' staff on short, fixed -term contracts of employment rather than by academic staff with teaching duties who are more likely to have permanent contracts of employment. Sometimes these contract research staff are working within a research centre and manage their own projects. Others are employed as research assistants working on projects directed by permanent teaching staff. Many researchers' contracts are very short term (less than eighteen months) and the recruitment, retention, management and motivation of this large nomadic, casualised workforce has been a continuing source of concern to policy makers within the higher education system.

Furthermore, although VET spans a very wide range of disciplines, and can be regarded as a trans-disciplinary area of study, many of those who research in the field do so from within a strong disciplinary perspective and may have, at best, a limited interest in disseminating to, or engaging in debate with, academics and researchers from other disciplines. Compartmentalisation and a frequent lack of integrating frameworks characterises much that goes on in the field - an issue to which we will be returning below.

A further point to note about the structural dispersion of research effort on VET in the UK, is that this broad spread of researchers across a host of disciplines, coupled with the absence of a single, over-arching subject association or data base of VET research, means that it is extremely difficult to obtain and maintain an accurate picture of what VET research is going on in the UK. Anyone seeking to undertake such an exercise, is confronted, as were the authors of this review, with a multiplicity of potential sources of information, but no one focal point to which to refer. For those coming new to the field, particularly from abroad, this situation raises significant difficulties, not least in terms of trying to find suitable partners for collaborative research on a given aspect of VET.

Two other factors that have had an important and lasting impact on the scale, nature and focus of the research effort. These are the funding regime(s) that have supported the activity, and the policy background against which the research has been taking place.

0.4   Research Commissioning and Funding

Besides the substantial volume of research which is undertaken by teaching staff in universities as an integral part of their job (and which is therefore funded by Higher Education Funding Council monies paid to universities as general support), there is also a very large volume of research activity that is funded by a multiplicity of other sources. For a useful overview of the sources and flows of funding for social science research in the UK, see Loder (1992).

Government-Funded Research Council. One major source of funding for academic research is the Economic and Social Research Council (ESRC). The Council provides research support in a variety of ways. Some is channelled via research centres (such as the recently established ESRC Research Centre on Skills, Knowledge and Organisational Performance), and via programmes and initiatives. In the field of VET, the ESRC currently has an initiative on 'the learning society', and programmes on citizenship and the future of work which include a number of research projects that have VET either as the main focus or as a substantial

dimension of their work. The ESRC is also currently in the process of commissioning a major new £12 million research programme on teaching and learning.

The ESRC funds VET research within the whole range of the social sciences, including education (for an overview of the ESRC's strategic priorities on educational research, see the report by the Working Party on the Future of Research in Education, 1992). Its research efforts are focused via a number of thematic priorities:

1, Economic Performance and Development
2. Environment and Sustainability
3. Globalisation, Regions and Emerging Markets
4. Governance, Regulation and Accountability
5. Technology and People
6. Innovation
7. Knowledge, Communication and Learning
8. Lifespan, Lifestyles and Health
9. Social Inclusion and Exclusion

For further details, see ESRC, 1998.

Academics compete for funding under the programmes and initiatives within these themes via a process of competitive bidding which is subject to both peer review and the comments and input of various 'research users' - for example, business and trade union representatives, and civil servants and policy makers. In addition to those funds which are targeted via specifically focused activities such as programmes and initiatives, the ESRC also offers researchers the opportunity to submit bids in what is termed 'response mode', whereby smaller scale and more speculative and exploratory projects can be funded.

Foundations and Trusts. Besides the ESRC, there are a number of charitable foundations and trusts that offer funding to academic research in the field of VET. The largest of these are the Nuffield Foundation, the Joseph Rowntree Trust, and the Paul Hamblyn Foundation.

Government Departments, Agencies and Quangos. A number of different central government departments commission and, in some instances, themselves undertake, research into VET. The main ones are:

·   Department for Education and Employment (DfEE)

·   Department for Trade and Industry (DTI)

·   Scottish Office

·   Welsh Office

·   Department of Health (DH)

·   Department of Social Security (DSS)

·   Department of Culture, Media and Sports (DCMS)

- Department of Environment, Transport and the Regions (DTR)

In the cases of some of the latter listed departments, their interest in VET stems from their responsibilities for particular sections of the national workforce. For example, the Department of Health is responsible for oversight of the staffing, training and human resource planning needs of the UK's largest employer - the National Health Service. In the same way, the DCMS is responsible for the development of UK's leisure and tourism industry.

Some departments provide details of their current research programmes. In the past both the Manpower Services Commission (MSC) until 1988; its successor, the Training Agency (TA) between 1988 and 1990; and then the Employment Department (ED) from 1991 to 1995 all produced annual research reviews of research being conducted on training and labour market issues (see, for example, ED 1991). The DfEE, as the successor to this activity, also produces an overview of its commissioned research. The latest version appears as a special feature in the DfEE publication *Labour Market Trends* (formerly *The Employment Gazette*), April 1998: 163-165.

Attached to or responsible to many of these departments are a host of task forces and committees of inquiry, and agencies and quangos (quasi-autonomous government bodies) that are responsible for overseeing particular areas of policy or for delivering central government funded services. Many of these have an interest in VET and are active in commissioning research:

- Training and Enterprise Councils and the TEC National Council (England & Wales)

- Local Enterprise Companies and Scottish Enterprise (Scotland)

- The National Advisory Committee on the Education and Training Targets (NACETT)
- The Advisory Scottish Council on the Education and Training Targets (ASCETT)

- Skills Task Force

- Fryer Committee on Lifelong Learning and associated Task Forces

- Further Education Development Agency (FEDA)

- Qualifications and Curriculum Authority (QCA) (and its predecessor, the National Council for Vocational Qualifications - NCVQ)

- Office of Standards in Education (OFSTED)

- Low Pay Commission

- Welsh Development Agency

- Business/Education Partnerships

· The Employment Service

· Government Regional Offices

· Commission for Racial Equality

· Equal Opportunities Commission

Other Bodies. Besides central government and its offshoots, a wide range of other bodies from time to time commission and fund VET research. These include:

· Political parties

· Think Tanks, such as Demos, the Adam Smith Institute, the Institute of Economic Affairs (IEA), the Fabian Society, and the Institute of Public Policy Research (IPPR).

· The Confederation of British Industry (CBI), the Institute of Directors (IoD), British Institute of Management (BIM), the Industrial Society, sectoral trade associations and employer organisations, and individual companies

· The Trade Unions Congress (TUC) and individual unions (for example, UNISON)

· Chambers of Commerce, and the National Council of Chambers of Commerce

· National Training Organisations (sectoral employer-led training bodies) and the National Council for NTOs

· Professional Bodies, such as the Engineering Council and the Institute of Personnel and Development (IPD)

· The Royal Society of Arts and the RSA Campaign for Learning

· Local Government (including Local Education Authorities and Economic Development Units)

· The Careers Service

· Charities with an interest in education and educational policy, such as the Child Poverty Action Group, Barnardos, Business in the Community, and the National Association for the Care and Resettlement of Offenders (NACRO).

· A range of industry/education organisations, including Women Into Science and Engineering (WISE), the Council for Industry and Higher Education and Association of Graduate Recruiters (AGR)

· Individual schools, colleges and universities, many of whom from time to time commission small pieces of research, often concerned with the local labour market, the

VET needs of local employers, or their contribution to local and/or regional economic regeneration.

This very wide and diverse range of funding agencies produces a number of important effects on the structure, nature and availability of the VET research it sponsors. First, it adds to the general fragmentation in the field of inquiry by supporting, besides academics, a multiplicity of other, commercial and quasi-commercial research agencies. These include 'semi-academic' bodies such as the Institute for Employment Studies (IES) and the Tavistock Institute; major general commercial management consultancies, such as those operated by the main accountancy firms; market research and polling firms, such as MORI; and specialist commercial VET consultancies, such as ECOTEC and Whiteways.

In addition, it needs to be borne in mind that many of the above listed organisations, besides commission work from outside contractors, also maintain an in-house capacity of varying scale and expertise with which to undertake some forms of research. For example, the local Training and Enterprise Councils (TECs) will undertake the collection and analysis of various forms of local labour market information, the Engineering and Marine Training Organisation (an NTO) has produced a 'skills scoreboard' for the engineering industry (EMTA, 1998), the IPPR has undertaken in-house some of the research that has underpinned its development of the University for Industry (UfI) initiative, and the DfEE and the Cabinet Office together undertook the research to support a major international VET benchmarking exercise (DfEE/Cabinet Office, 1996). This means that the number of people involved in undertaking VET research, often as only one part of their wider activities, is substantially greater than simply the community of academic scholars employed across a range of disciplines in the university sector.

Needless to say, there is no single forum to which these non-academic researchers belong, though a proportion of them will meet from time to time through conferences organised, for example, by the DfEE's Skills and Enterprise Network or TEC National Council. Nor is there any formal central mechanism or gathering broader than individual contacts whereby they can maintain an overview of the broad range of academic research on VET or make academic researchers aware of what work they are carrying out.

Second, the range of funders produces various gradations or types of research, ranging from, at one end of the spectrum, large scale, fundamental and theoretical inquiry to, at the other, small scale research aimed at providing commercial intelligence to support marketing initiatives by the providers of VET. In between these two polar extremes lies a very wide range of shadings. However, as a general rule of thumb, it would probably be fair to state that the majority of the research work funded by the those other than the HEQC, the ESRC and the major foundations, tends to be more oriented towards the support of policy formation and the evaluation of policy initiatives - a topic which will receive further attention below.

Third, the nature of both much of the research being undertaken, and the types of organisation commissioning and undertaking it, means that a considerable volume of research is either never published or made publicly available, or is available only in mimeographic (i.e. photocopied) format. Examples of this kind of literature include Fuller and Unwin (1998) baseline survey of workforce qualification levels in the UK steel industry, commissioned jointly by the DfEE and a sectoral training organisation - Steel Training Ltd; and Raggatt and colleagues work for the NCVQ (Raggatt, Sieminski and Unwin, 1991; Raggatt, 1992; Raggatt

and Hevey, 1992; Raggatt, 1994) on the development and implementation of assessment and verification procedures in support of NVQs.

In some cases publication does not take place because the data involved is deemed commercially sensitive. For instance, quite a large proportion of work undertaken for TECs (and for the DfEE in relation to TECs) has not been placed in the public domain for precisely this reason. Obviously research that is not formally published, for whatever reason, is extremely difficult both to track and/or to obtain.

0.5   *The national policy backdrop*

VET research in the UK has been taking place in the last decade against a distinctive policy backdrop, which has provided both a context and a driving force for research activity. Although policy initiatives by government and other actors within the policy debate have not formed the sole driver of the VET research agenda, they have played a substantial role in shaping debates and points of inquiry within the research community. Within the confines of this paper we cannot aim to provide a comprehensive review of UK VET policy as it has evolved over the last decade, but it is useful to offer an overview of its main features.

1. VET Policy - the economic imperative. VET has been seen by a broad range of policy makers as central to long-term competitiveness in the context of global economic pressures, and much stress has been placed on the economic incentives and imperatives that can or ought to underpin investment in human capital. As a result of this focus, the other roles that VET might be expected to perform - increasing social equity, improving the quality of social and cultural lives, aiding various forms of voluntary activity, and promoting active citizenship and more participatory forms of democracy, have, on the whole, played a relatively minor part in the debate about the need to improve the UK's performance on VET. One of the few policy pronouncements that deviates from this trend was the foreword by the Secretary of State - David Blunkett - to the government's recent green paper on lifelong learning (DfEE, 1998), in which considerable stress was placed upon the wider social goals that enhanced VET might support. It was noticeable however, that this shift in emphasis did not permeate the main body of the green paper's text, and that the focus of the policy initiatives announced therein was tightly reined in around economic and labour market considerations.

2. The changing labour market backdrop. A second strand of thinking supporting a continued emphasis upon the economic importance of VET has been bound up with beliefs about the changing nature of work and of the UK labour market. The UK currently possesses one of the most de-regulated labour markets in the developed world and this was, until recently, seen by government as one of the main sources of international competitive advantage. Coupled with this has been a public debate dominated by rhetoric about an end to jobs for life, the growth of portfolio careers, and the need for individuals to prepare themselves for a world where the traditional conception of job and career are fast disappearing. An example of this view is contained in the RSA's report *Redefining Work* (Bayliss, 1998). It might be noted that, although these projections of future developments carry enormous weight with policy makers, the empirical data to support them is extremely tenuous. For instance, despite all the talk about an end to jobs and careers, and the need for people to undertake lifelong learning and retraining in order to fit them to cope with massive turbulence and frequent job and career change, research suggests that very few organisations or individuals have embraced the idea of portfolio careers, and the statistics on job tenure, far

from confirming a collapse in job security, show a small decline over time in the period of male job tenure, and an increase in the length of time women stay in their jobs.

3. The salience of work. Increased participation in the paid economy is being seen by the Labour government as the major means of tackling social deprivation and poverty in the UK. One of the main thrusts of welfare reform is an attempt to re-integrate, partly through re-skilling, those groups currently excluded from the labour market, for example, the long-term unemployed, those with disabilities, and single parents.

4. The role of international benchmarking. Within what is, in policy terms, an increasingly global context, international comparisons of VET performance, usually expressed in terms of proportions of age cohorts or workforce qualified to a given level, have loomed large in shaping the background for discussions of UK VET policy. Attempts to import institutional mechanism developed in other national contexts has been a major feature of UK VET reforms over the last decade and a half. The focus for these borrowings has covered, at various times, Germany, the 'Tiger' economies, and perhaps most importantly, the USA.

More recently there has been a growing belief by policy makers that elements of the UK's new institutional structures may be exportable in policy terms to other developed and developing countries, for example, our system of competence-based vocational qualifications and the administrative structures and processes of our funding systems, particularly that relating to Further Education. A recent study suggested that the value of the UK's VET exports (which cover courses, qualifications, publishing, consultancy, and language training) may total as much as £7 billion per annum (Bullivant, 1998)

5. The institutional framework - all change. The UK's VET system has experienced a period of constant revolution in the last 15 years. Continuing structural reform has been delivered via massive levels of largely uncoordinated change, and the emergence and disappearance of a large number of short-lived initiatives, schemes and programmes. For VET researchers, one of the main problems has been simply keeping track of these developments.

Partly as a consequence, institutional incoherence and the involvement of a multiplicity of ill or uncoordinated agencies in the formulation and implementation of VET policy has remained the norm. In many cases it is unclear where responsibility rests for the management, monitoring and control of parts of the VET system.

6. Voluntarism. The UK's VET system is distinctive, by European standards, by its reliance on voluntarism. The role of legislation in underpinning training activity in the workplace continues to be very limited. Moreover, for much of the period under review, the VET system has ostensibly been employer-led and employer-designed, though the reality has in some cases been very different, with the state taking the lead in imposing change and then leaving employers to implement the detail. Despite the election of a Labour government there is no sign of any significant change on voluntarism as an organising principle for VET.

7. A weak role for social partners. Furthermore, by European standards, the role of the social partners in VET policy formation remains, even under the new Labour government, relatively weak and under-developed. Not only are trade unions not afforded a strong formalised role in the machinery that designs and runs VET activity in the UK, but collective

bargaining on training, despite recent trade union and TUC efforts to boost its importance, remains relatively rare.

8. Individual responsibility. Recently, UK policy has witnessed a shift towards a much greater role for the individual in taking responsibility and paying for their own skills development.

9. Qualifications as the spearhead of change. Considerable stress has continued to be laid by government and its agencies on the use of the qualifications system as a means of inducing change within the VET system.

10. Centralisation. Since the start of the 1980s, the UK has experienced a massive centralisation of power by the state in the area of VET (especially within education, where the role of teachers, local education authorities, examination boards and many other groups has been severely weakened). This centralisation of power has been accompanied by a devolution of responsibility to a range of quangos, agencies and voluntary actions by a range of actors.

11. The reliance on market mechanisms. There has been a strong belief in the use of market mechanisms and forces as a means of improving performance and achieving efficiency gains within the education and training systems and their component institutions. In the education sector, competition between schools - for pupils and over relative examination results - has been viewed as one of the main means of boosting up levels of educational achievement. In training, the development of a 'training market' has fuelled policies aimed at placing additional stress on the responsibilities (and in some cases purchasing power) of the individual (and example here would be Youth Credits) and at competition between training providers as a means of increasing flexibility of provision and of driving down costs.

12. Targets for all. Target setting, the use of relatively simple performance indicators, and reliance upon relatively crude management by objective (MBO) techniques have also suffused the VET system.

13. The imposition of change. Over the last 10 to 15 years institutional and curriculum reform within the VET system has not been predicated on a consensual approach. This has been particularly true in the case of reform within the education system, where the government has sought to impose change from outside on a teaching profession (or 'educational establishment' as it has sometimes been termed) that has either been reluctant to embrace the proposed changes, or openly hostile towards them. In these circumstances, there has been a marked absence of a 'feedback loop' in policy, with the result that the opinions of those who are required to implement and make work the policy initiatives has generally not been seen as valuable, particularly if they have been located within the education system. Insofar as policy has had to be adjusted to respond to unforeseen problems or resistance, this has often been affected via the setting up of temporary intermediary bodies - in the form of committees of inquiry - which have acted to defuse conflict and to reach compromises that the policy makers who devised the original measures were unwilling to contemplate. A classic example here would be the National Curriculum and its subsequent revision via the Dearing Report (see Barber, 1996).

14. Personnel problems in education. The nature of the educational workplace has been changing and personnel management issues within the education system have loomed

increasingly large, in part because of a growing slump in recruitment and problems with professional formation and reformation, but also because of a crisis in confidence in the very notion of professionalism in education in the face of external hostility to educationalists - whether teachers or those who train them - on the part of government and its agencies such as OFSTED and the Teacher Training Agency (TTA). This has resulted, for example, in the imposition by the TTA of a national curriculum framework for teacher training courses in higher education - the first time that any attempt has ever been made by a government agency to impose external curriculum controls on the contents of degree courses in the HE system.

At the same time, the need to introduce greater management within the education system, usually deploying techniques developed for use in private sector businesses, has led to tensions and conflict, particularly when, as has been the case in further and higher education, these developments have accompanied (and in part been engendered by) substantial falls in the unit of resource available within the system. Looming problems with recruitment shortfalls to the teaching and academic professions are adding to and complicating these problems.

Taken together, these policy thrusts have had a profound impact on the development of VET research, not least in terms of setting an agenda for the research funding coming from the bodies responsible for designing and implementing policy. To give just one example, the growing interest in the role of the individual in taking responsible for and investing in his or her own learning has lead to a plethora of DfEE-funded research reports on the individual's motivation to learn (see, for example, Tremlett, Park and Dundon-Smith, 1995; Tremlett, Thomas and Taylor, 1995; Hand, Gambles and Cooper, 1994; Crowder and Pupynin, 1993; Maguire, Maguire and Felstead, 1993; Firth and Goffey, 1996, and Maguire, Hasluck and Green, 1996).

It is also, as the above review has hinted, a policy backdrop that is inherently predicated around what is ideologically contested territory. One instance would be the role of the state in VET. In other cultures and historical contexts - Germany, France, Japan, the Asian 'Tigers' - the state took the lead in initiating industrialisation and assumed economic development functions that are quite different from those countries, such as the UK, where laissez faire doctrines held sway and an almost accidental industrialisation took place. These means that in the UK the role of the state in industrial policy and many other aspects of economic management is the centre of debates that were decisively resolved in other nations by the end of the nineteenth century (Keep, 1998). Some further aspects of VET as an area of ideological tension and its effects upon research are reviewed below

0.6   The relationship between policy and research

The sometimes difficult and dislocated relationship between research and policy is a theme that will be discussed at a number of points in the literature review that follows. For the moment it will suffice to highlight a limited number of key areas where policy making has a major impact on the research agenda.

Evaluation. One of the chief means by which policy makers seek to track the operation of the change processes which they have initiated are evaluative studies and research and a very considerable proportion of the VET research undertaken in the UK over the last decade and a half has been focused on the evaluation of particular policy initiatives and institutional

innovations, for example, youth training (Lee et al, 1990), youth credits (Unwin, 1993), TVEI (Hopkins, 1990) TECs, and the effectiveness of new curriculum structures such as NVQs and GNVQs. Much of this literature will be touched upon in what follows below.

However, evaluation's role and standing inside the policy making process has not been unproblematic. Put briefly, there have been two problems. The first has been the pace of policy innovation, which has meant that either the policy focus has moved on by the time the evaluation is complete and is therefore irrelevant, or policy makers have decided to expand from the pilot stage of an initiative before the evaluation has been undertaken, thereby rendering its results of limited value. Unwin (1993) gives a good example of this in relation to Training Credits, the pilots of which were "doomed to succeed".

The second problem has been a nervousness on the part of policy makers at academic evaluators' tendency to be critical of weaknesses in initiatives and to question policymakers underlying and perhaps deeply held assumptions. As a result, of late, more and more evaluation of high profile government initiatives has tended to be placed, via competitive tendering, in the hands of commercial consultancies, particularly those attached to the large general management consultancies - see, for example, Ernst and Young's evaluation of the pilots for Modern Apprenticeships (1995).

More generally, the effort put into evaluative research has tended to skew the overall structure of VET research effort in the UK. It is to be hoped that this will change, partly as a reflection of greater institutional stability and continuity within the UK VET system.

Data Quality. The emphasis that policy makers have placed in the last decade and a half upon employer-led voluntarism and an absence of legislative rights and duties, devolved responsibility within the VET system, and the fragmentation of the institutional landscape, have all had a profound impact on the quality and quantity of key strands of VET data in the UK. Put simply, compared to some other European countries, data quality is limited and the coverage of many of the data sets is patchy. This is particularly so in relation to the activity of employers, where the abolition of the statutory Industrial Training Boards (which had a major role in collecting training statistics) and the absence of any legal requirement on employers to collect, collate and publish statistics on their training effort, means that reliable information is scarce and relies on what can be gleaned from a number of surveys, such as the Labour Force Survey and the Skill Needs survey. The recent Engineering and Marine Training Authority/Engineering Employer Federation (1998) exercise to gather and collate information on a range of training issues, including training spend is an isolated example of good practice in a sea of ignorance and apathy.

The scale of this problem is graphically illustrated by the absence of reliable national statistics on employers' spending on training. A major government-sponsored survey exercise on spending on training -Training in Britain (1989) - suggested a global figure for employer expenditure of £14.4 billion in 1986/87. Unfortunately, a more recent survey (IFF, 1996) undertaken as part of a Eurostat exercise to produce a harmonised set of European training costs data revealed that this figure may have over-estimated employer spending by more than a quarter, and that before allowing for the effects of inflation. Thus the 1993 employer spending figure suggested a volume of about £10.6 billion per annum (see Jones, 1997 for a discussion of these surveys). It should be noted that the figures in the two surveys, the samples involved, and much else besides are not strictly comparable, and both offer only

snapshot views (the latest of which dates from 1993) rather than a continuous set of longitudinal data. Probably the only thing we can say with certainty about employer spending on training, is that we are uncertain how much they are spending.

Even the basic official measures of workforce training are of limited value. Academics have made attempts to supplement and amplify the evidence gathered via the official Labour Force Survey (LFS) and for details of the most comprehensive attempt to date to provide an enhanced data source in this area, and to amplify our understanding of what constitutes employer provided training and why it takes place, see Felstead et al (1997). For a more general overview of the data sets that exist on training in the UK, see Elias (1994).

The Policy Process and Research - Dislocation and Mistrust. Theory, particularly educational theory, does not sit happily within the UK policy making process. Insofar as UK policy debates on VET could be described as being informed by any form of academic theory, the dominant perspective has been that of economic, particularly economics of a neo-classical tint.

As mentioned above, there have been significant problems with models of teacher training that incorporate theories of education that are at variance with the implicit models of schooling held by policy makers. Conflicts between the TTA and OFSTED, and teacher training institutions, have spilled out into a wider debate about the value of all educational research in the UK. OFSTED commissioned a report on the quality and relevance of educational research - the Tooley report (Tooley, 1998) - while the DfEE separately asked the Institute of Employment Studies to undertake a review of educational research (Hillage et al, 1998). Both reports suggested, though in rather different ways, that there are problems with the quality of some of the work being published and with its relevance to the immediate concerns of policy makers and/or practitioners. Hillage et al offer a number of concrete suggestions for improving the relationship between educational research and policy and practice. These include a national research framework supported by a national education research forum, smaller policy fora on key issues, greater collaboration between research funders, better quality assurance procedures for research, better training in research skills, and steps to improve the capacity of the policy making machinery to assimilate research findings.

These reports have provoked fierce debate which there is not space to review here (see *BERA Research Intelligence*, No 66, October 1998, for a range of responses). However, it should be stressed that, leaving aside ideological barriers whereby ministers have been suspicious of academics and the 'education establishment', the basic nature of the UK policy making process makes the co-ordination and integration of research exceedingly problematic. The norm is and has been for policy formation that is ad hoc, governed by short (often very short) timescales, narrowly-focused and incremental. Research is sometimes not 'relevant' because the focus of the policy debate has moved on before the research is complete.

Perhaps most importantly, the relevant departments and agencies have very limited, if any, systemic capacity (what Hillage et al (1998) term mediation infrastructure), in the shape of people and processes through which research can be interpreted and assimilated into decision making and actions. As has been suggested above, there is an absence of reflexivity in the process, with not merely a lack of a feedback loop between policy makers and practitioners, but also a major disjuncture between the work and goals of the research community and the ability and/or willingness for policy makers to draw upon research in anything other than a

highly fragmented and opportunistic way (Unwin, 1998). In particular, the complexity of VET and the inter-relationships between one aspect of the field and another has presented policy makers with problems that, on the whole, they have resolved by denial. The desire is for research which can be spoon-fed to senior policy makers and politicians in 'bite-sized' chunks. Broader issues, such as those of systems failure, tend to receive limited attention, not least because the questions they raise about policies and their underlying assumptions are difficult to resolve. This dislocation between research, policy formation and implementation remains, and is likely to remain for the foreseeable future, a pressing problem in the UK.

The latest attempt to link policy development and skills formation has come through the decision of DfEE to set up the Skills Task Force Research Group in an attempt to ensure that informed decisions are made by the key actors in the area of skills formation (DfEE, 1998). Researchers as so often are involved in the early stages of the policy debate, but the vital question is how much notice will be taken of research when key policy decisions are made. Harkin (1997) is doubtful: "in both the USA and the UK there is a vulgar pragmatism that leads to re-formulations of outmoded models of education and training, and that avoids fundamental reform, especially if this would require employers to play a more active role or education to develop a less didactic policy" (p99).

0.7   Ideology

Any consideration of VET policy and practice, and VET research, must take cognisance of the fact that a multiplicity of ideas, values and interpretative frameworks exist. VET research in the UK has often sought to examine, and contribute to, the competing ideologies underpinning (changes to) VET policy and practice. Academics have not just analysed VET policy, they have also acted as advocates for reform: for example, putting forward proposals to overcome academic/vocational divisions. Finegold et al (1990) called for a unified curriculum, Pring (1995) argued for reconciliation of ideas underpinning vocational preparation and liberal education; while Evans et al (xxxx), Young et al (1998) and Oates (1998) all argue for the need to reconceptualise the relationship between working and learning. Other researchers draw attention to the continuing stratification of inequality within education and training: Furlong (1992), Banks et al (1991) and Kerckhoff (1993) in their studies of school to work transitions emphasise the stratification of inequality in practice, and Gleeson and Hodkinson (1995) point to the divide between this inequality in practice and the "policy assumptions of individualism and free choice (CBI, 1989, 1993, Bennett et al, 1992, ED/DES, 1991)" (p12).

In the following sub-section, we examine analyses relating to one particular area as an example of this type of approach: the development and implementation of GNVQ.

GNVQ : ideas concerning the development of a 'middle pathway'

Gleeson and Hodkinson (1995) examine the attempt to construct GNVQ as a high status (pre) vocational route within a three track education and training system. This was the latest of a number of twentieth century attempts to produce a tripartite system, which Coffey (1992) believes can be traced back to class divisions in the late nineteenth centry. Gleeson and Hodkinson (1995) offer a critique of how such ideas fit tripartite 'common sense', where "people fall naturally (socially and genetically) into three distinct types, academic, technical and practical ... and the curriculum should similarly be divided into different types of

provision, to correspond to these different types of provision, to correspond to these different types of people and ability" (p7). Within the various systems tried within the UK, the middle track has been the most problematic, with dual provision often being a more accurate description of practice.

The tripartite post-16 curriculum is delivered within three major institutional settings (schools, sixth form colleges and further education colleges), but there is no simple correspondence between curriculum and instituion, and there is enormous variation in terms of curricula, student profiles, institutional size and mission, traditions, cultures and ethos within institutional types (see, for example, Robinson and Burke (1994) on sixth form colleges; Smithers and Robinson (1993), Ainley and Bailey (1997 on FE colleges; Whitty et al (1993) on City Technology Colleges). There are therefore dangers that GNVQ provision, and institutional commitments, will be subject to a process of 'academic drift' (Halsey et al, 1991; Edwards et al, 1997).

GNVQ is also a qualification, whose whole development, implementation and reform can be seen in terms of accommodation and competition between different sets of ideas. Gleeson (1993) sees the context of implementation, imbued with ideas of 'new managerialism' with quality being defined almost exclusively in terms of student recruitment and completion, distracting attention from issues of educational quality. Such ideologies also contain assumptions about the role of teachers: "current managerialist approaches to education risk reducing teachers to technicians, who simply 'deliver' the official curriculum to young people" (Gleeson and Hodkinson, 1995, p11).

Bates et al (1998) consider that GNVQ contained elements of a progressive ideology, but these were constrained by "alternative educational ideologies and practices in a largely hostile environment of 'controlled vocationalism'" (p109). That is, emphases upon student choice, experiental learning, core skills and learner autonomy were constrained lby regulations framed by state agencies. Thus, for example, a progressive commitment to self-directed learning ends with learners in GNVQ being given responsibility for their learning, in a manner of their own choosing (in how they put their portfolio together), but with the outcomes being tightly pre-specified.

Nevertheless, depending upon how GNVQ is implemented in practice, it still "has the potential to provide a vehicle for meaningful learning and personal development" (Helsby et al, 1998, p63). Harkin and Davis (1998) too show how teachers on GNVQ programmes may adopt warmer, more supportive communication styles in relating to students. On the other hand, Gleeson and Hodkinson (1995) point to developments such as GNVQ having taken place within policy discourses which did not address any broader vision of citizenship and learning. Hodkinson (1994) suggests that education for all young people should include three over-lapping dimensions: personal effectiveness, critical autonomy and community. Such calls should give pause to thought for those who view VET primarily from a narrow technicist frame.

0.8   *Link to subsequent sections*

Having provided a broad ranging discussion of the ways in which research is funded and organised, of the different groups who conduct it, and of its relationship with policy formation, we now turn to the research itself. For reasons of seeking to preserve a common

framework between the various national research reviews being undertaken as part of COST Action A11, we have chosen to conduct our review using the five main headings which were provided in the original research specification:

1. Context
2. Learning processes
3. Complex teaching and learning environments
4. Initial conditions
5. Assessment and evaluation

We have, however, sought to augment the range of topics covered by the sub-sections included under each of these headings. In other words, all the sub-section topics included in the original research specification have been covered, but we have added in additional issues that reflect particular aspects of UK VET research which are important if a full picture of research activity is to be gained.

We would also want to underline the fact that what follows is meant to be indicative of the spectrum of VET research undertaken in the UK in the last decade - it is not intended to be encyclopaedic, i.e. it does not pretend to cover every single piece of research, even of published research, that exists. This in part simply reflects the scale of VET research in the UK. It is impossible to estimate with any great degree of accuracy how many items of published material have been generated in the field since 1989, but a conservative estimate would place the level at something over 10,000. An exhaustive approach would hence demand levels of resources that the authors do not have available, not least in terms of the time needed to assimilate and synthesis such a vast body of work, and would also result in a report so lengthy as to be of limited practical value.

What we have attempted to ensure is that our review covers a range of the main contributors to each debate, and/or refers to specialist literature and research reviews which cover particular aspects of the field. These more narrowly-focused literature reviews offer detailed analyses of what is available and we have not sought to duplicate their efforts. We have also tried to provide examples of the very broad range of different scales and types of research and of the various methodological and disciplinary approaches that have been adopted, and to point those with further questions towards those sources of more detailed information that are available.

1. Context and input

1.1   The Relationship between VET and Economic Performance

As the overview of UK policy formation suggests, the over-riding belief on the part of the vast majority of UK policy makers has been that there is a positive linkage between investment in education and training and the boosting of stocks of human capital, and resultant economic performance. This belief covers economic competitiveness at the levels of the individual, the locality/region, firm, sector and nation state.

At a macro (national), meso (sector and firm) and micro (individual) levels various researchers have reviewed the methodological problems associated with researching and the evidence for a simple casual link between levels of education, training and economic success. Probably the most comprehensive and readable of these studies is Ashton and Green (1996) (but see also Bagnall, 1994; Barrett and O'Connell, 1998; Booth, 1991; Forrester et al, 1995). For an American perspective on these issues and an overview of the US literature, see Sturm, 1993.

An excellent overview of this extensive body of research, within and outside the EU, is given in Barrett et al, 1998. The general result of these inquiries has been to conclude that the kind of very simple linkage that policy makers assume cannot be proved and probably does not exist. Higher levels of education and training may be a necessary precondition for greater economic success, but on their own they are not sufficient to ensure that it occurs and are better seen as simply one part of a much wider matrix of factors that lead to what the OECD has dubbed the 'high performance workplace' (OECD, 1997) - a concept that will be discussed in greater detail in a later section. These findings beg important questions about the efficacy of the UK's current emphasis upon boosting the supply of skills, and assuming that the demand for and effective utilisation of increased skills and knowledge can be left to take care of itself.

One good example of an industry-based study is Mason's (1998) work on the utilisation of graduates in the chemical industry. Although the majority of firms in the study had been subjected to strong competitive pressure - price competition, more demanding customers and the impact of legislation - this had not boosted their demand for highly qualified (graduate) staff. "About a third of chemistry graduate employers in the survey had not recruited a single new chemistry graduate in the last three years, even though many of those firms had enjoyed rapid sales growth and were subject to strong market pressures to improve their competitive performance" (Mason, 1998: 50-51). Such results undermine the rationale for the recent expansion in higher education and the increases in the UK's output of chemistry graduates. Boosting the supply of graduates appears to have played little part in revolutionising competitive performance in the sector and Mason demonstrates (1998: 24-30) that the main result has been to offer employers a larger number of applicants (30 per vacancy on average) from which to choose, against which needs to be set some deterioration in quality, in part created by equipment shortages and changing teaching practices in higher education as the university system has sought to cope with the 'efficiency gains' required to fund expansion in undergraduate numbers.

A very different but complementary perspective is provided by Fevre et al (1998) in a paper that summarises the findings of one of the ESRC Learning Society projects. Its authors argue

that, far from seeing VET as a primary determinant of economic success, it is more accurate to see economic configurations as determining patterns of participation in VET. Thus:

> In the 1990s policy makers have high hopes of 'lifelong learning'
> and the 'learning society' but our research suggests that we
> should be very sceptical of the ability of present and planned
> policies to achieve these goals precisely because the effects
> of the economy on patterns of participation in ET s so strong.
> (1998:1)

Government attempts to intervene to boost economic performance through boosting the supply of VET may be doomed to failure because of the "subtle and complex linkages" (1998:1) that exist between patterns of participation in ET and the economy.

Human Capital Theory. Another aspect of this debate has been argument concerning the validity of human capital theory. Human capital theory has been hugely influential with policy makers, both within the UK and across the developed world. It has also informed the thinking of supra-national bodies such as the World Bank, OECD and European Commission. Unfortunately, as many researchers have suggested, it has significant weaknesses and limitations. For two concise, user-friendly (particularly to non-economists), and policy-oriented overviews of thinking in this area see Stevens (forthcoming, 1999), and Smethhurst (1995).

The limitations of human capital theory have also been discussed by those from outside economics.   For example, Fevre (1997) provides a sociological critique of human capital theory, see Fevre, 1997), while Schuller (1997) underlines the importance of balancing notions of human capital with the important role played by social capital.

Skills and Productivity. Major efforts have been made, usually at the behest of policy makers, to try to determine the linkages between skills and productivity. The most famous of these in UK research have been the comparative projects developed by the National Institute of Economics and Statistics (NIESR), who have undertaken a range of international matched plant comparisons in a number of sectors (see Prais, 1990; Prais, 1995; Mason et al, 1993).

Skills and Wage Levels. This has been a major area of interest for economists, not least because of the availability of large data sets on earnings, but also because the scale and nature of the relationship between skills, earnings and the propensity to invest in education and training plainly has much to tell us about the validity and operation of human capital theory. Representative recent examples of studies in this field include Blundell et al, 1997; Connolly, 1996; Heckman, 1998; Green et al, 1998; Murnane et al, 1995; Reilly, 1995)

Market Failure and Externalities. A standard argument in economics concerns the ability of markets to cope with training because many of the skills created through VET are transferable to other employers. Because of this some firms may choose not to train, but instead poach skilled workers from those that do by offering higher wages. This situation, it is argued, will eventually deter those companies that do train because they fail to retain the full benefits of their investment in skilling their employees. Such issues are of major concern within the context of a voluntaristic training system of the type operating in the UK, where employers are essentially free to decide on what, if any, training they offer their workforce, and where

there is only very limited legal compulsion to train (what legal instruments exist apply mainly to health and safety training, and food hygiene). For a useful summary of this debate and the evidence it has generated, see McNabb and Whitfield, 1994; Booth and Snower, 1996; and Stevens, 1996.

Skills Demand, Technology and Unemployment. Many economists have argued that, partly as a result of increasing global economic competition, but also as a reflection of the changing composition of job opportunities and the decline of low skilled jobs in developed economies, unemployment can increasingly be seen as a reflection of inadequate skills levels. There are also debates about whether the increasing supply of educated labour to the labour market is resulting in productive usage or is simply creating credentialism. Recent major work in this area includes, Gregg and Manning, 1997; Machin, 1996; and Machin and Van Reenen, 1998; Robinson and Manacorda, 1997; and Sloane et al, 1995; Parsons and Marshall, 1996.

Probably the most concise and clearest overview of the changing state of skill needs in the UK is provided in Green et al (1997), which draws on data generated by the recent 'skills survey' and compares this with data generated by earlier surveys to provide a time series on skill demand and usage. At present, this is the only source of such trend data. Among their major conclusions are that the level of qualifications required for recruitment to a job have risen since 1986; that skills increases have been more marked for females than males (this is consistent with the long-term narrowing of the male/female wage gap); that the proportion of those deemed 'over-educated' for their current employment has not changed dramatically; that there has been a relatively sharp decrease in the number of jobs that only require short periods of training; that the usage of computers in the workplace has increased; and that the groups that are losing out in skills acquisition include those in part-time jobs, the self employed, those aged over 50, and those in low status occupations.

Skills and their Relationship with Service Quality and High Value Added Goods. Partly in response to the Finegold and Soskice formulation of the low skills equilibrium, economists have sought evidence to support or disprove whether UK companies are operating at the lower end of the product market. The studies that have resulted have adopted very different techniques. In the case of Mason et al (1996), an international comparison of product specifications in matched product groups was attempted. In other cases large datasets have been addressed (see, for example, Nickell and Nicolitsas 1997, Oulton 1996; and Redding, 1996). The evidence that has emerged is varied, sometimes contradictory, and from it no clear or simple picture emerges.

The same issue has also been addressed by researchers working in the field of business studies. Their interest has been more about the type of product market strategies that UK firms adopt and whether they are seeking to compete on price or quality. The issue of skill levels has often been, if it has featured at all, a second or third order question. It is to these studies that our review now turns.

1.2 *Competitive strategies, the changing workplace and skill demands - the context for VET policies and research*

As suggested above, the framework agenda presented to us by the original COST ACTION A11 questions carries with it a number of implicit assumptions about the nature and shape of a set of common issues facing VET researchers in EU countries. One of the most important

of these implicit assumptions is that the changing nature of the labour market, work and workplace organisation mean that demand for skills is both changing and increasing. The nature of these assumed changes is not spelt out, but it seems reasonable to hazard the guess that they are broadly in line with the projections contained in the European Commission's green paper on workplace organisation (European Commission, 1997) and with the vision of the 'high performance workplace' that has evolved within OECD thinking (OECD, 1996; OECD/Government of Canada, 1997).

Within this paradigm, higher skills are only a means to an end. If they are to improve economic performance they have to change the way we work and alter the way organisations are structured and choose to compete. Management gurus, academics, and policy advisors across the developed world have insisted that higher levels of skill within the workforce are a basic building block and essential prerequisite for the adoption of a new model which moves economic activity in the developed world out of the old Fordist and Taylorist paradigms into a new high skills, high performance mode of working. Instead of mass producing a narrow range of highly standardised goods and services, firms will wish to customise their products to meet the demands of individual consumers. Moreover, competition will increasingly be on the basis of quality rather than price, with higher value added goods and services representing the only way in which the developed world can cope with competition from lower wage economies in the developing world (see, for example, Piore and Sable, 1984; Kern and Schuman, 1984; Drucker, 1990).

This new model has a number of implications for skills and work organisation. Hierarchy and control are out. Instead, flatter, non-hierarchical, often networked forms of organisation are to become the norm. Workers will need to work more autonomously, to monitor their own output and behaviour, adapt to change, solve problems, take the initiative, and think creatively in order to arrive at solutions that enable to organise to perform more effectively and better meet customer expectations. As a consequence, workers will not only have to be more highly skilled, they will also have to have the intellectual resources to engage in lifelong learning and in mastering new skills and behaviours in order to meet the ever-changing needs of more dynamic product and labour markets. Relations between managers and their staff will be based on high levels of trust, communication and involvement will be relatively intensive, and teamworking will be the norm.

Example of this vision put into practice in the UK context and of its implications for VET provision are the Prospect Centre's report on *Growing An Innovative Workforce* (Hayes, 1992) and Guile and Fonda's study of work organisation, performance management and skill usage in a group of leading edge UK organisations (1998). They conclude that the new strategic imperative for management is to "develop new modes of behaviour amongst employees that emphasise collaboration, self management and accepting responsibility for outcomes; create an organisational environment that enables employees to take initiative, to co-operate and to learn" (Guile and Fonda, 1998: 9).

UK official thinking on VET assumes that global economic pressures are impelling our economy and its constituent organisations in the direction of the types of product systems, product market and competitive strategies, and forms of work organisation and job design outlined above. The government's main role in speeding the transition towards the adoption of this new paradigm is to put in place reforms within the education and training system that will increase the supply of skills.

What can research tell us about the adoption of this model? Some of the evidence from VET research is discussed in the sections below. What follows here is an overview that reflects research findings from those outside the field of VET who specialise in the study of product market and competitive strategies, and workplace organisation and employee relations systems. On the whole, it can be stated that those who specialise in the study of product market and competitive strategies, and industrial relations and people management systems, tend to paint a less optimistic picture than either policy makers or some who specialise in vocational education and training.

To begin with, as Regini (1995) suggests, the model of a high skills/high value added strategy allied to a supportive VET system that can deliver a highly educated and trained national workforce (as in Germany), is simply one of a number of viable models available to European firms and nation states. There are other, perhaps equally attractive routes to competitive advantage from which firms can choose. This is an unwelcome message for policy makers, but one that reflects the reality that research into product market strategy reveals. Far from a single, simple, universalistic movement towards higher value added and higher quality goods and services throughout the developed world, different companies, sectors and even countries are following a range of divergent trajectories. These alternatives include seeking protected markets, growth through takeover, seeking monopoly power, and cost-cutting and new forms of Fordism.

There is not space to review these different routes in detail here, but it is worth noting two points. First, that recent events underline the continuing, perhaps growing, importance that is attached to merger and acquisition as a prime source of competitive advantage. Size, it would seem, does matter and sheer scale and associated market dominance appears to hold considerable attractions to senior managers in sectors as diverse as pharmaceuticals, aerospace, car manufacturing, and banking.

Second, far from being dead, Fordism and neo-Fordism is a growing and powerful model of competitive advantage within the UK economy, especially within large swathes of the service sector. While mass production may have declined as the dominant model for the manufacture of consumer goods, it offers, in combination with economy of scale advantages, the promise of salvation to many major UK retail chains, retail banks, and insurance companies. Managements compete to achieve the lowest possible cost base, seeing at the key to achieving profitability from delivering a narrow range of standardised goods and services in markets which are primarily driven by price (Keep and Mayhew, 1998).

More generally, what does research reveal concerning UK firms' choice of models of competitive advantage? The answer is that there are a range of indicators that suggest that a high skills route to competitive advantage may be the minority rather than majority choice. To begin with, a number of studies, some survey based, some using case studies, have suggested that many UK firms rely upon cost based competitive advantage and produce relatively low spec goods and services (Prais, 1990; Doyle, Saunders and Wong, 1992; Williams et al, 1990; Foundation for Manufacturing Industry/Department of Trade and Industry/IBM, 1996). Marginson, (1994: 64) reports that British-owned multi-nationals tend to be located in "food, drink and tobacco confirming....earlier and more general findings that British-owned multi-nationals are concentrated in relatively low technology industries", and Ackroyd and Procter (1998), in their overview of large British manufacturing firms, suggest

that the UK's presence in the high value added manufacture of capital goods is weak and dwindling. They conclude that:

> British arrangements for manufacture at plant level do not
> depend on high levels of skill or high levels of investment.
> Profitable manufacture is not secured....through the acquisition
> of a highly trained 'core' labour force, nor....by investment in new
> technology. Output is achieved in part by some reorganization
> of machinery, but more significantly by a combination of a heavy
> dependency on the flexible use of relatively unskilled labour and a
> willingness to utilize external sources of production. The basic
> arrangement for manufacture is the use of standard technology
> by teams of self-regulated and formally-unskilled workers.
> (Ackroyd and Procter, 1998: 171)

British managers' certainly seem less likely to see a skilled workforce as a source of competitive advantage than do their French and German counterparts (Coopers and Lybrand, 1995), and appear to require much lower levels of skills and qualification than is the norm across the EU (European Foundation for the Improvement of Living and Working Conditions, 1998).

Furthermore, the UK's record on investment in R&D also hardly suggests the kind of product development strategies that would demand high skill levels across the economy. In 1996 just nine companies (in pharmaceuticals, aerospace and chemicals) accounted for one third of all UK private sector R&D (Department of Trade and Industry, 1997: 2), and it was reported that 51 of the top 100 UK companies failed to make any investment in R&D (*The Guardian*, 25 June 1998). Overall, the government judged UK firms' investment record in R&D to be at world class levels only in the pharmaceuticals sector (*The Guardian*, 26 June 1997).

It has been argued (Keep and Mayhew, 1998) that there may be very good reasons why many UK firms continue to seek advantage through offering low spec, low price goods and services. One very powerful factor is the structure of domestic demand in the UK. The inequality of income distribution across the UK population, with a fifth of Europe's poor (on EU definitions) residing within the British Isles, means that there is a large proportion of the population who have little choice but to buy on the basis of price rather than quality. The kind of egalitarian income distribution, coupled with generally high wage levels, which are found in Germany and the Scandinavian countries, make it far easier for producers catering for the domestic market to envisage and embrace high value added strategies and competition that centres around quality rather than price. There is a mass market for such goods and services, whereas in the UK the structure of income distribution and demand means that quality is often confined to a niche market.

The picture of competitive and product market strategy outlined above suggests that the revolutionary transformations being forecast may be some way off in many sectors and firms. The story on workplace organisation, the structuring of productive processes and people management systems re-inforces this message and suggests that for many workers, perhaps the majority, the high performance workplace is a distant prospect. There has been a general assumption, both in the UK and the European Commission, that "the new forms of work organisation supposedly emerging are inevitable and universal in their application" (Industrial

Relations Research Unit, 1997: 6). Unfortunately, this is not the case. As the EPOC survey of direct participation practices in the EU revealed (European Foundation, 1998), "these new forms of work organisation are very much a minority movement" (IRRU, 1997: 6). For instance, the proportion of workplaces with semi-autonomous group work approximating to the 'Scandinavian' model (extensive delegation, a highly qualified workforce, and high levels of training intensity) was less than two per cent of the sample across the EU states surveyed (IRRU, 1997: 6). In its overview of moves towards the adoption of the high performance workplace, the OECD admits that, "until now, workplace change that truly supports these objectives in a sustainable fashion, has not been widely diffused" (OECD/Government of Canada, 1997:3).

Part of the cause of this mis-understanding of the trajectory of workplace change is a tendency on the part of academics, gurus and policy makers to generalise from the particular - usually work organisation and management styles found in leading edge manufacturing plants and/or the IT sector (software houses, Silicon Valley) - and to assume that such management styles and structures will be applicable in very different settings and within the context of competitive and product market strategies that are still wedded to Fordism. Far from being the inevitable destiny of all organisations, the high skill, high participation, high performance workplace model may actually only be relevant within a limited sub-set of organisations, particularly when set within the wider context of the Anglo-Saxon variant of capitalism.

The introduction of new forms of work organisation following the implementation of computer-based technology does not necessarily follow a single path. For example, Gallie (1994) found that while such implementation was "linked to greater task discretion for men, this was not the case for women" (p 23). This reflects how work intensification and increased monitoring may reduce respnsibility at work. On the other hand, partly as a consequence of more intensive use of technology and changing patterns of work organisation in the UK banking sector employers' recruitment requirements have been stressing behavioural characteristics and the ability to be adaptable and flexible in response to changing work practices, rather than stressing specific banking skills (Courtney, 1997).

More generally, a number of studies have suggested that it is difficult, in the UK context, to establish and maintain the kinds of high trust, high participation employee relations systems that Streeck (1992, 1997) argues are another essential element of productive strategies and work organisation systems that can put high levels of skill to best use (see, for example, Sisson, 1994; Millward, 1994; Lane, 1995). We simply lack the type of national industrial relations system that would provide a supportive context for the widespread development of the high performance workplace. If the German training system were transported to a country with weak trade unions, extremely fragmented bargaining structures, no tradition of or institutions for co-determination, and no general legislative requirement for employers to consult with or involve the workforce, it is doubtful if it would be able to sustain itself.

It can be argued that the research findings adduced above are incomplete and offer only a snapshot view of the dynamics of managerial adaptation and strategic decision making in the face of global economic pressures. They may therefore under-estimate the halting, but none the less real progress towards the high performance model to which policy makers aspire. This point has some merit. The picture that emerges from the research is at best partial and it is extremely hard to disentangle the rhetoric with which managements clothe their

competitive aspirations from the reality of what they actually choose to do. Everyone, or nearly everyone, now talks the language of quality (see Keep and Mayhew, 1998, for a more detailed discussion of this point). However, there are available a number of other proxy measures for employers' skill requirements and workplace organisation that can tell us something about the models of competitive advantage that are being utilised by British organisations, such as employers demand for and use of core/key skills, and this will be discussed in detail below. For the moment, it will suffice to say that research in this area tends to confirm that the high performance workplace looks set to remain the experience of the minority of the UK workforce for the foreseeable future.

A final point to be made in this section concerns the nature of future research on the changing workplace and its demand for and use of skills, knowledge and competences. In the UK the fragmentation of study in this area has witnessed specialists within different disciplinary fields tending to operate in isolation from one another with insufficient integration of research effort or interchange of data. A case can be made for suggesting that, unless and until those interested in product market and competitive strategies, those who study industrial relations and personnel management systems and processes, and those whose research focuses on skill supply and VET, learn to better integrate their efforts, our understanding of the dynamics will remain sub-optimal.

1.3   Core (key) skills

UK policy makers have, via a fixation with relatively crude international comparisons of VET (usually measured in qualifications - see, for example DfEE/Cabinet Office, 1996) been anxious to 'catch up' speedily with perceived overseas levels of VET. Policy interventions and 'reforms' have been designed and implemented at breathless pace. What has attracted considerably less attention by policy makers has been the UK's very different and distinctive cultural and historical starting point in terms of expectations, particularly employers' expectations, of the breadth, depth and contents of VET. This distinctive starting point, it will be argued, 'hardwires' into the VET system a narrow conception of initial and foundation level education and training and that this has massive implications for the skills trajectory that the UK economy can hope to follow.

The configuration of VET systems at national, sectoral and local levels, and in particular their curricula and qualifications systems, embody a series of choices concerning the breadth, depth and range of skills, knowledge, theoretical and cultural understanding . These choices are built into the specification of the national curriculum that the schooling system follows, the design of vocational and general qualifications, and the courses of study that students at all levels in the VET system follow. Because such choices are usually semi-implicit, and because they are often rooted in deeply-held but seldom explicitly articulated beliefs about the nature of education, skills and the social order, it is relatively easy for a nation state to be unaware of how these assumptions are coded into the structure and meaning of their VET system.

In a country like Britain, which has traditionally been outside the mainstream European cultural and political heritage, and which has tended to look outward via international

comparisons that focus on the proportion of a population holding certain qualifications, rather than those qualifications' contents or underlying educational assumptions, it has been easy to overlook the quite substantial gulf that separates Britain from most mainland European states. It is not simply that other countries have a more highly qualified workforce, they also frequently have a radically different conception of the breadth and depth of skills, knowledge and understanding that are required to create a skilled employee and citizen. This difference will not necessarily become visible by comparing the relative levels of qualification within national workforces. Counting qualifications is not enough. There may thus be a visible quantitative gap and an at least equally important, but hidden, qualitative gap between the UK workforce's stock of VET and that held by our rivals.

This gap is thrown into stark relief by work by Green (1998) which examines the concept of core or key skills within the English context. He points to the historic absence of a strong element of general education within English vocational education and training and argues that "alone amongst the major European nations in the 19th century, England developed a technical and vocational education that had no inherent connection with general education and schooling....it involved no general education and often little vocational theory" (1998: 24-25). By contrast with, for example, France, English VET lacked any entitlement to a common foundation of general education and culture, or any strong notion that technical mastery could be viewed as an extension of applied science and therefore required abstract knowledge and an understanding of theory. The gap left by this absence of general educational element within English VET came, eventually, to be filled by the much narrower surrogate of core skills. Green analyses both the content and process of present day English vocational education and training for the young with what is on offer in Germany, France and Japan, and concludes that the English concentration on a restricted range of core or key skills (such as communication, IT and the use of numbers) provides a much narrower education to a lower standard than is generally found overseas. His conclusion is that:

> the core skills paradigm represents an impoverished form of general
> education which is neither adequately delivering the minimum basic
> skills normally associated with an effective general education, such
> as verbal articulacy, logical skills and mathematical literacy, nor even
> attempting to impart a foundation of scientific and humanistic culture
> adequate to the demands of active citizenship in modern societies.
> (Green, 1998: 40)

Green adduces a number of disadvantages that flow from this situation, including the barrier it represent to unifying academic and vocation courses for the young within any single framework, and the likelihood that the core skills model of VET is less able to produce broadly skilled, polyvalent workers. In addition, it might be noted that such a narrow, thin conception of foundation level VET provides a singularly shallow foundation upon which to build a pattern of lifelong learning.

That such a singular model of VET has been able to survive in this country for so long, and indeed has in recent years become enshrined - through policies on competence based vocational qualifications and the teaching of core/key skills - within the fabric of UK VET strategies, may reflect not simply the persistence of our particular national cultural and political heritage, with its absence of any strong notion of political and cultural rights to citizenship, but also certain realities about the way in which many British employers design

jobs and order the deployment of skills in their workplaces. It is to this issue that we now turn.

Employers' demand for key skills and what it tells us about work organisation

As outlined above, there is an absence of a strong tradition of general education within vocational preparation and instead the use of an inadequate proxy in the shape of key skills. This in itself places barriers in the way of the development of a highly skilled national workforce. However, even within this limited frame of reference, research probing British employers need for key skills suggests that they may only be looking for even narrower capabilities and at a low level. Their responses also, and more worryingly, appear to reflect a heavy reliance on methods of work organisation and job design which are deeply Taylorist and suggest the use of Fordist or Neo-Fordist production strategies. The results reported below come from a study (Dench, Perryman and Giles, 1998) commissioned by the DfEE to investigate employers' understanding of and need for key skills (communication, application of number, IT, working with others, improving own learning and performance, and problem solving). Employers were asked about their need for the different key/core skills such as communication skills, use of number, IT skills, teamworking, and problem solving, and about the level of skill required for each of these on a four level scale.

What was revealed was a general demand for the core/key skills, though in the case of IT, despite all the current rhetoric about its centrality to modern business and the supposedly universal need for an IT-literate workforce, British employers reported IT as the key/core skill for which they had the least need. One quarter of employers felt that it was either 'not very important' or 'not at all important' for all employees (1998:17).

However, demand for the core/key skills was strong only if the skills were specified at the lowest levels. Higher levels of skills across the core/key skills were not required for the bulk of the workforce in the organisations surveyed and interviewed. The need for higher level skills was restricted to professional, managerial and higher level technical staff. This structure of demand reflected systems of work organisation and job design that had removed or heavily circumscribed employee discretion.

> The generally low level of autonomy allowed to employees especially
> in non-managerial roles and in less skilled jobs was a theme emerging
> from many of our in-depth interviews. Although employers are looking
> for people who can take responsibility and show independence, in many
> jobs there are limits to which these can be developed. In many
> organisations, efficient delivery is seen in terms of employees working in
> fairly prescribed ways.
> (1998: 58).

The findings of this study are mirrored by other work. Robinson (1997) reports on a Basic Skills Agency survey which looked at the literacy and numeracy standards expected from employees in the six lowest occupational groups in the UK labour market (which in Spring 1997 accounted for 63 per cent of total UK employment). The levels of skills being demanded were extremely limited. Robinson concludes that, "although a significant proportion of the adult population have modest levels of literacy and numeracy, for a large

number of jobs at the middle and lower end of the labour market, this is all that appears to be required by employers" (1997:25).

As Dench, Perryman and Giles suggest, "there does seem to be some tension....with the rhetoric around the nature of job change and employers' actual needs" (1998: 61). Certainly their findings are in stark contrast with the world of leading edge work practices and job design depicted by Fonda and Guile. Once one moves away from the small sample of leading edge employers surveyed by Guile and Fonda, there seem to be few signs that "instead of managers who control the flow of work by managing people who are expected to carry out tasks, organisations increasingly need people who manage, or contribute to managing, a growing range of processes" (Guile and Fonda, 1998:1). Indeed, far from desiring a workforce of self-reliant, self-monitoring, polyvalent, self-developers, Dench, Perryman and Giles conclude that "in reality most employers simply want people to get on with their job, and not to challenge things" (1998:61). A traditional reliance on managers to undertake the thinking, planning, design and decision making elements of work, while the non-managerial workforce gets on with following procedures and taking orders, would appear to still be the norm. Instead of flat, team-working organisations utilising the knowledge and skills of the entire workforce as a source of competitive advantage, the general trend continues to be to rely upon the brainpower of a relatively small elite to devise systems, procedures and ways of working that routinise work and minimise opportunities for thought and discretion, and thereby to consign the rest of the non-managerial workforce to the role of willing hands or drones in a non-participatory hierarchy.

More generally, a number of studies from the fields of IR, personnel management and HRM have suggested that it is difficult, in the UK context, to establish and maintain the kinds of high trust, high participation employee relations systems that Streeck (1992, 1997) argues are another essential element of productive strategies and work organisation systems that can put high levels of skill to best use (see, for example, Sisson, 1994; Millward, 1994; Lane, 1995;). We simply lack the type of national industrial relations system that would provide a supportive context for the widespread development of the high performance workplace. If the German training system were transported to a country with weak trade unions, extremely fragmented bargaining structures, no tradition of or institutions for co-determination, and no general legislative requirement for employers to consult with or involve the workforce, it is doubtful if it would be able to sustain itself.

1.4   *Some consequences for the VET system*

The situation outlined above has a number of negative consequences for individuals, institutions, and society as a whole. There is not space to deal with all of the problems that result, but two will be highlighted.

First, the massive and perhaps growing dispersion of requirements as between the manufacturing employer quoted as wanting "only basic skills, we were looking for enthusiasm basically" (*Employee Development Bulletin*, 101, May 1998: 5) , and those organisations that have adopted the high performance model of workplace organisation and require autonomous, self-reliant workers, will continue to raise problems for the education system. Different sections of British employers complain that the education system is not supplying them with young people who possess the skills they need (see, for example, British Chambers of Commerce, 1998). Given the incredibly dispersed range of qualitative demand

from employers, this is hardly surprising. The main policy response has been the erection of a tripartite system of qualifications for the young after completing compulsory schooling that produces an academic track (A levels which are taught in schools and colleges), an intermediate track (General National Vocational Qualifications - taught in schools and colleges), and a vocational stream of National Vocational Qualifications (taught in colleges and the workplace). Whether this triple track approach can be sustained, and will be able to accommodate the very different and divergent demands of parents, young people and various groups of employers, is uncertain (see Stanton and Richardson, 1997).

There is no doubting the stress under which the NVQ system has been placed by these pressures. Based on their study of work organisation and skill requirements in leading edge employers, Guile and Fonda, echoing earlier complaints (Prais, 1991; Steedman, 1998) argue that NVQs are far too narrow and too firmly based within the Fordist paradigm to be capable of supplying the skills and competences required by innovative firms in the twenty-first century. By contrast, the British Chambers of Commerce (BCC), who chiefly represent medium and small employers, argue that whole NVQs are too broad and "that employers....may benefit more from concentrating on NVQ units rather than full NVQs" (BCC, 1998:49).

Following on from this, as Regini makes clear (1995), there are two fundamental models of skill production operating within European national economies. One aims to generate "a flow of skilled labour supply in excess, both quantitatively and qualitatively, of actual demand" (1995: 198). In this model VET is broad based, covering basic knowledge, theory and specific vocational skills. The other model Regini dubs 'lean training', where supply is geared to meet current demands and where "the distinctive features....are the selective and focuses nature of firms' training schemes, which target the segments of the labour force deemed crucial at any particular time; their company-specific, ad hoc and reactive-to-changes character; and a lack of interest in training the rest of the rest of the workforce (1995: 198). As Streeck (1992) and others have argued, the high skills, high value added model of competitive success requires the over-education and/or over-training of the first model in order to support quality production of high value added goods and services.

The UK VET system is currently manifestly incapable of delivering this level of broad upskilling. Where the skill formation takes place through the education system and is therefore supported by general taxation, there does appear to be a willingness to support a level of over-education, particularly in terms of the proportion of young people undertaking degree level education. Insofar as this can be achieved with a sharply declining unit of resource per student, and now with an increasing contribution to the cost of the degree coming from the student and/or their family, employers have generally been happy to encourage the expansion of higher education. However, when it comes to employer-provided training, the story is very different. As has been outlined above, on the whole British employers have chosen to define their training goals narrowly, to focus on task-specific training, and to eschew the provision of any element of broad-based general education within vocational training for the young. Provision of training for adult workers is also narrow and a DfEE-sponsored study of employers' attitudes towards adult and lifelong learning concluded that non-job-related training was anathema to employers (Metcalf et al, 1994). There has, moreover, been a shift in recent years towards a company training philosophy based around the principle of 'just-in-time and just enough' (Raper et al, 1997; Poole and Jenkins, 1997). Against this backdrop, the kind of training strategy that the German and other high skills

economies have followed is problematic. This situation leaves policy makers with a major problem, the dimensions of which are indicated by the UK's persistent failure to hit the minimum international benchmark standards contained within the National Targets for Education and Training (NTETs). Within the rules of a voluntaristic, fragmented, relatively uncoordinated training system, besides exhorting employers to train more and to raise their sights, there is little that government can do.

A second major consequence of limited demand for significant upskilling in many jobs is that the current emphasis upon selling lifelong learning and the creation of a learning society on the basis of the impetus generated by workplace and labour market change may be a lost cause. Trying to link the learning society to employers needs for higher skills may produce limited results because many workers are not experiencing these demands in the jobs they currently occupy (Fevre et al, 1998).

1.5   *Role in preventing social exclusion*

Since the change of government in 1997, there has been an emphasis upon policies aimed at combating social exclusion. One intention is to promote social inclusion through economic inclusion (DfEE, 1998a), with vocational education and training being seen as influential in helping the (potentially) socially excluded into employment. Tight (1993) highlighted the way that policy needs to focus upon wider participation, not just increasing participation, if social mobility is to be promoted, and (the prospects of) social exclusion reduced. Baron et al (1998) propose applying a social model to learning difficulties which would address the barriers to people with learning difficulties participating more fully in work. Riddell et al (1998) also raise the strategic question: "should we be maintaining that the inclusion of people with learning difficulties in the labour market is justified in terms of their right to full citizenship, regardless of the short-term costs of providing appropriate education, training and supported employment?" (p17).

Ball et al (1998), in an in-depth longitudinal study of one small cohort of inner-city youth, highlight two fundamental problems that would need to be addressed before the post-16 education and training market (ETM) could play a significant role in preventing social exclusion. First, many 16 year olds complete their formal education with very little choice or opportunity. In what the authors "have called 'the economy of student worth' such young people are of 'low' value. The post-16 ETM is not an open system. It is a complex, hierarchical and differentiated system. **And current policies work to exacerbate all of these features."** (Ball et al, 1998, p16, emphasis in the original). Institutions strive to recruit 'good' students who will add value to the institution's reputation and market position. This is, of course, a reversal of the facilitative model, whereby the provider would seek to add value to the learners. The orientation of schools, colleges and employers to be "selective rather than facilitative" (Banks et al, 1992, p188) has intensified over the last decade. Even those providers at the lowest levels of the local market hierarchy do not see their mission as supporting the lowest achievers, rather they put their efforts into trying to 'reposition' their provision. Ball et al (1998) quote a Training and Enterprise Council (TEC) training adviser: "we do tend to get the reputation of our provision being for low achievers and it is not, you know. We are fighting hard to say it is not. It is for young people for whom a work-based vocation is more appropriate" (p16). For Ball et al (1998) the opportunities for young people are widely differentiated, in ways reproductive of social inequality and these are still serving

to emphasise "the vastness of the gulf between the opportunities of young people" (Bates and Riseborough, 1993, p11), despite more recent changes to schooling and training.

The second fundamental problem identified by Ball et al (1998) is attitudinal: "for some students the end of compulsory schooling is very much, at least for the time being, a definite end point to their appetite for education" (p17). The lack of employment opportunities, coupled with estranged or damaged 'learner identities' (Rees et al, 1997), greatly constrains their choice. The numbers of those with very poor GCSE performance are swelled by those already excluded from school or who fail even to sit their exams. The possibilities for the post-16 ETM effecting a recovery for such individuals is remote, and in any case Ball et al (1998) argue that misses the point: "our compulsory system as presently organised is not geared to inclusivity or achieving maximum post-16 participation. Indeed, many of the policies currently in play work directly against this goal. A policy for lifelong learning needs to begin at 3 not 16" (p18).

Now consideration of such a thorough-going review of the entire UK education and training system is beyond the scope of this review. However, consideration of the role of some aspect of VET being undertaken during the compulsory phase of education should be reviewed in the context of a discussion as to how to prevent social exclusion, not least "because some students are sufficiently disenchanted with school to require provision which they view as vocational and 'alternative' (Ofsted, 1997)" (Oates, 1998a).

Currently, (pre)vocational provision is allowed from age 14 in the shape of Part One GNVQs. Ofsted reports (Ofsted 1996, 1997) emphasise teacher and student enthusiasm for such provision. However, there are significant problems: around which other subjects are squeezed out of the curriculum; the extent to which the tendency to label GNVQ as a qualification for lower ability groups is accentuated; and whether students' aspirations are narrowed (Oates, 1998a). The paradox here is that an 'early' vocational orientation is more inclusive, but at the same time operates to 'label' vocational learners as of low ability compared to 'academic' learners. Indeed the greater the success such schemes have in retaining those most at risk from exclusion, the stronger the identification with 'low ability' provision. In such circumstances, 'parity of esteem' is a forlorn hope. However, Oates (1998a) proposes a radical way forward, whereby (pre)vocational provision at National Curriculum Key Stage 4 (at age 16) is not expressed "as a qualification competing alongside academic qualifications, rather than using it as context, illustration or focus for delivering physics, history, German etc. to all. This approach of using vocational, real life, practical problems in an engaging, contextual, illustrative way is used in many Asian lessons, contrary to many popular assumptions about Far Eastern provision" (p5).

This approach to vocationalism represents a fundamental shift in approach, where vocational provision and qualifications (at least in the early stages of education, and possibly up to the age of 18) do not compete directly against academic qualifications. Rather the notion is of vocationalism as a theme and a mode of delivery, which can deliver 'academic' content. Indeed Oates (1998a) points to how this idea of learning academic content through vocational examples could be included at Key Stage 2 (age 11) or even Key Stage 1 (age 8). Now such an approach may or may not be workable in practice, but it does have three principal advantages. First it could be readily piloted. Second it could offer a way out of the perpetual striving for parity of esteem for vocational provision based upon separate vocational qualifications, compared with academic qualifications. The third advantage is that it would

seek to harness the potential power of a vocational emphasis to address issues of social inclusion at a stage and age when 'learner identities' are not necessarily irreparably turned against formal provision for those still in the compulsory phase of education.

1.6   Social shaping

There is a growing critique of the European vocational education and training agenda as being economistic in viewing qualifications as necessary for adaptation to technological and economic demands (Attwell & Hughes, forthcoming). Heidegger (1997) argues it is not enough for skilled workers to be able to respond to the changing requirements of our society. Instead they need the skills and knowledge to be able to shape the application of technology and the social form of work for themselves, thus emphasising the dialectical relationship between education, technology and work. Attwell (1997) argues that this theme provides a basis for identifying the new kinds of knowledge required of VET professionals, including both technical and pedagogic competence, as well as the ability to shape their own work.

Now while the ideas of workers acting together to help shape their working conditions is a fundamental precept of trade unions and organised labour and therefore has a very long history, social shaping as a principle has relevance for VET precisely because of attempts to incorporate it into the initial education and training of skilled workers. However, despite attempts of skilled workers to negotiate technology agreements and to formulate alternative corporate plans in the 1970s (most notably at Lucas Aerospace), relatively little was attempted along these lines within initial education and training in the UK.

So this debate and recent attempts at innovation in practice belong much more to a Scandinavian and German tradition. Indeed given the hostility of the last government towards trades unions, even moves towards recognition of the their role as one of the social partners would represent a considerable step forward. In the UK the role given to the social partners within UK VET policy has tended, since the early 1980s, to be at best a marginal one. With the election of a Labour government, there are some signs that the significance of trade unions within the policy process and also within the machinery that delivers training, may be undergoing a limited renaissance.

This is one of the areas of the review that could be strengthened and, as we would hope to do some further work in this area, we would particularly welcome comments from colleagues about significant work in this field.

2. Learning processes

2.1 Relationship between domain-specific and general problem-solving ability

2.1.1 Situated cognition and the need for contextualised learning

Hennessy (1993), in her review of 'situated cognition and cognitive apprenticeship: implications for classroom learning' focused upon the domains of mathematics, science and technology. These subjects may feature in their own right within VET curricula, or as constituents of other subjects, such as engineering. The review also touches upon other research, of relevance to VET: "the notion of apprenticeship inside and outside the classroom, the potential scaffolding of computer-based learning environments, the role of prior knowledge in learning, and the notion of a general thinking and problem-solving capability" (Hennessy, 1993, p1).

The development of domain expertise is not viewed as an individual, experiental process, but rather one where cultural transmission plays a major role. Further thinking, as well as action, is carried out within a community of practitioners: "in this view, learning is a process of enculturation or individual participation in socially organised practices, through which specialised local knowledge, rituals, practices and vocabulary are developed" (Hennessy, 1993, p2). Hence, thinking is situated within a context, whereby interactions with the environment are not extraneous to essential reasoning processes, rather they are the trigger and resources that make knowledge and action meaningful (Suchman, 1987). Hennessy (1993) argues that this means that the context and content of thought are thus inseparable from the reasoning process. Problem-solving is therefore grounded in social practice (Crook, 1991), and this highlights that there may be significant gender issues associated with the context and way in which technological subjects are taught. For example, Harding and Grant (1994) highlight how attempts to find technical-rational solutions to technical problems, in a way that underplays the values component of technology and its social dimension, may alienate girls in particular.

Attention also needs to be focused upon the mental models that learners build up about tackling problems in particular domains and the way these too are linked to the social milieu in which the problem is embedded (Furnham, 1992). This is particularly the case given that, when (young) adults start to study technical subjects in vocational areas, they will bring to their study mental models of science and technological ideas (Wynne et al, 1990), even though these models or frameworks may be partial, incoherent or internally inconsistent. This means that VET teaching should seek to ensure that learners learn how to develop and adjust their 'ways of thinking' in technical vocational areas. That is, it may be useful to 'model' ways of thinking about problems in particular contexts rather than just teaching how to solve those problems in a more abstract way (Soden, 1993). In addition to this modelling, group-work may also be useful, insofar as it reinforces participation in collaborative thinking processes. One implication of this need for learning to be contextualised is that it is unwise to make assumptions that because a learner can solve a problem in one context he or she will be able to solve the same problem in a less familiar context (Foulds et al, 1992).

2.1.2 Transfer

The literature on transfer has long established the mechanisms of transfer, and in the UK there have been periodic bursts of interest from a perspective of policy consideration, but the number of concrete attempts to promote transfer in practice have been relatively few. Thus, Brown and Campione (1984) stressed the importance of emphasising "adaptability and flexibility (rather than routine expertise), and of deliberately preparing for transfer by seeking analogies, performing thought experiments and self-questioning. Good learners .... facilitate and reflect upon their own learning" (Hennessy, 1993, p19).

The ideas behind, and claims made, for the development of a 'general problem-solving capability' through technological education remain unsubstantiated (Hennessy et al, 1993a). Hennessy argues that "the limitations of transfer theory and the context-dependence of the application of knowledge and skills have increasingly been recognised and demonstrated empirically (Glaser, 1984)" (1993, p24). However, on the other hand, direct teaching for transfer may have more substantive impact (Hennessy, 1993). Given that formal (scientific) knowledge needs to be reconstructed, integrated and contextualised for practical action in everyday life (Layton, 1991), then learners need to learn how they might make these transfers in practice.

An earlier literature review (Alexander and Judy, 1988) found that problem-solving strategies cannot be utilised effectively in the absence of a foundation of domain-specific knowledge. However, if the development of thinking and learning skills are embedded within particular vocational (or academic) contexts, then development in the application of problem-solving strategies in context is possible. Then, from this base, it might be possible to generate some transfer, if explicit attention is paid to explicit teaching for transfer. Hennessy (1993) concludes her review with a clear imperative: "an important implication of the research literature is that instruction needs to achieve a balance between subject matter knowledge, problem-solving strategies and strategies for effective learning" (p29). This includes paying attention to the mental models learners are developing, because these are crucial in developing flexibility in responding to unexpected situations (Resnick, 1987). Hennessy (1993), like Oates (1998), sees the development of adaptive learners as underpinning the ability of people to perform more effectively in unpredictable and changing contexts. The whole ethos of cognitive apprenticeship programmes is "to extend situated learning to different settings, generalising acquired knowledge across a range of applicable contexts" (Hennessy, 1993, p20).

It is noteworthy that one of the most successful aspects of the Neighbourhood Engineers schemes, where professional engineers worked alongside pupils in technology education, was how this led to a direct engagement with ways of thinking about problem solving, decision making, planning, evaluating and thinking (Bridges et al, 1991). There is a reflexive loop in operation here: where conceptual learning and thinking processes are essential, as in technology education (Johnson and Thomas, 1992), then thinking about and reflecting upon how concepts and thinking processes are being applied is particularly valuable.

2.2 *Learning to learn*

The pace of change in many aspects of work and the work environment put a premium upon the ability to learn. Learning to learn is seen as fundamental if workers are to be able to adjust to changes in organisational structures, technological innovation and almost constant change to work processes. One key attribute, associated with initial skills development, which needs to be

developed is the ability `to pick up the threads' in future when skills need updating (Brown et al, 1991). That is, young people need to be confident about their ability to learn in future.

There is almost universal recognition then of the value of learners learning how to learn, and this can give a basis for continuing learning in the workplace. As a consequence getting learners to learn how to learn is often given as an aim in programmes of initial vocational education and training. However, this does not ensure the issue will be addressed in practice (Evans et al, 1987). This is because of the historic problem associated with many education and training programmes of the tendency to focus upon those tasks that are easier to teach and/or assess (Sockett, 1980). Conversely, the development of more general skills, including learning to learn, which underpin much activity in education, training and employment, can be seen as the responsibility of everyone, and hence in practice of no-one in particular.

`Learning to learn' can be linked to the inculcation of habits such as systematic observation, analysis and a questioning attitude (Annett and Sparrow, 1985). This is important especially if learners are to take advantage of opportunities for learning outside formal education and training settings. This links to the need not only to embed the development of learning strategies within an occupational context (Soden, 1993), but that the application of learning strategies should also be contextualised. People need to learn how to apply effective learning strategies in a variety of contexts, particularly if they are likely at some stage to be in contexts where there are considerable demands to learn while working. The study by Collins et al (1989) of cognitive apprenticeship emphasised that learners need to develop "knowledge about how to learn, including general strategies for exploring a new domain and local ones for reconfiguring knowledge" (Hennessy, 1993, p20).

2.3   Reflection

There is a need to create and sustain a culture within organisations which values learning and development, and reflection can be an important process to help achieve this (Brown and Evans, 1994). Any individuals with an ability to transfer what they have learned between contexts will need to be reflective both of their own practice and their own learning. Attempts should be made within VET to ensure learners will be able to reflect upon their working practices: ideally so they can set up spirals where what is **learned** from reflection on practice can inform action, thereby leading to further learning and so on (Winter, 1991). While the need for any learning programme to seek to develop a reflexiveness among learners should be readily apparent, an emphasis on reflection can also act to draw attention away from concerns with the acquisition of a fixed body of knowledge or a set of immutable competencies: practice itself should always be seen as **developing**.

Hence it will be necessary for individuals to be able to continue to build and refine their own base of knowledge and understanding through reflection on practice, building a spiral of action and appreciation, leading to reflection-in-action (Schön, 1983). Critical reflection on experience then is seen as a motor for learning at work (Kolb, 1984, Schön, 1987). The staged model of skill acquisition of Dreyfus and Dreyfus (1980) identifies the key to successful progression through to the expert stage as the processes of review and critical reflection. Critical reflection then is widely recognised as pivotal (Hammond and Collins, 1991; Tomlinson and Kilner, 1991) to the development of expertise.

2.4   Development of thinking skills

Just as policy-makers have been acknowledging the importance of developing in learners learning to learn skills, so increasing interest has been expressed about thinking and problem solving skills development. Blagg et al (1993) conclude from a fairly comprehensive review of the evidence that enhancing thinking skills can have positive transfer effects. One highly influential text (Collins et al, 1989) has put forward the notion of a cognitive apprenticeship, where explicit attention is given to the development of cognitive skills. Emphasis is given to modelling approaches to thinking when tackling problems within a domain, through demonstrations, coupled with coaching, offering hints and regular feedback when learners tackle problems themselves.

Collins et al (1989) also highlight the importance of learners making their thinking processes explicit, including through the use of articulation, whereby learners articulate the knowledge, reasoning or problem solving processes they are using. The sharing of ideas about thinking processes can be a valuable means of learning for learner and coach (Brown et al, 1994). However, such sharing can also be valuable in group settings, where learners can access (develop, organise and become aware of) their own and others' knowledge and approaches to problems (Prawat, 1989).

Soden (1993) argues that there is particular value in teaching and making explicit the thinking that occurs in solving problems in occupational contexts, as "good problem solvers have internal representations of fundamental principles relevant to their occupational area and these representations are connected to each other and to broader relevant knowledge in ways which facilitate application to problems" (Soden, 1993, p 12). It is therefore essential for tutors to create a framework that can help learners organise their learning in the domain in which they are working. Learners need to develop schemas to organise what they are learning, particularly if training is exploration-based, not least in order to be able to transfer what they have learned (Hesketh et al, 1989). Teaching should then "have a dual focus - the development of the thinking skills as well as the achievement of the targeted competence" (Soden, 1993, p 3).

Soden (1993) also signals the usefulness of getting students to engage in concept mapping, especially as those with a deep learning style were most likely to organise ideas into networks, which linked concepts (Schmeck, 1988). Soden (1993) was involved in a project to get tutors to teach thinking skills to groups of learners taking vocational modules in Scottish programmes of initial vocational education and training. The work demonstrated the potential of the approach and that learners' problem solving performance could be enhanced. However, there are a number of issues, which would be likely to act as barriers to greater take-up and usage of the approach:

- current assessment processes (and administrative requirements) favouring assessment of particular outcomes (or elements) may be a disincentive for learners to attempt to **integrate** all the underlying knowledge
- the approach would be very much more effective if taught across a whole programme rather than just parts of it
- perceptions of colleagues and senior staff that they [tutors] were "wasting time when they were helping learners to practise thinking skills rather than `practical' skills, [even though] this perception was not supported by the project data" (Soden, 1993, p 43)

- the method works best when extensive use is made of small group discussions and individual tutor-learner dialogues: it could be jeopardised if a tutor has to work with increasingly large groups
- whether the development of problem solving skills is valued.

Learners, therefore, need not just to learn efficient mental processes, but also need to learn when and how to use them in practice. There is, therefore, an emerging consensus on the value of teaching thinking skills to aid problem solving performance in particular contexts. This teaching though should be embedded: that is, directly linked to solving problems that occur in a particular occupational context. Learners should also be encouraged to articulate their thinking processes and be given opportunities to practise using and reflecting upon the relational networks they are developing.

2.5   Building up work-related knowledge

Work-related knowledge is to some extent quite difficult to pin down for two reasons. First, it contains a tacit dimension and, second, it is bound up with particular social contexts: that is, work-related knowledge is applied within particular communities of practice, whose members develop ideas about how knowledge should be acquired, applied and shared (Attwell et al, 1997). The tacit dimension of knowledge was originally proposed by Michael Polanyi (1962). The basic idea is that "we can know more than we can tell." That is, there is a level of knowledge that cannot always be put into words and linearly explained. In this dimension, in which the concepts of know-how, skill, competence, and expertise are rooted, knowledge is a practical and theoretical ensemble, whose development and mastery take place through procedures which cannot be identified in linear terms (Attwell et al, 1997).

The social nature of work-related knowledge has been underlined by drawing attention to the social context in which knowledge is acquired, developed and applied. The most relevant part of knowledge is seen in terms of interpretation of experience, based on idiosyncratic frameworks that at the same time favour and limit the individual process of sense-making (Resnick, 1991). Situated cognition, the situation in which cognitive acts take place, is the driving idea of this kind of approach, recognising that individuals are very sensitive to their cultural context. The latter provides a complex fabric of references (exchange of information, attention to events, co-operation, etc.) that in the long run give shape to individual knowledge and determine a social construction of knowledge (Attwell et al, 1997). Understood this way, the context creates a dynamic equilibrium between the know-what of theory, and the know-how of practice. In fact, it is through the tight inter-dependence, or better the co-production of theoretical knowledge and practical knowledge (Brown et al, 1989), that competencies can be developed and maintained.

The social nature of work-related knowledge is also stressed in the cultural-anthropological perspective. For instance, Orr (1993) analysing the working behaviour of work groups for repairing photocopiers, shows that these technicians develop their knowledge over time through problem-solving and continuous interaction. The defects of the machines they have to cope with are often very different to the ones reported in the standard operating manuals, therefore problem-solving and problem-setting happen collectively on the basis of previous experiences of each member of the group and on the basis of various types of communication, even the informal chatting around the coffee-machine. This way, knowledge is continuously created and maintained within a specific community of practice, having its own language and

myths (developed partly through the handing down of war stories, reporting the main events of machine repairing and client dealing).

Recently ideas about the application of tacit knowledge in particular social contexts have been developed further in considering moves to create 'knowledge-creating companies' (Nonaka & Takeuchi, 1995). The model is based on the assumption that knowledge in organisations, especially in the most innovative enterprises, is created through the interaction between tacit and explicit knowledge, continuously `converting' one into the other one. In this perspective, organisational knowledge creation, which could be considered a subtler way of viewing organisational learning, is a spiral process, starting at the individual level and moving up through expanding `communities of interaction', that crosses sectional, departmental, divisional, and organisational boundaries in the organisation (Attwell et al, 1997). Overall then, work-related knowledge appears as a very complex and multifaceted issue, involving several different and sometimes contradictory dimensions, which can be synthesised in the relationships between explicit and tacit knowledge. Organisations, with business processes highly dependent upon the continuing development of work-related knowledge, are therefore particularly interested in whether new recruits will be able to make substantive contributions to the creation and development of work-related knowledge. This perspective has clear implications for the relationships and interaction between initial education, work, continuing vocational training and lifelong learning.

2.6   Teamwork and collaborative learning

Changing skill mixes and the development of multi-skilled or interdisciplinary teams may require skilled workers to work more intensively with others (BT, 1993). Hence being able to operate as a member of a team is becoming increasingly important at work, and the support of others at work can frequently be decisive in the learning of individuals. Infelise (1994) highlights how large companies in France, Germany, Britain and Italy make use of group-based project work, action learning and learning while working in organised work-based learning programmes. There are increasing examples of where, because learners were working in teams at the workplace, these teams became a focus of support for learning (Infelise, 1994). Knasel and Meed (1994) suggest the value of supportive teams in their support and encouragement of learners relates to the ways:

- "they provide opportunities for people to share their skills and experience;
- they provide a forum for exchanging information and generating ideas;
- within a supportive team people can more readily give each other advice, guidance and feedback in an unthreatening manner;
- above all a team - with its defined membership, shared sense of purpose, consciousness of being a group and interdependence - can offer the kind of enjoyable, rewarding environment in which learning is more likely to happen" (p 45).

The extent to which this is feasible though depends either on how work is structured at the workplace (Pettigrew et al, 1990; Keep and Mayhew, 1996) or upon a readiness to set up activities for learners to learn and work **as a group.** Encouragement of co-operative learning can be seen as an important strategy for tutors or mentors to adopt, and it is important that learners should learn to value collaborative learning and working relationships and recognise the value of the experience of others.

The value of group projects in developing the skills of working with others has been demonstrated in a number of contexts (Boud et al, 1991), but the problem is that time for group reflection may be seen as `soft' and be sacrificed or severely curtailed in response to more pressing demands. Soden (1993) highlights that the most effective way of "remedying thinking errors is to discuss them with someone else" (p 18). Miyake (1986) also showed that during collaborative problem solving individuals were more likely to monitor their own thinking processes. Opportunities for working with others should be built into all learning programmes but, where relatively little working and learning with others occurs at work, it may be that the use of action plans and learning contracts can give particular emphasis to supporting opportunities for working with others in other contexts.

The social context created by a co-operative approach can also enhance the motivation and commitment of the learners. Blagg et al (1994) see guided groupwork as invaluable not only to develop teamwork skills, but also as: "an important means of extending learning and understanding. Effective groups providing a `cognitive scaffold' for others to climb and build on.   Ideas, tactics and solutions, evolve in an iterative way enabling individuals to see possibilities which would otherwise have been unavailable to them" (p 9).   In this way collaborative learning can not only help individuals to transfer their skills, knowledge and understanding between contexts, but also expose individuals to different strategies for making these connections.

2.7   Integration of knowledge development with work-related activities

What is now required are more imaginative ways of **integrating** knowledge acquisition, problem-solving and key skills development in work-related activities, which are relevant to the workplace and meaningful for the learner, and Hayes (1992) argues strongly that extended `company' simulations can deliver such integration.  He argues that such simulations have the potential for helping learners engage in a broader `systems thinking'.   In this respect, there would appear to be some strong alignments with the development of problem-based learning (Boud and Feletti, 1991; Oates, 1998b): it is learner-centred with the integration of subjects and skills into thematic blocks, coupled with use of learning oriented work in small groups and self-directed learning. Such methods would also be compatible with assessment processes that tested knowledge generated from an analysis of practice (Atkins et al, 1993).

This approach would accord with the other aims espoused in the immediately preceding sub-sections of this review: the need for learners to develop thinking skills, critical reflection, the ability to transfer and so on could be regarded as a basis for high level performance in future as well as at present. Such an approach, however, needs to be aligned with practical and active work-based learning, concerned with current and future performance in an holistic approach to the development of capability and expertise. This in turn will require a more integrated and imaginative concern for learning and assessment, drawing on, for example, group project work and problem-based learning and assessment. For as Harkin (1997) makes clear "skills such as effective communication or problem solving can only be developed in a lengthy process of practice, in demanding and realistic situations" (p99).

Eraut et al (1998a) highlight the extent to which feedback from colleagues, and consultation and collaboration within working groups can form the basis for substantive learning, including through mutual consultation and support. Additionally, membership of task groups or committees could help people develop new skills, fresh perspectives or deepen their

organisational or contextual understanding. Similarly some people at work pointed to the extent to which they could learn from others outside their department, from professional networks or from suppliers and customers. One "major reason for the prevalence of learning from other people was that this [tacit] knowledge was held by individuals rather than embedded in social activities. While some knowledge was firmly embedded in organisational activities, other knowledge *was* located with a small number of individuals" (Eraut et al, 1998a, p48, emphasis in the original).

Skills in facilitating the processes of learning within work organisations are becoming more significant. Both Brown et al (1994) and Ashton (1998) give examples of organisational cultures which support such processes, while in other cases organisational change was frustrated by the lack of knowledge of managers and supervisors about how to support the learning process. Ashton (1998) gives evidence of one company trying to move towards becoming a 'learning organisation' and finding this was a problematic process: "employees faced many barriers in their efforts to learn, not because the company deliberately erected them, indeed the company was unaware of them, but because the process of learning is contentious, with the parties involved having different agendas and in many instances not being aware of how to facilitate the process" (p67).

2.8 *Effective work-based learning*

In previous sections the need to design learning programmes in order to develop transferability has been emphasised. However, such programmes can take place in a variety of contexts, so it is worth examining what type and combinations of learning contexts contribute to making work-based learning effective. One key decision will be the location of and balance between development of more specialised expertise and broader vocationally oriented knowledge. The diversity both of employers and of facilities of off-the-job learning providers make it unwise to lay down any general rule. Rather it may be more appropriate to audit the learning opportunities available and the advantages and disadvantages associated with particular combinations of education, training, employment and community contexts. Knasel and Meed (1994) argue that guidance should be given to practitioners which allows them "to make informed decisions about the relative strengths and limitations of off-the-job, near-the-job and on-the-job experiences in relation to specific areas of learning and aspects of the learning process" (p iii). It is also important to monitor what happens in practice, as "work-based learning has the capacity to deliver an exceptionally challenging and rewarding learning environment. However, it can also produce sterility, where challenges are few and a series of mundane experiences lead to little learning" (Brown 1992, p 134).

Onstenk (1994) points to the need for workplaces to offer 'strong learning environments', where it is possible for learners to apply their developing skills, knowledge and understanding in different contexts. There are some obvious difficulties for some small companies in providing the full range of learning opportunities required for the development of a broad occupational competence. Training practitioners in one study in England strongly believed that organisational culture itself could be influential, whereby "the *wrong* organisational culture would significantly inhibit effective learning" (Knasel and Meed 1994, p 17, original emphasis). In contrast, in an organisation with a long-standing commitment to learning, then it may appear natural that workers learn with the company (Brown and Evans, 1994). Pettigrew et al (1988) saw the existence of receptive or non-receptive training contexts as influential upon the whole approach companies adopted to the development and management of their human resources.

While some small companies are reluctant to get involved in training and development (Keep and Mayhew, 1996), other relatively small or medium-sized enterprises are highly innovative, and particularly if linked into 'multi-firm networking processes' (Rothwell, 1993), they can offer very rich learning environments. In such circumstances, work itself (and the survival of the company) is concerned "with extending levels of organisational adaptability and flexibility and with developing new areas of knowledge and technological competence" (Rhodes and Wield, 1994, p168). The richness of the work/learning environment is such that knowledge and expertise rapidly develop through work, which is itself taking place in different contexts (and possibly companies). In such circumstances great emphasis is given to possession of: "a broad mix of skills is required to achieve viable levels of flexibility in the development and delivery of products and services, and to sustain viable inter-firm networks" (ibid, p 169).

The problem is that as Keep and Mayhew (1996) argue in many areas of the UK employers have a low demand for skills, and as a result opportunities for the development of transferability may also be limited. So attention needs to be focused not only upon the possibilities for learning associated with particular activities or jobs, but also upon the extent to which the organisation itself demonstrates a commitment to learning through its culture (Brown and Evans, 1994; Pettigrew et al, 1990).

It is interesting to note the considerable expectations small growing companies in central London had of new employees being able to learn while working from the outset. Rajan et al (1997) point out, in a survey of 950 small and medium-sized companies in central London, that growing companies were likely to be moving towards a performance-driven business culture, with an emphasis upon empowerment, teamwork, lifelong learning and individuals managing their own careers. Graduates were "reckoned to have intellectual and behavioural traits more in tune with the main elements of the new culture" (Rajan et al, 1997, p 13), and as a consequence "the growing companies in our sample have been recruiting a significant number of graduates in recent years .... in nearly three out of every five companies in our sample, more than 20 per cent of the workforce have graduate qualifications" (Rajan et al, 1997, p 13). The training methods most frequently used with new graduate recruits were learning by doing; coaching by line managers; interacting with suppliers and customers; and carrying out significant work responsibilities.

These dominant methods make use of mentoring and experiential learning: "graduates are thrown in at the deep end from the outset; with much of the training coming through learning by doing ....Except in professions like accountancy, chartered surveying and law, the learning that occurs is neither accredited nor examined. Even with external courses, the tendency is to send graduates on ad hoc courses that are short and modular. They address the practical needs of the job rather than the qualifications aspirations of the individual. .... Learning through external courses is actively encouraged, so long as most of it is in the individual's own time" (Rajan et al, 1997, p 24).

While the central London labour market may be a special case in some respects, the development of skills through the exercise of responsibility, rather than through an organised preparation for responsibility, is probably typical of the wider UK labour market. Employers following this path could be regarded as developing the additional qualifications of individuals, including at a level above that of the 'skilled worker', even though these qualifications may not be formally recognised. That is these developments may be placed

primarily within the 'organisational' space of company activities rather than within the formal 'qualificational' space (Brown, 1998), although there may be some variation according to the different approaches adopted by different individuals, companies or sectors. Indeed the employment of inexperienced 'over-qualified' young people (for example, graduates without appropriate specialist knowledge) could mean that they are over-qualified by educational level in relation to the specific job requirements, but simultaneously under-qualified in terms of their experience.

In some companies and contexts, learning and working may be completely intertwined: Coffield (1998) quotes a finding from Ashton that in certain firms learning was thought to be "unproblematic, a natural process which occurs of its own accord and therefore did not require any special support or consideration" (p 1).

2.9 Supporting work-based learning

Rainbird (1994) highlights how line management is often the weak link in the implementation of training and development policies, while Vickerstaff (1992) drew attantion to the problems of small companies in "resourcing their training effort; finding suitable training for their needs; and managing their training effort effectively" (p 2) . Darmon et al (1998) point to the way the learning organisation debate has brought about a shift of "attention to the process of learning, the individuality of learning styles and creating the right environment for experiental learning to occur" (p29).

Eraut et al (1998a) investigated the extent of organised learning support in the development of knowledge and skills in employment of 120 people operating at professional, management, team leader or technician level in 12 organisations. The organised learning support included use of mentoring and coaching; rotations, visits and shadowing; as well as reference to 'designated experts', although very few of the positive examples of learning "resulted from organisation-wide strategies or initiatives. Most were relatively informal and initiated by middle managers, colleagues or the learners themselves" (Eraut et al, 1998a, p41). On the other hand, "negative examples where the absence of these kinds of organised support for learning on-the-job left people struggling were too numerous to count" (p41).

2.10 Conclusions

Brown and Attwell (1998) argue that the key message for those charged with designing effective learning programmes for the development of transferability is that the prime focus of the inter-relationship between education, training and employment needs to be upon learning. It will be important to ensure learners are given opportunities to improve learning to learn skills and that a sufficient range and quality of learning opportunities are available for individuals to develop their key skills. In particular, if the intention of a learning programme is to help learners develop the ability to transfer skills, knowledge and understanding, then learning contexts are required which draw attention to the significance of skill transfer. Processes of review and critical reflection are pivotal for this. Organised reflection on what has been learned and what needs to be learned in future can act as a bridge between working and learning, and as a bridge between the skills that are currently required and those that may be needed in future. Such reflective processes can also link into the development of more elaborated thinking processes that underpin the ability to transfer knowledge, skills and understanding. More generally, learners should be encouraged to make their thinking approaches explicit, through discussion

with tutors, coaches or peers, of their approach to problems in their occupational area and of the networks or schemas they are developing to understand concepts and relationships in their area as a whole. By the same token it could be useful for tutors to teach thinking skills and strategies as an aid to problem-solving in occupational contexts.

The development of learner independence too is an important goal as learners need to take increasing responsibility for their own continuing learning possibly across a range of occupational settings. Similarly being able to learn and work in teams has become more significant in a variety of contexts and learning programmes should provide opportunities to develop these skills. It might be thought that the attention upon the process skills underpinning the ability to be effective in different contexts might result in the development of a substantive occupational knowledge base being downplayed. However, this is not the case. Rather the development of process skills ideally should be embedded in appropriate occupational contexts. Further, the development of a substantive knowledge base is important because it is central to the development of domain-specific expertise and because it forms a platform for continuing learning in the future. Indeed it should be remembered that the ability to master a substantive knowledge base is itself a process skill, which can be valuable in a variety of learning and working contexts.

The design of effective learning programmes to develop transferability needs to be able to draw upon a variety of learning contexts, and designers need to be aware of the strengths and weaknesses associated with particular combinations of education, training and employment contexts. The quality of learning environments in companies can be particularly variable, and organisational cultures can either inhibit or promote effective learning. Similarly, patterns of work may be such that expertise can develop through a productive combination of working and learning. In order to make the best use of less favourable learning environments at work, it may be useful to use work-based projects, learning contracts and action planning in order to enhance and enrich work-based learning and to make it applicable to contexts beyond the immediate work environment.

Brown and Attwell (1998) further argue that that those designing learning programmes in vocational education and training should pay particular attention to promoting transferability such that learners are readily able to transfer what they have learned between contexts. Further, individuals should be equipped to be able to contribute to processes of individual and organisational knowledge development and utilisation in dynamic companies which offer working environments with considerable opportunities for learning while working. That VET should also have other purposes and that not all companies and patterns of work organisation enable opportunities for substantive learning are, however, important issues to be borne in mind.

3.   Complex teaching and learning environments

3.1   *Multi-media and open and distance learning*

There has been a great deal of excitement in the UK concerning the potential of new forms of technology in revolutionising the processes of teaching and learning. Computer-Based Training (CBT), Open Learning, Distance Learning, and the use of the internet, computer conferencing and video and CD-rom have all attracted considerable attention.

Much of what has been written on these topics has tended towards the prescriptive or predictive, with rather less material that actually evaluates the experience of using these technologies to deliver learning packages. However, survey and case study research does now exist on organisations' use and experience of open and flexible learning techniques. This literature is reviewed in detail in McCollum and Calder (1995).

In terms of examples of this literature, Temple (1995) provides some evidence on the impact of open learning in small firms (traditionally a much neglected sector of employment in terms of VET research), while Calder et al (1995) review the use of open learning in both the FE sector and within firms. Their major findings suggest that relative success or failure depend not so much on the technology or how it is directly deployed, but upon the underlying assumptions made by those adopting the technology about issues such as learner dependency and the need for direction and support. Also important are the attitudes of tutors, teaching staff and trainers towards the new systems, with which they may be unfamiliar and which may be either viewed as a threat or an opportunity. In FE, a major problem was the tendency of staff to see the introduction of OL by management as being cost-driven rather than as the result of any desire for an advancement of pedagogy or learning outcomes.

Perhaps one point upon which the debate about the use of new technology in learning has failed to place sufficient stress is the changing nature of skills. In the last decade the conception of skills as generally used in the UK has undergone a radical, if all too rarely fully recognised, change. In the past, skill mainly meant technical skill and knowledge (for example, the ability to weld sheet steel). Today, with the shift of employment out of manufacturing and into service sector jobs, and with notions of the customer (whether internal or external to the organisation) more important, when employers talk of skills they increasingly refer to personal characteristics (such as appearance, and a cheerful disposition) and interpersonal skills (the ability to communicate and work in teams). These sorts of skills are mainly acquired in social situations and through structured interaction with others (either co-workers or customers) and are hence extremely difficult to acquire through any form of distance learning. It is hard to see how open learning or CBT can teach teamworking (Keep, 1998b). This suggests that there are at least some limits to the types of training requirement that can be met through technology-based training media and that these developments, important though they are, are not the universal panacea that an element of the literature refer to above would claim.

3.2   *Computer-supported learning*

Howe et al (1991) show that tasks which encourage collaborative learning and joint decision making can promote conceptual change, and even improve learning outcomes on subsequent

individual tasks (Blaye et al, 1990). Increasing emphasis has also been given to the development of computer-based learning environments which explicitly make use of 'guided discovery' and experimentation (Elsom-Cook, 1990; Hennessy et al, 1993b). The volume of literature in this area is immense, and this is an area where we will be producing a supplementary guide after the November 1998 COST conference. There is one area, however, where we do have specialist knowledge, and that is in supporting professional communities of practice using computer-mediated communications to facilitate continuing professional development. Now given the potential of using these ideas and tools to facilitate mutual learning and development for **VET researchers** it seems a good idea to investigate these ideas in some depth.

Supporting professional communities of practice using computer-mediated communications to facilitate continuing professional development

Background to the development of enhanced CMC support

A major European Telematics project (REM) has produced a current state of the art development of enhanced computer-mediated communications (CMC) support with tailored collaboration and communication tools (Owen and Liber, 1998). The project, co-ordinated by Martin Owen from University of Wales, Bangor, developed learning support systems based on a firm underpinning of current thinking on learning and training, encompassing a constructivist view of the learning process, reflexive learning and the development of learner's cognitive processes needing to be situated in appropriate contexts. The system was developed, in a DGXIII-C Telematics Application Programme project, as a multimedia collaborative learning environment. It supports workflows for discourse and problem solving over networks and a rich and easy to use system for sharing and collecting information resources between collaborators. The REM project was originally developed in support of teacher trainers, but is applicable to a much wider range of professional contexts. It will be particularly appropriate for the continuing professional development of communities of practice, which:

- need to collaborate at a distance because particular groups of practitioners are dispersed over a wide geographic area and/or do not have the necessary time to attend (many) face to face sessions

- need to collaborate in order to support innovation and transfer of good practice

- need to develop a shared and growing knowledge base

- recognise that a virtual dimension to their community of practice adds considerable value to their own continuing professional development (CPD).

One metaphor for what the REM project seeks to establish is the concept of a Virtual Community of Practice, with emphases upon transfer of good practice, supporting the creation, sharing and dissemination of new knowledge, offering opportunities for training and CPD, but also providing a social space, under the direct control of the participants, which allows other forms of collaboration and development to flower. The use of specially tailored tools to facilitate CMC in support of CPD in a variety of communities of practice should ideally be a supplement to, and not a replacement of, other forms of CPD. Additionally, as

there is a rapidly changing technological base which can be applied to meet the needs of collaboration within and between individuals and organisations, so attention needs to be given to a system for analysing patterns of collaboration and the way collaborative systems are implemented. The REM project has a deep rooted commitment to understanding the nature of collaborative learning. It is also important to remember that REM started as a project whose pedagogic model of collaborative learning lead technological development rather than vice versa (Owen and Liber, 1998).

All communities of practice are involved in discourses about practice. Additionally, however, networks making use of enhanced CMC support could utilise tools which enable participants to have structured `conversations' about the development of practice. They could therefore play a pivotal role in:

- the creation, sharing and dissemination of collective knowledge and

- learning and managing knowledge development and transfer so as to support innovation and creativity in different occupational and organisational contexts.

This approach could enhance the learning capability of individuals, organisations and networks and provide them with the tools and infrastructure to realise that capability to improve their learning effectiveness. Now further work will be required to investigate the pedagogical aspects of the innovative use of telematic tools for learning and communication in knowledge creation networks supporting particular communities of practice, but the experience of the REM (Telematics in Europe) project is that significant progress is possible in this area.

Effective continuing professional development (CPD) strategies for professional communities of practice need to relate directly to practice in the current context, but also need to link to broader perspectives, so as to consider practice in a variety of contexts, including how practice may develop in future. The processes developed in the REM project could be utilised to support continuing professional development within a variety of distinct professional communities of practice: for example, work-based trainers; social care workers; health care professionals; IT co-ordinators; guidance workers; trade union trainers; and vocational education and training researchers, as well as being used with the original REM constituency of teacher trainers.

Professionals in dynamic communities of practice are engaged in the active construction of new forms of knowledge and this knowledge creation is based upon processes of collaboration between professionals. It is possible to guide practitioners (learners) through the processes of collaboration by adopting model workflows for particular types of collaborative tasks. Collaborative (workflow) tools can help participants (learners) structure their interaction and provide a means of managing processes of learning while working. It should be possible to map the workflows for learning and 'conversation' patterns prevalent in different communities of practice; and develop models of the collaborative processes by which participants engage in the active development of their own communities of practice.

The use of enhanced computer-mediated communications (CMC) support, with 'tailored' collaboration and communication tools based on ideas from REM, could play an increasingly important role in ensuring the continuing professional development of professional

communities of practice is reflective, forward-looking, dynamic and dialogical. One way forward could be to develop collaborative (workflow) tools, capable of being implemented in communications software environments, which can be used by professionals to help them manage processes of learning while working, and in facilitating the creation, sharing and dissemination of new forms of knowledge. Researchers involved in a number of European Leonardo, Socrates, CEDEFOP and TSER projects are using the REM environment in this way in order to facilitate the creation, sharing and dissemination of new forms of knowledge. Equally important, it makes the research collaboration processes themselves much more open and inclusive.

If COST working groups (or other groups of VET researchers) wish to make use of this facility they are free to do so: just contact Martin Owen (t.m.owen@bangor.ac.uk) and ask to set up a dedicated area within the European VET Research conference area. At present discussions are continuing with interested parties (such as CEDEFOP and VETNET) as to how to improve further the computer-mediated communications support available to European VET researchers. In the light of this, and given that at the moment European VET researchers are using only part of the support available within the REM environment, it is appropriate to give some further information on the background to the rationale for the technological developments underpinning the enhanced CMC support generated within the REM environment.

The rationale for the technological developments underpinning the enhanced CMC support

According to Owen and Liber (1998) there are two principal dimensions to the specific technological developments arising from the REM project which are closely integrated. These are:

- A space for rich structured conversations between the learners which makes full use of the technology available.

- A well of shared, structured information and learning resources which provides a framework and source for the structured discussions and interactions. This is seen as a growing resource, created and added to by the participants as well as drawing in resources from outside.

Conversation Space: Certain professional communities of practice could make use of a groupware environment, capable of being structured, and designed around the belief that learning is a conversational process of rich dialogue, based around a negotiation and exploration of shared meanings. Computer mediated environments for dialogue have become increasingly commonplace. However, the REM project partners (Owen and Liber, 1998) argue there are significant issues raised by the limitations of typical day to day interactions between users of email and computer mediated conferences, and that the use of such technology needs to be better structured to be more effective and the technological enhancements offered by REM provide support for structuring that use.

The use of CMC for learning is well-established (Hilz, 1986; Mason and Kay, 1990; Austin, 1997), but Soby (1992) and Perkins and Newman (1996) point to the need for greater structure in CMC environments. Grint (1992) highlights the problems caused by the lack of

cues and expectations of action by users. Owen and Liber (1998) argue that the typical experience of many CMC interactions are a stimulus to discussion (usually some factor like a news item or a question/statement from a participant) followed by a flowering of discussion (participated in by a few, overlooked by many) which reaches a crescendo and finally dies. These may be valuable experiences in the learning process, however they do not map on to a more planned approach to a collaborative endeavour to solve joint problems and learn to do one's job better. Closure for instance comes by default rather than through some agreed end point or product (Owen and Liber, 1998).

There is a paradox in that the very openness of the medium and the almost limitless potential it has for learning means that for effective learning to occur considerable thought needs to be given to organisation and structure. This particularly applies to the CPD of professionals who may feel time is at a premium. One recurring theme from the literature cited above is that CMC often needs moderation or steering. The approach taken by the REM project has been an evolution of systems suggested by Medina-Mores, Winograd, Flores and Flores (1993). These systems are based on the notion that in collaborative workplaces there are flows of work between the collaborators.

Owen and Liber (1998) point out that Computer Supported Co-operative Work (CSCW) is closely connected with workflow and organisational processes; indeed it could be argued that the language-action interpretation originated in CSCW research. CSCW is concerned with tools, technologies, and protocols for automated support of group work practices. Many of these tools could be utilised to support communities of practice and other large networks. Most of the pre-existing tools, however, were concerned with sharing of certain kinds of objects such as workspaces or decision-support systems, and not with the actual work processes in which these objects are useful. Workflow models and maps though can help make the context for other CSCW tools explicit.

The REM development and implementation processes intended to develop concepts of **workflows for learning** in a way which diverged significantly from classic CSCW, which has a tendency to be specific to idealised shared workspaces. Owen and Liber (1998) point out how these are often seen as virtual shared spaces (for example, designers share a virtual drawing board or there is a classic integration of screen and audio-conference for synchronous co-working) or common actions on computer artefacts (reconciling differences in databases or MIS systems when more than one worker is operating on the system). In contrast, the distinctive focus of REM is upon the **conversations for (learning) action** between the learners themselves around a **shared, developing knowledge pool.**

There has been some previous work upon collaborative workflows, for example the applied ethnomethodological studies on workflows in collaborative work spaces carried out in the ESPRIT project COMIC, co-ordinated by the University of Lancaster, and workflow analysis and support are also now being used in a wide variety of businesses and organisations (see for instance Agostini et al, 1993; Scheal and Zeller, 1993; and Fischer, 1995). In the REM project, which is based around conceptions of collaborative development of teaching processes and materials across Europe, there is a workflow tool to support the collaborative production of multimedia teaching materials. The workflow involves four key stages:

Planning : which involves sub processes like brainstorming, refining and defining the nature of the task, breaking down the task into manageable components and task allocation.

Transforming: identifying information needs and selecting information, finding existing information and creating new information, structuring and publishing information.
Evaluation: implementing the activity, evaluating impact, identifying new needs and shortcomings, identifying successful features, adding successful activities to the resource base.
Reinvestigation: following through from the evaluation process to go iteratively through the cycle again to redevelop successful practices

These workflows are implemented currently in FirstClass, a Groupware product. However, Owen and Liber point out that the workflow is product independent as there is flexibility in the product implementation. The workflows are supported in the system by structuring achieved by:

- graphical user interfaces imposed on the software (metaphors and flow diagrams)
- hierarchical ordering of specific conference structures
- the provision of pro-forma stationery which ensures a commonality in approaches to responses to sub tasks thus aiding direct collaboration
- direct access to additional support tools pertinent to the task (resource sharing tool).

Learning to use the system is simple because implementation and utilisation are well integrated into a system which closely resembles the user's familiar desktop and word-processing applications in the main, with the provision of additional cues and prompts provided by the surrounding graphics and the stationery forms, which prompt particular responses, but using familiar word processing and email conventions.

There are of course many potential work flows, and Owen and Liber (1998) make clear that one of the key contributions to the notion came from Searle (1969) with his concept of speech acts. Searle identified over 80 different kinds of speech acts which are part of dialogue systems. A typical business dialogue identified by Denning and Winograd (1996) is:

Request – Negotiate (fulfilment of request) – Perform – Complete.

These are not complete models of workflows, neither is Searle's typology sufficient to describe all dialogue. However, the REM developers considered they could serve as a basis for beginning to discuss the kinds of negotiation and learning that need to take place at a generalisable starting point, for subsequent tailoring to meet the particular sets of personal and local characteristics. Denning and Winograd (1996) note that "traditional workflow management is well suited to highly structured heads-down paper processing, but is not adequate for support of newer modes of managing work...a more useful blueprint employs a description based on the language-action model." The REM developers hypothesised that the same is true for CMC based learning environments.

A core task of any attempt to extend the applicability of the REM model is therefore to develop a methodology to map workflows and conversation patterns in different communities of practice and then to make suggestions as to how these could be incorporated into models and patterns within tailored software environments, which can mirror these forms and processes to meet the development needs of the end users (the practitioners). Specific requirements are that this methodology is sufficiently generic, so as to be capable of working within a range of software environments, and allows for strong end-user configurability, with

at best systems implementation and design by the end users themselves (after they have had some training and experience), and at least a clear action line which supports end users in the design of their own systems.

Besides the application of this approach to a range of communities of practice it is also clear that this methodology could be used by researchers themselves in their own professional networks, and some work started in this direction in early 1998 in support of the Forum for European Research on Vocational Education and Training. Another fruitful avenue would be to organise an enhanced CMC supported learning environment focusing upon collaborative learning. In all these proposed arenas a major contribution could be developing and modifying the rich thinking about collaboration in learning, building upon the debates started in other projects, particularly REM.

The **shared information environment** is the second key component of the REM approach. Dialogues do not take place in vacuums. There is an extant body of knowledge and knowledge also emerges from the learning interactions. This knowledge can be in a variety of forms: datasheets, manuals, texts, diagrams, graphics, pictures, numerical data, video, html and other hypermedia documents and more orthodox computer based training material. The REM developers saw access to, action with and reflection on this shared material as integral to framing the kinds of learning discourse they believed were likely to take place. Owen and Liber (1998) put forward a typical scenario as one where practitioners in different locations are grappling with similar problems and need to situate their developing understanding within a broader context. The system would support the sharing of experience, reflection and learning in a setting facilitating shared discussions, where an "expert" on one topic becomes a "learner" on another topic. The product/work which arises from this collaboration will give rise to new information which adds value to the original and will add to the shared information environment. Indeed the opportunities to make explicit and support spiral processes of experience, reflection and learning will enhance practitioners capabilities of creating new knowledge and having this new knowledge recognised as such.

Further detail on the technological developments

Owen and Liber (1998) describe the functionality of the system that was developed in REM as providing for:
- a distributed knowledge space with owners still in control of their own information
- tight integration (drag and drop interface) between the information and conversation space
- users the means of developing sub-spaces or private collections of information for their own ease of management and sharing (see next)
- a means of sharing found and collected resources easily with collaborators through publishing in the database itself and integration into the conversation space.
- WWW protocols as an interoperable and "future proof" means of sharing information
- an easy means of end users cataloguing and indexing their information resources on a co-ordinating server
- an easy keyword based searching mechanism for information in the private information space
- a means of extending the descriptors used in the system by adding extra keywords to objects described

- the means of using alternative sets of keyword descriptors (e.g. for a different subject group or in a different language)
- the means of creating new sets of keywords.

It is important to reiterate that the REM project methodology was underpinned by educational research as it sought to generate pedagogic and organisational forms of support for groups of teacher trainers collaborating across Europe. Such an approach could be extended to supporting other communities of practice, with a focus upon the processes of collaboration, with the technological dimension in support rather than in the foreground. A major cornerstone of the REM approach is the contention that, irrespective of the technological support systems that are eventually chosen, the organisational processes of collaborating and sharing are the principal issues to be resolved, irrespective of technology. Most of the systems which look at workflow and CSCW currently are founded on specific business processes. The inheritance of REM is that these processes are being applied to learning milieux. There are only a few case studies that have applied these methods to learning and training: notably George Mason University, which has configured its curriculum review process following the work of Medina-Mores, Winograd, Flores and Flores (1993). However, the use of enhanced CMC, utilising communication and collaboration tools in support of reflexive based learning in a methodologically rich way is a distinctive component to REM and has the potential for being more widely used in Europe, and one natural starting point would be in support of continuing professional development for professional communities of practice.

Linking commitments to continuing learning and development to the use of technological (REM-based) tools

One major strength of extending REM project ideas to CPD in professional communities of practice is the complementary nature of 'leading edge' research and development in both spheres. Innovative aspects in both areas are ultimately pedagogically driven, and all aspects and activities of the two parts are totally imbued within the same conceptual and theoretical framework. The common approach is underpinned by a commitment to continuing learning and professional development as a reflexive process, and the use of the technological tools is grounded in the importance of critical reflection as a basis for learning. The approach to learning is also collaborative with a particular emphasis upon the use of problem-based learning. CPD needs to be situated close to the work context, so that it is possible to focus upon the `core problems' of groups of practitioners (Onstenk, 1997).

Core problems are central to the performance of roles of particular groups of practitioners. They are characterised by uncertainty, complexity, conflicting considerations and require the exercise of judgement. These problems may have organisational, occupational and technical dimensions, and their solution may require knowledge, insight, skills and attitudes related to these dimensions, as well as inter-disciplinary knowledge, the application of high-level cognitive skills and the inter-related use of communication and other core skills (Onstenk, 1997). Such an approach gives a clear rationale for the initial organisation for the problems that could be addressed within the different communities of practice drawing upon enhanced CMC support. A more fully developed rationale for a reflexive collaborative learning environment making use of problem-based learning is that:

- it provides authentic contexts for learning with a focus upon real (complex) problems

- it is collaborative and dynamic, enabling practitioners to develop shared understandings and a sense of belonging to a dynamic community of practice, which they are helping to change and shape
- it is participative and fosters active engagement: the practitioners determine for themselves the issues that need to be addressed when facing (core) problems at work; they can draw upon the knowledge and skills of others in facing these issues and also create their own learning agenda to fill any gaps in their knowledge and understanding
- it supports learning which is timely, because the learning is focused upon issues which are perceived as pressing by the practitioners themselves
- it gives (possibly isolated) individuals to think through problems as part of a team
- it supports the development of creative and flexible approaches to problems
- it supports the development of contextualised critical learning
- it supports reflection upon and review of the learning process as well as of the outcomes.

The REM model therefore fits well with attempts to engage education and training more in fostering innovation, as it facilitates the following:

- reinforcement of the value of collaborative, problem-based approaches to learning;

- consideration of (and demonstration of) effective uses of new technologies for educational purposes;

- the use of ICTs is constructed according to advanced pedagogical principles;

- *inter alia*, the integration of new and emerging tools for learning (collaboration) and communication into existing and changing organisational structures (communities of practice and telematic networks).

The proposed extension of the REM model to other communities of practice also acknowledges the centrality of lifelong learning, in that it recognises that for the continuing professional development for highly skilled groups, new methods of knowledge creation, sharing and dissemination are vital. This approach could also make a significant contribution to understanding the processes by which new forms of knowledge are created, shared and disseminated. The practical studies of these processes in forms of organisation (networks and communities of practice using enhanced CMC), which transcend learning confined to narrower forms of work organisation, will be of particular value.

Use of CMC to support COST activities

We make no apology for the amount of space we have devoted to this issue for one principal reason. That is, the logistical and operational problems that have so far beset our COST work (working groups unaware of what others are doing and a lack of continuity in membership of working groups) seem endemic to this type of work, but are precisely areas in which CMC can offer a way forward. Indeed the use of the enhanced CMC tools, providing for example easy interchange between private and collaborative workspaces, should facilitate openness, transparency and visibility to the work of different working groups. (Note for those not keen on this form of working for whatever reason, the process can still work well as long as at least some of the working group are prepared to participate in these processes). Using the REM model in the ways suggested here should not only contribute to a deepening and broadening

of common knowledge bases, but will also allow greater access to and participation in more active forms of knowledge generation by everyone with an interest in the goals of the COST programme. By this means COST partners can also link to other networks involved in 'knowledge creation' and dissemination in VET. Learning in networks links to continuing professional development for individuals and to group learning through the process of the creation, sharing, utilisation and dissemination of collective knowledge. The strategies, models and tools still being developed through the REM project are designed to support networks as a key means of learning and managing knowledge development and transfer so as to support innovation and creativity.

3.3   Business/Education partnerships

One of the distinctive features of the UK VET scene is the strong emphasis placed upon the need to develop mechanisms for bringing business and education into closer direct partnership with one another. To some extent this phenomena is culturally specific and stronger in the Anglo Saxon world than elsewhere - the idea of twinning schools with businesses and of allowing industrialists to help design elements of the curriculum and teaching materials in order to make the educational experience more 'relevant' to the world of work would, until very recently, have looked quite strange to Japanese eyes, where the expectation has been that basic schooling provides a traditional grounding in academic knowledge and that it is for employers to add work-related skills and vocational knowledge thereafter.

Many different interest groups, such as the IoD, CBI, CIHE, AGR, and individual large companies, have produced prescriptive templates for ideal models of business/education liaison (see, for example, British Telecom, 1993; CBI, 1988; Business in the Community, 1989), and there have been numerous initiatives, aimed at schools, colleges, higher education and specific sub-sets of staff and students within these institutions which have sought to improve co-operation and integration and influence the curriculum and the means by which it is delivered. Significant efforts have gone into trying to evaluate the effectiveness of these initiatives (see Forrest et al, 1990; Gibbs et al, 1991; Hillage et al, 1995; and DfEE, 1997b for overviews) and into exploring how what has been a partial, often pilot-based activity can be replicated and sustained across the entire education system (Miller et al, 1995).

3.4   Workplace learning

The means by which skills are developed, transmitted and refined within the workplace, and the role which a range of more or less informal and semi-structured means of skills transmission mechanisms play in increasing the stock and range of skills has long been a focus of interest in the UK. Its salience was given a significant boost by the ESRC's Learning Society initiative, wherein several of the projects had, either in whole or in part, the issue of workplace learning as a focus (see elsewhere in this review for an overview of this work).

Shortly forthcoming is a detailed overview of international thinking and research on workplace learning undertaken by the Tavistock Institute for the IPD (see Sommerlad and Stern, 1998). This emphasises the complexity of issues to do with workplace and on-the-job learning, particularly those elements that are relatively informal and uncertified. Its authors also "take issue with the largely deterministic stance that pervades much of the literature. Work organisation and skills are not, as they assert, determined in a linear fashion by

particular technology or market conditions. Options are available and strategic choices can be made" (Sommerlad and Stern, 1998:14).

As suggested above, one of the distinctive features of recent VET research in the UK is its fragmentation, often along disciplinary fault lines. While a range of educationalists and others have been focusing on workplace learning, there has been a simultaneous growth in interest on the part of those researchers located mainly within management disciplines and business schools in a group of three broadly inter-linked concepts focusing on complex teaching and learning environments and their impact on organisational performance - the knowledge worker, knowledge management, and the learning organisation. Unfortunately, the crossover between these different management studies-based bodies of research has been, at best, limited, and in many cases it is apparent that researchers in one field are unaware of parallel efforts being undertaken by colleagues in another disciplinary field. Furthermore, few of those active in these three fields appears aware of and/or willing to utilise the wealth of research on workplace learning and skill acquisition developed by those within more traditional and long-established areas of VET research. The integration of these different strands of thinking and research is a matter of some importance and it is to be hoped that this will become a focus of activity in the near future.

3.5 *The knowledge worker*

A combination of the rising salience of IT and computing systems and networks in working life; growing employment in creative, professional and technical occupations; and a belief that skills and knowledge are now the critical determinant of competitive performance and organisational effectiveness, has led to an increasing interest by researchers (mainly, but not exclusively located in the management sciences) in what have been loosely termed knowledge workers (for example, Friedson, 1994; Scarbrough, 1996; Whittington et al, 1994). Do such workers require different types of management structure and control? Are they, by virtue of their mastery of rare, perhaps unique, skills and knowledge in a stronger position to determine their own destiny in the labour market, whether internal or external to their current employer? What proportion of the workforce currently fall into this category? Can organisations, via codification and knowledge management techniques (see below) reduce knowledge to a commodity and thereby disempower knowledge workers? What are the implications of the emergence of this group of workers for VET and continuing professional development (CPD) activities? If knowledge workers are the elite, who has access to these jobs and what are the social equity implications for the rest of the workforce? Robertson's forthcoming volume will offer an overview of many of these issues from a wide variety of disciplinary perspectives.

3.6 *The learning organisation*

The chiefly educational debate about the learning society has sparked interest in the geographical sub-divisions that might 'nest', Russian doll fashion, within such a society. The learning region, city, and locality have all been promoted as viable concepts. It might therefore be assumed by anyone coming anew to this field that the learning organisation had evolved from this strand of the debate. Interesting, however, the literature on the concept of the learning organisation has in fact emerged almost entirely separately, from within schools of business and management, and has been driven chiefly by those with an interest in organisational development.

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Senge, who can be regarded as the father of the learning organisation concept, defines a learning organisation as one "where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to learn together" (Senge, 1990:4). Unfortunately, in common with many other concepts and models that emerge from the management disciplines, the literature on the learning organisation suffers from a surfeit of prescription, definitional argument and model building, backed by a relatively small and tenuous body of analysis of the concept as it exists within real life organisations. The learning organisation is presented as either an idealised (in some cases extremely idealised, almost pseudo-religious) model (Jones and Hendry, 1992 and 1994) where capitalist organisations are transformed into ethical communities more worried about the development of the individual and the nurturing of the environment than creating profits, or as a toolkit of techniques which if applied correctly by managers, will transform organisational performance and competitiveness (Pedlar et al, 1991). For an informative and concise overview of the literature on the learning organisation, see Salaman and Mabey, 1997.

One of the main debates within this literature is what separates multiple parallel episodes of individual learning within a single organisation from collective organisational learning, i.e. the capacity of the organisation as an entity to be reflexive. Within this debate, psychological models of single, double and triple-loop learning have played a major role. A linked, though significantly less productive debate, focuses on whether or not organisational learning is the same as or different from a learning organisation. Some argue (Jones and Hendry, 1992) that organisational learning is simply a stage (or set of stages) on the road to a higher state of organisational development associated with becoming a fully fledged learning organisation.

Interestingly, as Scarbrough et al (forthcoming) note, in common with many other concepts within the broad body of managerial literature, the half life of the concept may be very limited. By examining specialist literature search databases, Scarbrough et al show that interest in the learning organisation appears to have waned since the mid-1990s, while interest in the 'next big thing' - knowledge management - has been rising sharply.

3.7   Knowledge Management

Like many new concepts in management thinking, knowledge management first developed in the USA, and the bulk of the literature in the field reflects this genesis. Nevertheless, researchers and consultants on this side of the Atlantic have been swift to pick up on this new trend and to pursue it enthusiastically (see, for example, Blackler, 1995; Couger, 1996; Gibbons et al, 1994; Kumar, 1995; Starbuck, 1992; Whittington, 1991).

Whereas the learning organisation has grown out of organisational development, knowledge management is very much the child of IT and information systems specialists (Scarbrough et al, forthcoming)., and has been enthusiastically adopted by management gurus and consultancies. Knowledge management can be defined as the acquisition, sharing and use of knowledge within organisations, including learning processes and management information systems. As Scarbrough (1998) comments:

> The emerging field of knowledge management seems to reflect a constellation of changes in the business environment: long-run shifts in advanced industrial economies; the rise of occupations based on the creation and use of knowledge; the convergence of information and communication technologies; theoretical developments that emphasise the importance of unique and inimitable assets such as tacit knowledge; a new wave approach to packaging and promoting consultancy services in the wake of Business Process Reengineering.

> Knowledge Management is less a unified discipline or set of techniques than a way of making sense of a diverse range of practices which have the extraction or valorisation of knowledge as their central goal. Although such practices share a common interest in targeting knowledge rather than information or data, they tend to perform distinctively different functions depending on the business context. For example, we can distinguish between at least four different types of knowledge management:
> Valuing knowledge
> Exploiting intellectual capital
> Capturing project-based learning
> Managing knowledge workers

(Scarbrough, 1998:4)

In many senses, knowledge management is an attempt to take human capital theory seriously, and to treat skills and knowledge as a form of property that needs to be integrate it into the managerial monitoring and control systems of modern organisations. Knowledge management and accounting techniques raise a number of fundamental issues for managers, for example the dissonance between the value attached to knowledge assets and the expertise of individuals by knowledge management systems, and the very different, and usually much lower, values assigned by conventional accounting systems (Stewart, 1991).

As Scarbrough et al (forthcoming) point out, in a literature review commissioned by the IPD, the knowledge management literature contains a number of significant blindspots and weaknesses. One is the lack of attention paid to people management issues, including training and development. For most of those interested in knowledge management, the system by which knowledge is managed is what is important. People are merely a subject or throughput within such a system. A second problem area is the absence of attention paid to the interface between the organisation and its efforts to develop and capture knowledge and the wider VET system and labour market.

4. Institutional conditions

4.1 Policy emphasis upon increasing demands for skills, knowledge and understanding

In recent European white papers (for example, European Commission 1995a, 1995b) skills and knowledge are viewed as integral to the promotion and maintenance of individual employability. Thus European policy stresses the importance of individuals taking responsibility not only for the acquisition of initial education and training but for maintaining that knowledge through their working life. Skills and knowledge are also seen as central to the development of social citizenship through informed participation in democratic decision making. The introduction of new technologies and associated knowledge demands are seen as requiring continuous learning as a basis for effective participation both at work and in the wider community.

Vocational education and training is increasingly putting an emphasis upon the need to develop flexibility and adaptability of individuals (Oates, 1998b). Workers are perceived to need to be able to adapt to new skills and processes and to update their knowledge on a regular basis. Skilled work increasingly requires the ability to deal with unpredictable occurrences. New forms of work organisation place a priority on communication skills and on the ability to work in teams. The new information and communication technology industries in particular are demanding higher levels of skills and qualifications. Furthermore the demand for the continuous updating of skills and knowledge for lifelong learning itself imposes new qualification requirements relating to the necessity of 'learning how to learn'.

The cognitive side of occupational competence is key to the development of context-related expertise: with work-related knowledge providing the link between knowledge, which is not context related, and experience at work, which may not necessarily be used in a generalisable way. This implies both the need for active reflection upon experience and a shift from information to knowledge: expertise cannot be developed through simple although extended information acquisitions, but only through continuous and subtle cognitive experiences related to putting knowledge into action, co-developing personal and professional knowledge, and integrating individual knowledge into the larger dimensions of knowledge held by groups and whole organisations.

4.2 Development of learning within companies

Where companies have developed explicit policies to raise levels of learning at work, whether through employee development schemes, action learning sets, quality circles or other learning actions, then particular attention needed to be paid to facilitation and support of these schemes in practice (Metcalfe, 1992a; 1992b). Burgoyne (1992) argued that participative policy-making was one of the characteristics of a learning organisation. Elsewhere in Europe this would often be interpreted as requiring the involvement of trades unions as social partners, but Winterton and Winterton (1994) found that managements differed quite widely in how appropriate they felt it was to involve unions extensively in issues of continuing education and training policy and practice.

4.3 The role of experience at work in educational programmes

Experience of work within educational programmes can take place in a number of ways. First, it could be incorporated as a usually relatively brief spell of 'work experience' open to all pupils within a general educational programme (for example, either within the 14-19 school curriculum or as part of a degree programme). The presentation of these programmes are likely to stress employability, and are often linked to programmes of careers education (Young, 1998). Second, the experience of work can take the form of a placement within an occupational area, directly relevant to the area of study of the educational programme: these are common within a range of VET and vocational HE programmes. Third, time at work and in education can be part of formal alternance training arrangements, as in apprenticeship programmes. Fourth, work itself can be used as the major vehicle around which the education programme is constructed, as in some continuing professional development programmes.

Problems with the first type of 'taster' work experience include too narrow a focus upon rather low level forms of paid employment and the way the work experience is just bolted onto the existing curriculum. Young (1998) argues that a broader approach to the concept of work could go across the curriculum, within a curriculum framework "which takes work in all forms as one of the bases for the development of both knowledge (historical, sociological, scientific and technological) and skills (intellectual, technical, practical and communitative)" (p59).

4.4   Lifelong learning

Lifelong learning is, at the same time, on the one hand, a sub-set of VET and, on the other hand, continuing VET is itself only one part of lifelong learning. Lifelong learning has in recent years generated considerable political interest (DfEE 1995; DfEE and the Scottish Office, 1996; DfEE 1998a, 1998b). There have also been two major literature reviews in this area. Maguire (1993) reviewed 'factors influencing individual commitment to lifetime learning', while Edwards et al (1998) identified subsequent developments in thinking, paying particular attention to recent thinking on topics related to potential new policy areas.

While lifelong learning is now seen as a universally desirable policy goal, there are marked national and regional differences in the extent of adult participation in learning. For example, Field (1998) shows how "all the available evidence points in the same direction: fewer adults take part in organised learning in Northern Ireland than elsewhere in the UK" (p3), despite higher levels of initial attainment at the end of compulsory education. The demand for adult learning is depressed by a number of factors including: "many highly-qualified school-leavers - usually around 40% of all those who go on to higher education - attend university in Britain, and the majority do not return to Northern Ireland on completing their degree (Gallagher, Osborne and Cormack, 1996). This outflow of the best-qualified reduces the numbers who would be most inclined to demand high quality opportunities for adult learning" (Field, 1998, p4). Similarly, Compton's (1992) study of adult migrants showed "the majority of migrant leavers are well-trained, capable individuals" with "not only a superior qualifications profile to the Northern Ireland population at large but also to the current generation of young adults" (p12).

The troubled recent history of Northern Ireland also plays a role in that the close local networking and reliance on informal contacts within communities could restrict opportunities to move towards building a 'learning society', where "the use of the word 'learning' in the

phrase 'the learning society' should refer only to significant changes in capability or understanding, and exclude the acquisition of further information when it does not contribute to such changes" (Eraut, 1997, p556). As Field (1998) makes clear "in a divided society, strong but selective trust may well make very good sense; but it also has a marked down-side of lost opportunities for the pooling of information and resources, as well as reinforcing established communal and ethnic divisions" (p12).

The above example makes clear that any consideration of lifelong learning has to adopt a broad frame, which addresses issues concerned with social inclusion, participation and societal needs. This is what the Fryer (1997) report on lifelong learning attempted to do, and it does provide a wider context than just attempting to anticipate the skills required of the workforce of the future (Avis, 1998)

4.5   *Relationship between initial VET and continuing VET*

The relationship between initial and continuing VET can be framed as one highlighting issues around flexibility of provision and possibilities for individual occupational (and/or geographical) mobility. This runs the risk of reinforcing the situation whereby "the dominant notion in recent years has been of a learning society which embeds a learning market, with the market responding to economic issues and individuals rather than social imperatives" (Edwards et al, 1998). This may lead to the exclusion of older adults (Schuller and Bostyn, 1996); reproduction of patterns of inequality in terms of who can participate in learning (Macrae et al, 1997; McGivney, 1996a; Keep, 1997). Tett (1996) too points to how participants in continuing education and training tend to be under 35, come from skilled or professional backgrounds and have had positive educational experiences, whereas non-participants are older, less skilled and are more likely to have been unemployed. There are also "questions of take-up relating to gender and ethnicity although here too there are variations within groups by regions ....[so] it is essential for initiatives to be responsive to local variations" (Edwards et al, 1998, p38).

Within the UK there has been a strong tide of arguments against an individualist approach to lifelong learning. Duke (1995) highlights the significance of learning networks, whereby individuals draw on a range of people and resources to support their learning. Others (such as Benn, 1997; Gorard et al, 1996 and Merrifield, 1997) reinforce the point that it is the connection between individuals and a variety of other groups, networks and organisations that can give the stimulus and direction to adult learning, not simply an individual calculation of economic interest and work requirements (Chisholm, 1996; Coffield, 1997a). Rees et al (1997) take this argument a stage further, and point to the way a focus upon individualisation in the development of lifelong learning can undermine concerns for structural inequalities in society.

Individualisation in continuing learning patterns could impact significantly only upon particular sections of the population (Edwards et al, 1998), while the popularity of 'individualisation' as a theme is linked to the importance given to ideas of 'identity', 'lifestyle' and 'image' (Field, 1996). There is scope for individual agency, but even where this is expanding, it still takes place within particular social structures and contexts: "individualisation is embedded in social, economic and political practices, and yet the policy debate on lifelong learning serves to decontextualise individuals - such as their families, locations and networks" (Edwards et al, 1998, p35).

It should also be remembered that when adults take the decision to participate in some form of formal VET, that this decision will relate to participation in particular institutions, rather than being a generalised decision to participate. The nature of local provision is therefore particularly significant, and FEDA (1996) have been critical of many colleges for not responding adequately to the full range of adult learners. FEDA (1996, 1997) though do demonstrate ways in which colleges can be more responsive to adult learners, including through offering more flexible forms of provision. This may be one means to reduce the numbers of mature adults failing to complete their learning programmes (McGivney, 1996b), although attention also needs to be given to staff development, such that staff are more comfortable at working with a wide range of students.

4.6   *Facilitating self-directed learning*

Attention has been focused upon facilitating self-directed learning in a number of VET contexts. Within initial (pre)vocational programmes such as GNVQ, encouragement is given to self-directed learning, although usually within fairly tight curricular guidelines. In vocational HE learner autonomy may be an explicit aim (HEE, 1997). However, it is in the area of adult learning, including outside formal educational institutions, that greatest emphasis has been given to the development of learner autonomy (Harrison, 1996; McNair, 1996a; 1996b).

Sargant (1996) emphasises the need to distinguish between willingness to participate in formal and informal learning. However, Beinart and Smith (1998), when conducting the National Adult Learning Survey, highlight how particular types of non-vocational learning are not defined as learning by participants, because the primary purpose of the activity was not learning. Similarly, some types of learning while working were viewed as 'just part of the job' (Beinart and Smith, 1998). There are significant issues here around what constitutes learning and how easily it can be differentiated from experience (Coffield, 1997b).

One of the key issues concerning 'facilitating self-directed learning' lies in how to implement it in practice, if this involves significant curricular and pedagogical change. Jordan and Yeomans (1991), in their study of an attempt to promote independent learning in an undergraduate programme, clearly demonstrate that such change is "an intensely political process and is closely bound up with the working contexts within which such change is promoted" (p291). Management operated with naive models of curriculum change, and staff had not thought through their position on independent learning and whether it was "against their real interests and values or not" (Jordan and Yeomans, 1991, p307). In particular, staff "did not see how independent learning was going to assist in the solution of *their* problems; it remained essentially someone else's agenda for change" (op cit, p. 306, emphasis in the original).

Moves towards facilitating self-directed learning, certainly within formal education and training contexts, therefore face two major challenges. One is the weight of regulation and desire to see outcomes controlled and pre-specified: learners need a degree of freedom if they are to be genuinely self-directed (Bates et al, 1998). The other is that, even if self-directed learning is promoted as a policy aim, teachers and learners have to reach agreement to implement it in practice. Gore (1993) draws attention to the paradox that, if learners are given genuine choices, they may opt to be passive learners rather than self-directed learners.

Additionally, Harkin (1998) points to how stretched staff feel whereby "the issue of time, which makes the notions of reflection, discussion, planning and action attractive in theory but almost impossible in practice" (p12), and the lack of emphasis given "to increasing learner autonomy, compared to say the concern with course costs and the coverage of syllabuses" (p12) .

Outside formal educational settings, facilitating self-directed learning faces a different challenge, partly because so much of the debate about lifelong learning has been about formal provision (Eraut, 1997). Within companies, if they move towards becoming learning organisations and facilitate self-directed learning, they too are faced with a challenge of balancing management and freedom in learning: "how can we relax control over the learning process while at the same time channelling the benefits from it? (Jones and Hendry, 1994, p160)" (quoted in Darmon et al, 1998, p29).

Fully self-directed learning at work requires individuals not only to learn from work, but also to use their own initiative to find out what they need to know. The type of work should be appropriately chosen, with involvement of the learner in the choice, and the learner/worker should still be supported. Eraut et al (1998) point out that "managers' hopes that employees will be self-directed learners may not be realised if their attitude is perceived as permissive rather than positively supportive" (p39).

It may also be that work intensification leads to the need for even self-directed learning to be supported in work organisations. For example, Eraut et al (1999) argue that the amount of work to be done and the speed with which people are expected to work reinforce the routinisation and short-term nature of thinking in even complex work, and this inevitably squeezes time for medium to long-term thinking and review of practice. Hence people need support to help them engage in patterns of thought conducive to learning, simply because of the amount of their time bound up with routinised behaviours. An emphasis upon competence-based learning in any 'space' created for learning may reinforce this focus upon routinised behaviour.

Facilitating self-directed learning and development of learner independence are worthy goals, but considerable support might be required to achieve these goals in some contexts. Indeed while greater learner independence might be increasingly required as an outcome of programmes designed to promote transferability (BT, 1993), it may also be necessary to pay attention to the development of learners' thinking and learning skills if they are to become independent learners (Soden, 1993). Given this proviso, however, great benefit can be gained from the learner being more in control of her or his own learning (Long, 1990; Hammond and Collins, 1991). Companies too have been paying attention to the need to develop learner independence within programmes of work-based learning. One role for trainers is to ensure there are opportunities for reflection within such programmes so that individuals become more effective at acquiring methods of self-learning and techniques for individual development (Infelise 1994).

4.7   *Education and training of VET teachers and trainers*

Review of the training of trainers

Under the auspices of the tripartite Manpower Services Commission (MSC) and its successor bodies, a considerable volume of work on the training of trainers was undertaken in throughout the 1980s (see Training Agency, 1990). Since the abolition of the MSC in the late 1980s, much less attention has been directed towards this issue, not least because there was, in part, a belief that the newly established 'training market' would ensure that weak training provision and under-performing trainers would be driven out of business.

The role of trainer has witnessed significant change in the last decade and a half, with many in-company training functions being slimmed down as emphasis has been placed on the use of outside consultants and training companies, and as responsibility for training, along with that for many other people management issues, has been devolved to line management (Raper et al, 1997). Recently, the Institute of Personnel and Development (IPD) - the UK professional body for those working in personnel management, human resource management and training and development - has recognised a need for a renewed emphasis upon the developmental needs of trainers and has commissioned an initial survey of the field which has identified areas for further work (Darling et al, 1998). These included, who are the trainers (because of fragmentation, devolution and outsourcing a question nowhere near as easy to answer as it once was) and what do they do; what are the learning needs of trainers; what are the career paths of professional trainers and how are they managed; what are the roles of line managers in training and how is their activity supported; how is the sub-contracting of HRD organised and what are its implications, how do different forms of organisational structure impact on trainers and the training function; and what is the nature of the relationship between organisational culture and the work of the training function?

The Training of Teachers

In the last decade, the training of teachers for state education has become an area of major contention between educational researchers and those staff within higher education who work in teacher training on the one hand, and ministers, political advisors, the schools inspectorate (OFSTED) and the central government quango charged with overseeing the funding, administration, curriculum and quality control of teacher training within higher education (the Teacher Training Agency -TTA) on the other. Underlying this conflict are issues to do with notions of pedagogy, professional identity and autonomy, and the role and validity of theory within the professional formation and practice of teachers within the state education sector.

Further Education

Since incorporation (i.e. independence from local authority control) FE colleges have been faced with massive pressure on their units of resource, which has meant a very significant need to cut staffing costs. The result has been casualisation and a vastly expanded use of part-time and agency staff, the collapse of long standing industrial relations agreements, and long-running dispute with the FE lecturers union. Against this backdrop some attempts have been made to introduce modern human resource management systems. The Further Education Development Agency (FEDA) currently has a number of research projects that impact on these issues, such as ones on human resource planning in colleges, the effective management of part-time staff, and good practice in management development in colleges. For view of the realities of teaching in FE in the 1990s, see Ainley and Bailey (1997).

Staffing Issues in Higher Education

The study of higher education policy in all its various forms tends to be the focus of activity by a relatively small, discrete band of researchers who specialise in the field and who are grouped around the Society for Research in Higher Education (SRHE). Their contact with wider VET debates, and the contact of those involved in the wider debates with them, have sometimes been perhaps less robust than might be hoped. A number of policy initiatives, particularly the Dearing Committee inquiry into the future of higher education in the UK, has given a significance boost to work in this area.

There has been a growing volume of work over the last decade on staffing issues in higher education. Two major edited volumes that cover the broad sweep of this field are Smyth (1995) and Cuthbert (1996). The overall story is one that carries echoes of debates elsewhere within the education system about the potential or actual de-professionalisation of academics, the import of new managerial techniques, declining relative pay and growing casualisation. The overall message on personnel management in the sector is that many universities remain poor at managing their staff as a key resource; that they have, when they have tried to grapple with the issue at all, tended to adopt relatively crude 'managerialist' approaches; and that the gap between the rhetoric of what is supposed to be happening and the reality is large and perhaps growing wider (Shelley, 1998).

Views on the prospective roles for VET professionals

One of the central concerns of vocational education and training (VET) professionals in the late 1990s has been how to support those undertaking VET programmes such that not only can they perform more effectively in their jobs as they exist today, but also so that they are better equipped to handle changes in what they will be required to do in future. The trend has been towards looking for how to develop flexibility in trainees and workers such that they are able to cope more effectively with change and be more oriented towards what they may be required to do in the future, rather than simply training for existing jobs. These concerns relate both to initial education and training and continuing vocational education and training.

There is a growing recognition of the centrality of VET professionals, especially in the context of the 'new paradigm of lifelong learning', to the teaching and learning process. Recent arguments indicate that far from replacing the role of teachers and trainers, new forms of learning, including the use of open and distance learning materials and work based learning, require an active intervention in planning, designing and mediating the learning process (see, for example, Attwell, 1997; Brown, 1997a; Guile and Young 1997). Attwell (1997), as co-ordinator of the pan-European EUROPROF network, argues that the increased attention being paid to continuing vocational training could change the boundaries between different VET professionals.

Firstly, whereas previously the main focus for continuing training lay in the area of management development, the acceptance of ideas such as lifelong learning and the changes in work organisation are extending continuing training to include wider sections of the workforce and to encompass a broader curriculum. This means new responsibilities for traditional human resources development (HRD) specialists but also leads to a blurring in the division of roles between what was seen as the work of VET practitioners and that of HRD professionals. Secondly, as a result of this trend, there is a new emphasis on organisational

learning leading to new roles for both VET and HRD professionals in organisations and enterprises and in initial vocational education and training. The third area where roles have broadened is in the provision of vocational education and training for the unemployed (Attwell, 1997).

Similarly, ideas for the reform of initial vocational education and training put more emphasis upon work process related activities rather than just classroom learning, would lead to a broadening the role of VET professionals and, at the same time, leading to a convergence between the traditional roles of VET and HRD specialists. The primary role of both would then be the management of the learning process (Attwell, 1997). The work of EUROPROF, while grounded in analyses of practice in a number of European counties, is also very much concerned with attempting to `shape' the direction that the education and training of VET professionals takes in the future (Attwell, 1997).

When considering the education and training of VET professionals it is also apposite to apply some of the thinking which has been given to the education and training of other groups of professionals. For example, traditional definitions and explanations of professional competence or expertise have been based on theories of technical rationality, on the basis that learning can be applied in predictable and repeated ways (Edwards, 1993). Vocational education and training curricula and processes have traditionally been based on imparting a fixed body of knowledge and skills required for identified tasks within occupational roles. Furthermore the Taylorist work organisation which not only has dominated industrial and commercial practice, but also the organisation of vocational schools and work based training, has led to the division of roles between different specialists in the field of education and training.

Thus the existing provision for the education of VET professionals tends to reproduce a division of labour between 'teachers', 'trainers', 'designers and developers' and 'training. In this way the existing provisions split the integrative idea of 'work process knowledge' to particular aspects for which different categories of VET professionals can claim an exclusive ownership (e.g. command of the knowledge-basis of 'vocational subjects', experience in organised learning within enterprises and training centres, and so on) (Attwell, 1997). Eraut (1994), however, makes the case that it may be appropriate to put relatively less emphasis on initial training and relatively more on CPD.

The Professionalisation of VET

The EUROPROF intention is to build a 'community of practice' of VET professionals (Brown, 1997b), although the Young and Guile (1997) formulation of building a 'community of connective specialists' would also be relevant to these debates. All these formulations share the central concepts of a body of self-reflexive experts, able to apply knowledge and skills in a work related context. To this extent it remains a critical concern that the barriers between university based research and learning and the applied practice of VET teachers and trainers is broken down in developing a new relationship between theory and practice in action in VET (Attwell, 1997).

Models for Continuing Professional Development for VET professionals

The Continuing Professional Development (CPD) of professionals needs to be reflective, forward-looking and dynamic. It needs to equip professionals with the ability to support the development of skills, knowledge and understanding of others as well as of themselves, in a commitment to lifelong learning, as well as seeking to accommodate requirements for complexity and flexibility. Such a task is only achievable with a commitment to continuing professional development within a culture which acknowledges the importance of developing practice, expertise and a research capability in an inter-related way (Brown, 1997a), so as to be able to support the generation of new forms of knowledge (Engeström, 1995).

Communities of Practice

The Continuing Professional Development of professional communities of practice needs to incorporate current concerns, but also have the ability to look beyond these, and this is possible only if, as Ellström (1997) argues, practitioners develop a broad developmental and interactive view of occupational competence. This would complement a focus upon the significance of work-related knowledge and work process knowledge in the Continuing Professional Development of professional communities of practice (Brown, 1997a).

Developing expertise

The initial key to going beyond competent practice lies in the ability to transfer skills, knowledge and understanding from one context to another (Eraut, 1994), so Continuing Professional Development has to be able to support this process, including through helping practitioners to perform effectively when they work with colleagues and in groups with different kinds of expertise (Engeström, 1995).

Another aspect of developing expertise lies in the ability of the professional to handle the complexity and inter-relatedness of issues. There is clearly not a precise moment when one can identify a shift from 'competent practitioner' to 'expert', not least because it requires a degree of self-acknowledgement as well as recognition by others (Brown, 1997c). Expertise rather lies at the conjunction of research, theory and practice, such that the practitioner can be considered 'reflective', not only upon action, but also upon 'reflection in action' (Schön, 1987). In order to develop expertise it is important for practitioners to develop their research skills and be able to apply them to their professional practice. In an important sense then expertise is itself partly generated through research.

It should also be noted that understanding and, if appropriate, application of theory has a role to play within developing expertise. While the value of practical theory or 'theorising' in the sense of reflecting upon his or her own practice is central to the process of becoming an experienced professional (Schön, 1987), it is quite difficult for teachers on their own to develop a more critical understanding of their practice (Elliott, 1991). In any case, reflection on its own is insufficient. Rather because it is locked into current modes of practice, it is important that 'theoretical learning' is also developed (Guile and Young, 1996). Theoretical learning provides the concepts for analysing the problems that arise for professionals at work and for making explicit the assumptions underlying existing practice (Guile and Young, 1996). This conceptual knowledge can then be used to underpin reflection upon practice at a

deeper level than just 'theorising' practice. Such conceptual knowledge can have both explanatory power and be applied to (changes in) practice. It therefore complements the development of practical learning, based upon reflection on practice. Crucially, however, the development and application of theoretical learning also facilitates a forward-looking perspective: enabling thinking about how practice might be developed in future.

Developing a research capability

Teaching and nursing are recent examples of professions where there have been explicit attempts to move more towards making these research-based professions, where practice is not only informed by research, but new knowledge about practice is capable of being generated by the professionals themselves (Eraut et al, 1998b). This entails explicit recognition that practitioners have a key role to play in how new knowledge is generated and applied in practice (Engeström, 1995). Further this could be linked with an attempt to create wider communities of practice that embrace research as a guide to both policy and action (Brown, 1997a).

## 5.	Assessment and evaluation

### *5.1	Assessment*

Education policy in the UK in the last ten years has been particularly concerned with changing assessment systems: regulations and policy initiatives have followed one after another in most areas and stages of education. In such a context, it is useful to focus upon those reviews and broad-ranging studies which draw attention to what assessment can and cannot do. Murphy's (1990) discussion of the lessons learned from Assessment of Performance Unit science project highlighted how "numerous examples (spanning the full range of tests and age groups) are offered which show that like other activities, assessment activities are situated: their content and context are highly significant variables affecting outcome" (Hennessy, 1993, p10).

One of the lessons of a whole range of innovative curricular developments linking education and work is that they are vulnerable to changes in the qualifications, particularly in divisions between academic and vocational qualifications (Brown et al, 1991; Young, 1998). Hodgson and Spours (1997) indicate that English 14-19 education is a qualifications-driven system and that any strategy for curriculum change that does not acknowledge that will fail. Wolf (1992) signals the importance of assessment, and particularly terminal examinations, as the dominant force in post-compulsory education in England and Wales.

Ecclestone (1998) has produced a paper on 'Assessment in the UK vocational education and training system: research issues and future directions' for COST A11 Working Group 5 on assessment and evaluation. Ecclestone (1996) had already mapped the effect of changes in assessment policy upon the vocational curriculum, but in the more recent overview she identifies three particularly important recent shifts in assessment in the UK: "the first is an ideological and epistemological move away from the dominance of psychometric testing and deeply-held beliefs in the UK's education and training system about *innate ability*, towards forms of assessment which can enhance motivation and improve learning, based on belief in learners' *innate potential"* (Ecclestone, 1998, p3, emphasis in the original). The second is a move towards criterion-referenced assessment regimes, and the third is a move away from norm-referenced modes. These entail "what Oates and Hillier (1998) call a substantive political system based on the need to reconcile competing interests in the curriculum, to a restrictive system based on increased control by central government and greater political intervention in assessment" (Ecclestone, 1998, p3). However, as Harkin (1997) points out, in practice there is a tendency to "focus upon knowledge and skills that are easiest to teach and to assess; unfortunately, the knowledge and skills needed by an advanced technologically oriented, service economy - in which high value added from the human input is most important - are often difficult to teach and to assess" (p99).

Problems with (NVQ) competence-based assessment in practice

One major problem with the highly detailed specification of occupationally-specific knowledge and skills, and the need for assessment processes to ensure performance criteria are met, is that the whole assessment process becomes focused upon the most visible aspects of occupational practice. So in the system of NVQs in England and Wales, there may be "the assumption that the occupational standards (the elements and the performance criteria) were sufficient in themselves to carry the full meaning of competence" (Mitchell, 1989, p1). This may encourage

users not to look beyond the standards in constructing a learning programme. For this reason Eraut (1993) argues for the use of the term `capability', one dimension of which would be to provide a basis for developing future performance. BT (1993) make a similar point, defining capability as "the outlook, understanding and way of working that promotes innovation and adaptability" (p 8).

The above is not an argument against the specification of outcomes per se, but rather for the need to focus upon ways of outlining learning outcomes and processes in broad terms so as to avoid the problems generated in practice by highly detailed criterion-based assessment systems (Butterfield, 1995; Wolf, 1995). One way to achieve synergy between learning and assessment to achieve the goal of promoting a deep approach to learning could involve an attempt to reconcile the traditions of knowledge-based and competence-based approaches: particularly, in the way reflective processes could be encouraged (Brown and Evans, 1994).

It is important to try to develop shared understandings of assessment processes (Brown et al, 1991), and not to assume mistakenly that criterion-referencing removes this requirement (Wolf, 1995). Indeed it is necessary to recognise that the development of a working consensus about assessment processes is itself a process which takes time, resources and commitment to achieve (Brown et al, 1991). Wolf (1995) talks of developing a `community of judgement' among those making such assessments.

Assessment should support the learning process. Over-complex assessment processes, such as those associated with NVQs in England and Wales, may actually prove to be a hindrance (Brown et al, 1991). Also there is increasing recognition of the need to develop a more equitable balance in focus upon process and outcomes (Hodkinson, 1992; Brown and Evans, 1994). Knasel and Meed (1994) report that many practitioners feel that emphasis on assessment in national development work in England and Wales has "meant that in a number of cases too little attention has been given to the question of how to promote effective learning" (p ii). Similarly in the many cases where workplace assessors also act as workplace coaches, there was a feeling that "it may well be that professional development that they take part in will stress assessment rather than learning and will give too little priority to the inter-relationship between the two" (ibid, p ii). Indeed it is important to recognise assessment can have explicit pedagogic functions. Formative assessment can be particularly valuable in providing feedback (William and Black, 1995), which can allow for reinforcement, refocusing or redirection of learning. This points to the need to consider learning and assessment **together** when designing programmes to promote transferability.

5.2   Evaluation

One of the relatively under-developed areas of UK VET research concerns what people learn. Bloomer (1997) highlights how the focus is often upon what is in the curriculum rather than upon what people learn. The work of Ainley and Bailey (1997) illustrates how the experiences of students and staff in further education present a very different picture of the 'curriculum in action' from that officially espoused. Brennan and Little (1996) present a review of work-based learning in higher education. This highlights attempts made within 'vocational' HE to engage learners, and use a mix of contexts, in order to promote flexibility and transferability (adaptability) among students.

Green (1998) investigated, by means of a methodology based on job analysis, the relationship between the use of generic skills at work and pay levels. The analysis based on 1997 Skills Survey data showed that computer skills and professional communication skills were highly valued in the current British labour market. Green and colleagues (1998) have investigated changing patterns of skills usage. They point to rising supply and demand for skills, with skill usage by women having increased substantially since 1986 and is now converging towards male rates. However, "even among those individuals in employment both in 1992 and 1997, there remains a substantial minority who have not experienced skill rises" (Green et al, 1998, p21). The researchers intend to extend this work by looking at "the respective roles that education, training and work experience play in determining the levels of particular job skills achieved by respondents to the Skills Survey" (Green et al, 1998, p22).

These type of issue-based evaluations, or evaluative reviews, are complemented by policy analyses and comparative research, which often involves a substantive evaluative component. So the subsequent sub-sections will give examples of work in these areas together with commentaries on issues around the implementation of NVQs, VET for young low achievers and problems of inadequate basic skills of adults. The final sub-section, however, looks at cohort studies and research tracing educational biographies and these provide insight into how people learn in particular contexts and over time. They are also important because they can give a different perspective to any consideration of VET and remind us that for learners VET is always placed in a much broader framework: the context of their own lives.

5.3   *History and analysis of VET policy*

One distinctive strand of research within UK VET research is the work devoted to an historical analysis of earlier VET initiatives and very often the linkages between what happened in the past and what is happening now. In many cases these two strands fuse together within a single piece of work. Given the problems pointed to above concerning the fragmented, ad hoc and generally somewhat dysfunctional nature of UK VET policy formation, it is unsurprising that this has proved to be a popular and fruitful area for research effort.

Some recent and/or leading examples include:

1. Silver's overview of educational change and the policy process over a 50 year period (1990)

2. Barber's analysis of the evolution of the national curriculum (Barber, 1996). It provides an overview of the historical roots of the national curriculum, an account of the curriculum's somewhat stormy design, implementation and subsequent revision, as well as chapters from two major protagonists within the policy debate about the national curriculum. As such, it provides a fascinating overview of the educational policy process as it exists in England. What emerges is far from the rational, sequential, research-informed model that policy makers would wish us to believe is the norm (see also, Ball, 1990)

3. Raggatt and Williams (forthcoming) volume on the work of the National Council for Vocational Qualifications (NCVQ), which describes and analyses the design,

implementation and adjustment of the system of National Vocational Qualifications (NVQs)

4. Richardson's account of the evolution of national policy on work-based learning for young people between 1994 and 1997 (Richardson, 1998) and Richardson et al's edited volume on the reform of post-16 education training in England and Wales (1993)

5. Peter Senker's volume *Training in a Cold Climate*, which provides a detailed historical overview of the birth, development and demise of the statutory Industrial Training Boards.

6. Raggat and Unwin's edited volume on change and intervention in VET (1991), which examines the many intertwined and sometimes conflicting strands of policy, one of which is the tension between measures aimed at task focused development and measures aimed at broader personal development. The volume also illuminates the roles and stances of the various actors within the policy process.

7. Ainley and Vickerstaff (1994), Evans (1992), and Ainley and Corney (1990) work, which examines, from a variety of perspectives, the dynamics of national training policy and the shifting forms which devolution of responsibility for training from the state to a variety of bodies has taken over the last thirty years.

8. Robertson (1998) provides a critical analysis of the evolution of the Dearing Committee report on the future of higher education in the UK. He suggests that the Dearing report carries within it echoes of many of the fundamental problems that have afflicted UK VET policy over recent times. In particular, there are difficulties about facing up to the problems caused by elitism, a persistent belief in the need for stratification, and an over-emphasis on the short-term needs of business or at least of a vocal section of the business community.

9. Pring's (1997) review of the prevocational tradition in England and its, often hidden, impact upon current deliberations about education and training post-14. In particular, Pring highlights the immensely problematic position within the curriculum of anything that smacks of the practical, not merely in terms of the inculcation of manual skills, or elements of design and technology, but also practical, as opposed to theoretical, forms of intelligence.

10. Huddleston and Unwin's (1997) evaluation of post-16 policy and its relationship with the labour market poses questions about the roles, goals and actions of the different actors or stakeholders and how reconcileable these can be within the current policy process. It also suggests that the complex relaity of the UK's highly diverse labour market, encompassing a huge range of different levels of skill demand and employment conditions, makes it very difficult to gear the VET system's outputs to demand.

A range of common themes emerge from the historical and policy analysis literature. A number of the more important of these are outlined below.

First, there is the degree to which VET policy generally, but particularly educational issues in England and Wales, is 'imprinted' by debates and decision made as far back as the nineteenth

century. A series of deep-seated and often only partially explicitly articulated assumptions about how education ought to operate, what a 'proper' curriculum should look like, the relative weight of value to be attached to academic as opposed to vocational qualifications, and an attachment to tripartite divisions, all serve to create 'path dependencies' for policy makers that mean that the real range of choice for innovation and reform is severely constrained. Very often, the past re-emerges in a new guise, as old divisions and hierarchies are re-created, or at best, only marginally changed.

Following on from this, is the persistence of issues concerning class and social inequality. To a relatively strong degree, policy debates about VET in the UK have, either as an undercurrent or as an explicit element, notions of equity, social justice and citizenship in contestation with entrenched interests, and a firm belief in the virtues of elites (preferably relatively small elites), hierachy and the need for a pecking order. As is discussed below, the influence of the UK's private education sector remains a powerful ghost in the policy machinery.

In particular, many policy makers appear unsure as to whether more and different VET is a win/win situation, or a zero-sum game where a struggle for positional goods (of which access to VET is one) will mean that the powerful within society will seek to limit access (and hence competition) for good jobs in a variety of ways. The potential and often actual distributional implications of reallocating those life chances that are dependent upon access to high quality VET often remain submerged within a public debate that stresses an apparent consensus around the need for universal upskilling. These distributional issues cover not merely the earning power issues suggested by human capital theory, but also different models of workplace organisation, stakeholdership and the governance and management of firms, and political and civil rights within wider notions of citizenship.

A related problem concerns the ability of policy makers to square the circle between their espoused projections of a high skills, post-Fordist, post-industrial society and their desire to retain an Edwardian style national curriculum, and totem educational symbols of an industrial or even pre-industrial past (for example, the 'gold standard' of A levels). At the same time, at many points in the VET system, the reality of a very wide range of demand for skills, including a substantial demand for very low levels of skills from significant parts of the labour market bumps up against a policy rhetoric that demands universal upskilling for all. The policy analysis literature suggests that the working through of these contradictions will be a long, slow and painful process.

Detailed histories of recent policy initiatives reveal a major problem with the weakness of many of the policy actors involved in the process. For example, a substantial number of the bodies that represent employers, such as the CBI and the sectoral training organisations, are under-resourced for the tasks that they face, and are often unable to deliver the commitment of their members to initiatives which have been endorsed on their behalf.

Finally, perhaps the starkest message from this literature concerns the overall incoherence of the policy process, and the impact of the individual and the idiosyncratic on what results from it. In many instances, VET policy would seem to be the result, not of careful analysis, but of the playing out of the whims of powerful individuals acting under a series of more or less random influences and prejudices, or as Barber argues in the case the national curriculum, the thoughts of the Prime Minister's hairdresser! The picture that emerges is of a decision

making process within which the role and influence of research is bound to remain relatively marginal.

5.4   *Implementation of NVQs*

Problems with the implementation of NVQs

There was a major change to the UK VET qualifications structure with the introduction of National Vocational Qualifications (NVQs), which occurred in 1987. It was intended to bring coherence to training qualifications, but was flawed in two crucial respects. First, the English system had been shown to use a much narrower conception of vocational education and training than the key competitor economies of Germany, Japan and the USA (NEDC, 1984). In that context, the decision to implement a system designed around an even narrower conception of occupational competence may seem strange (Hyland, 1994). [However, the decision is understandable in ideological terms: the NEDC was one of the last vestiges of a corporatist system, with representation of government, employers and trades unions. Not only was their advice rejected, but the council itself was abolished. Instead the government preferred a system based around a much narrower conception of employer interest.]

The second major weakness was the rushed implementation of an untested model, and this led to the failure of competence-based training and assessment to realise its ambitious claims in practice (Wolf, 1995). Williams and Raggatt (1998) have completed an investigation into the origins of competence-based vocational qualifications policy in the UK. This outlines officials' perceptions of the conditions and constraints under which they were working at the time, and the extent to which policy was driven by short-term expediency. Not only was 'competence' never defined, but the lack of a clear definition enabled the idea to appeal to a number of different constituencies (Williams and Raggatt, 1998).

NVQs though have had some success, for example, in reaching groups in areas such as retail that had previously few workers with formal vocational qualifications and in updating training in the clerical area. Overall though, the NVQ model has had a negative effect in educational terms. This is because of the adverse pedagogic effects of highly detailed criterion-based assessment of occupational competence. There are major deep-seated problems for learning and assessment, as well as practical difficulties associated with implementation. The most fundamental criticism is that NVQs direct attention to current concerns with competence and assessment, while the prime focus of the inter-relationship between education, training and employment needs to be upon learning, and oriented towards the future (Brown, 1998).

NVQs have been used primarily for those already in employment or undertaking training in the workplace. Without some enhancement, NVQs were unlikely to function as a progression route into higher education. Attempts have recently been made to address some of these problems within the new Modern Apprenticeship system. This aims to attract 16-17 year olds into work-based learning, which is intended to lead to an NVQ at level 3. However, the apprentices will also be expected to reach an equivalent standard in core skills and possibly take relevant GNVQ units. [An accelerated Modern Apprenticeship for 18-19 year olds, who have completed A levels or Advanced GNVQ was also devised. Subsequently, Modern Apprenticeships were made available across the board to 16-24 year olds and even some graduates have been enrolled.] Overall then, NVQs are a work-based route, and without

considerable enhancement, as in the Modern Apprenticeships, NVQs are unlikely to lead back into more formal education and training.

Co-existence of NVQs and other vocational qualifications

The failure of NVQs to have significant take-up in many occupational sectors, coupled with concerns about the unreliability of the relatively expensive assessment methods (Wolf, 1995) and doubts over the acceptability of the standards development process (CBI, 1994), lead to a major review of the NVQ system (Beaumont, 1996). Changes to the NVQ system were recommended, but considerable impetus was lost in the attempt to restructure completely the previous system of vocational qualifications. Robinson (1996) pointed out that NVQs still compete with numerous traditional qualifications, offered by national awarding bodies, commercial institutions and professional bodies: with the number of people obtaining traditional qualifications far outstripping those obtaining NVQs. Where the traditional qualifications are widely accepted by firms, they are also popular with individuals as they have a greater labour market utility.

National vocational qualifications (lower levels : 1 and 2)

These were designed to assess competence in specific occupations in terms of skill, complexity and range of tasks undertaken. Success in lower level NVQs by adults in some sectors boosted their self-confidence, and hence provided a possible platform for further learning. However, these qualifications were mainly taken by young people, and for those not already in employment, this group often had very low levels of attainment in formal education. Hence the vocational pathway was at least in part being used to perform a compensatory function for those young people, who did not perform well within and had become disillusioned with formal education, as much of it was being used to increase employability in a particular job. Even at this level, however, most training does not result in a formal qualification. Much NVQ level 2 equivalent training for those in employment is linked directly to the requirements of the organisation rather than resulting in a formal qualification (Hogarth et al, 1997).

NVQ level 3 : 'skilled' jobs

There was a collapse of firm-based level 3 education and training, including apprenticeships (Gospel, 1995), in many sectors up to the early 1990s. The problems caused by 'poaching' were one important reason for the decline of apprenticeships (Marsden, 1995). The Modern Apprenticeship was explicitly designed as a State-funded way to rebuild initial skills formation processes at this level. Significantly, the programmes aimed to add broader theoretical knowledge and relevant key skills to the more limited requirements of level 3 NVQs.

5.5   VET for young low achievers and the 'disaffected'

While for obvious political reasons much attention is given to `disaffected youth', there may be hidden problems even for low achievers who successfully manage to find unskilled work. They may even receive some firm specific training, as job specific training has been increasing, even among companies using relatively low skilled labour. However, much of this training is geared to the internal labour market, and even where it does have a wider value this may only lead to access to other comparable 'low skilled' jobs in the secondary labour

market, as there is little chance to gain further qualifications (Ashton, 1993). Indeed with the bifurcation of the UK labour market a key issue becomes how to prevent permanent barriers being erected between those working in low skilled, low paid jobs, with little training and few prospects for progression and those working in more highly skilled jobs, which are relatively well paid and give access to training and opportunities for further skill development. In such circumstances additional qualifications could be used to offer at least the prospect for some individuals in the poorer section of the labour market to make the transition into more rewarding work (Brown, 1998).

Debates about schooling and initial and foundation level VET in the UK have had, as one strong and distinctive strand, the problems of what has been termed 'disaffected youth'. This refers to the relatively large numbers of young people who drop out or opt out (partially or wholly) of both compulsory schooling (by truanting) and of the various youth training and further education provision aimed at their age group.

This problem has been a major cause of concern to a variety of agencies, and a significant focus for policy actions, including the government's New Start initiative, and therefore the focus for a substantial body of research. Hodkinson (1997) provides an extremely thorough overview of this field in a literature review that covers just under 200 articles, books, reports, and papers.

The primary messages that emerge from this body of work are, first, that identification and categorisation of the relevant populations of young people is far more complex than might seem at first sight - for example, many young leave their FE course for positive reasons, including getting a job. Disengagement may not be disaffection. Second, that the causes of truancy are extremely complex and their interactions with the agencies and systems designed to enforce school attendance often lead to sub-optimal results. Third, that the government's decision in 1988 to remove the right to claim unemployment benefit created a substantial group of young people not in a job, education or training and not receiving benefits - the status zero group (so called because they did not figure in any official statistics. Research indicates that this group may represent about 20 per cent of the youth cohort in some areas of Britain. Fourth, the research indicates that career decision and choices of educational courses (and whether to stay within them) are much more fragmented, situationally-specific and random than convention, unilinear models of choice would suggest. Finally, that tackling disaffection and encouraging re-engagement requires a subtle, multi-agency approach that focuses on what young people perceive and want and that tries to engage with their needs.

Unfortunately, as Coffield (1997:5) points out, policy making on the disaffected has not been able to produce the kind of holistic, joined up thinking that the research reveals may be necessary if the problem is to be confronted and resolved. Instead, what has emerged has been a series of disjointed and often short-lived initiatives.

5.6   *Inadequate basic skills: adult literacy and numeracy*

The UK has a relatively large percentage of its adult population who report problems with basic skills - literacy, and the use of numbers (ALBSU, 1987; Bynner and Steedman, 1995; Carey et al, 1997). The main focus for research in this area is the work of the Basic Skills Agency (formerly the Adult Literacy and Basic Skills Unit - ALBSU), which commissions

research on basic skill levels within the adult population or segments thereof, and also on the impact that skill deficiencies have upon individuals.

Some recent examples of work for the BSA are Bynner and Parsons, 1997; and Parsons and Bynner, 1998. This research is based on the National Child Development Study, which provides a longitudinal data set on a group of people born in one week in 1958 in the UK. By tracking this group through the various stages of education and adult and working life, the NCDS offers an extremely rich source of data, and allows the pinpointing of the factors that affect the development of literacy and numeracy at each stage of the individual's development.

The overall messages that emerge from the work are stark. Low levels of adult literacy and numeracy are associated with marginalisation within the labour market, more unstable relationships, low income, poorer health and more limited inclusion in public and political life than those with without basic skills difficulties (Bynner and Parsons, 1997:77-84). As Bynner and Parsons comment, "the striking feature.....is that the data points so consistently to an accumulation of disadvantage among people with poor basic skills" (1997:83). In terms of the factors that influence the development or otherwise of basic skills, the research indicates that many of the problems appear to start early in life (pre-school) and to then resonate with other factors to create vicious cycles of under-achievement (Parsons and Bynner, 1998). The researchers suggest a range of policy interventions that could help address these problems and create virtuous cycles of skill acquisition.

5.7   *Comparative research*

From the perspective of policy makers, the single most influential strand of UK VET research has been that aimed at international comparisons. The UK has, for more than a century now, seen itself as trailing its rivals in the developed world in terms of VET. Since the 1884-6 Royal Commission on Technical and Vocational Education the UK has, from time to time, undertaken international comparison and benchmarking exercises, the majority of which have revealed that the UK workforce is, on the whole, relatively poorly qualified in comparison with that found in other developed countries. These exercises can be located within much wider intellectual and policy debates about the UK's continuing apparent relative decline in the world economic league tables (see, for instance, Wiener, 1985; Perkin, 1989; Pollard, 1989; Barnett, 1986; Gamble, 1990; Hennessey and Anstey, 1991).

The desire to benchmark has helped create a field of research, mostly quantitative, but with some qualitative components, which deploys a range of techniques and widely varying degrees of sophistication in pursuit of an international comparative picture. It ranges from attempts to provide 'hard' numerical data on stocks and/or flows of skills and qualifications within or entering the labour force; to societally-based studies that ask fundamental questions about the functioning of VET systems and their inter-relationship with other elements of national economic institutions, regulatory regimes, cultures and systems of work organisation and competitive strategy.

Examples include:

The DfEE/Cabinet Office *Skills Audit*, mentioned above, an official attempt to benchmark UK performance against leading competitors.

Green and Steedman's (1997) attempts to plot the flows of skills into different national labour markets.

Ryan's (1992) edited volume on international comparisons of intermediate level skills which includes an important sub-set of the comparative literature concerned with policy borrowing, which is of particular concern in the UK context, where from time to time policy makers have looked abroad for ready-made institutional models that could be utilised to solve particular aspects of the UK's skills problem. The basic message that emerges from the research on policy borrowing is that there are very severe difficulties in seeking to transplant isolated institutional mechanisms from one societal environment to another.

The NIESR matched plant comparison studies of skills and productivity (Prais, 1990; Prais, 1995; Mason et al, 1993)

The ESRC High Skills Project which brings together researchers from three UK universities (Bath, London and Cardiff) to study different routes to a high skills economy in Germany, Singapore, South Korea and the UK; to contribute to VET and labour market policies through an evaluation of best practice; to develop a comparative theory of skills formation in the context of rapid technological change and increasing global competition; and to help explore the role of transnational corporations in national strategies to achieve a high skills economy. For an early example of the project's outputs, see Sakamoto-Vandenberg et al, 1998)

Ashton and Lowe's (1991) work on the school to work transition in Britain and Canada, and Bynner and Roberts (1990) study of the transition process in England and Germany.

Coffield's forthcoming edited collection on the comparative dimension of research arising from the ESRC's Learning Society initiative.

It is worth noting that within the UK there is room for 'home internationals', as Raffe has termed them, whereby the different national systems in England, Wales and Scotland (and more rarely Northern Ireland) can be compared and contrasted. For an example of this genre, see Raffe (1988) where the education to work transition in Scotland is set alongside that in England and Wales, and also Raffe et al's forthcoming review of a home international comparison of policy strategies based around the Unified Learning Project.

5.8   *Educational biographies, longitudinal surveys and cohort studies*

The educational careers of various groups of young people have been traced so as to provide evidence of processes of identity formation, including attitudes towards education, work and learning. These studies complement insights gained from longitudinal surveys and large-scale cohort studies of people, tracing careers over extended periods of time.

Whitty et al (1998) traced the educational biographies of young people, who had at the age of 11 been identified as 'academically able', and who were re-interviewed in their twenties. The overall profile indicated that they were in the main successful, mostly following "what

Roberts (1993) calls the 'prime trajectory' for young people through A-levels into higher education and professional/managerial employment and they largely fall into Bynner et al's (1997) of those who, in their mid-twenties, are 'getting on'" (Whitty et al, 1998, p3). However, talk of a 'trajectory' may convey the impression that after launch relatively little affects arrival at the destination: in practice, however, *the translation of educational promise into educational success is rarely easy or straightforward - irrespective of socio-economic background or kind of school attended" (Whitty et al, 1998, p5, emphasis in the original).* Similarly 'successful' educational progressions were interpreted differently within the group, and Whitty et al (1998) point to the need to make empirical and theoretical connections between the horizontal differentiation of the middle class(es) (Lockwood, 1995) and the direction taken by new entrants to particular occupations.

At the other end of the spectrum, Ball et al (1998) show the marked differences in attitudes towards learning among the low-achievers at age 16, with some students being particularly critical of "other students in their classes whom they describe as disruptive and who make unreasonable demands on over-worked teaching staff" (p26). Such studies, coupled with others looking at aspects of VET in relation to the identity formation processes of groups of young people (Macdonald and Coffield, 1991; Roberts et al, 1994; Furlong, 1996; Bates and Riseborough 1993; Bloomer and Hodkinson, 1998), emphasise the need to examine 'learner identities' (Rees et al, 1998), learning careers (Bloomer and Hodkinson, 1998) and to move towards the development of more dynamic models of occupational identity formation (Brown, 1997).

All these studies reinforce the view that learning is fundamentally a social process, which takes place within particular culturally structured contexts (Lave, 1991). Bloomer and Hodkinson (1998), in their analysis of learning careers of students in further education, emphasise that "much of what happens is to be understood in terms of interactions between the meanings which learners impose upon their situations and the external opportunity structures (Roberts, 1975) which they perceive. Their perceptions and dispositions are continually modified through these interactions, framed and shaped by structure, agency and chance, while the actions which they adopt in the course of their learning their studentship are informed and transformed through the same processes" (p61). Studentship describes the processes by which through individual learning careers students make their own curriculum (Bloomer, 1996). The patterns of studentship clearly influence what is learned, but they may also constrain approaches to teaching too, although approaches to learning and learning careers themselves change over time. Bloomer and Hodkinson (1998) also emphasise the point that " formal education cannot be disconnected from the rest of life. Perhaps especially for young people, learning is about the whole of life, about the search for identity and self-fulfilment" (p67). What is learned within (vocational) education and training can also have continuing consequences over time and cohort studies can play a role in uncovering such patterns. For example, it is possible to use cohort studies to investigate some medium to long-term consequences of the acquisition of formal qualifications, as will be shown in the next sub-section.

Functions of additional qualifications for individuals

For individuals, additional qualifications can perform four functions. First, they can attest that a worker has reached a level where he or she can perform effectively in an existing role. Second, they can highlight that a worker has attained some specialist qualifications useful for

a current or prospective work role. Third, they can be used to confer an advantage within an internal labour market. Fourth, they can have a general labour market utility (Brown, 1998).

The possible functions of additional qualifications and the linkages between qualificational space and organisational space are well illustrated in the longitudinal analyses of Elias and Bynner (1997a) of occupational change for particular individuals using the national New Earnings Survey Panel Dataset (NESPD), which spans the period from the mid 1970s to the mid 1990s. This showed a striking difference in the likelihood of upward mobility from intermediate positions to high and medium level management jobs for men and women over the nine year periods 1976-85 and 1985-94.

For men, between 15-30% of all age cohorts in the highly skilled (management level) category in both time periods had nine years earlier, if they had been in employment, been employed in intermediate jobs. The equivalent figures for women were 1-10% (Elias and Bynner, 1997a). Male intermediate jobs, especially for those in technical or supervisory (intermediate non-craft) positions, could lead on to more highly skilled jobs, although as Elias and Bynner (1997b) point out, such upwardly mobile individuals were characterised by high level educational experience and modern management skills profiles. This would seem to indicate that successful performance in both organisational space and qualificational space is characteristic of upwardly mobile men. That is, if men already have high level academic (for example, graduate) qualifications, then performance in the organisational space does not necessarily have to be supplemented by further formal additional qualifications. On the other hand, such qualifications would be much more desirable for those who achieved fewer formal qualifications during initial education and training.

Men's upward mobility from intermediate occupations, derived from NCDS (National Child Development Survey) data over the period 1981-91, was nearly double the rate for women (Elias and Bynner, 1997a), and this is likely to be partly attributable to some women leaving the labour force temporarily for family formation purposes and then returning to part-time lower grade work (Elias, 1994; Bynner, Morphy and Parsons, 1996). Men were equally likely to be upwardly mobile into intermediate occupations than women between the ages of 23 and 33, but these were into different types of jobs: craft, technical and supervisory for men and mainly clerical and secretarial for women. Women were, however, more likely to be downwardly mobile from intermediate to other occupations (Elias and Bynner, 1997a). Where labour market exit was to have children, return at a lower level was especially likely for those women with poor educational qualifications (Joshi and Hinde, 1993). This meant that success in the formal qualificational space (whether in initial education and training or in the form of high level additional qualifications) was vital for women returning to the labour market. Without this, any achievements in the organisational space were unlikely to be given much credence subsequently.

Longitudinal surveys

Longitudinal data is particularly useful in tracing (the effects of) changes in status in education, training and employment as individual life histories unfold. For example, Green et al (1997) demonstrate, drawing upon data from Family and Working Lives Surveys, that the "experience of unemployment and low wage employment has a cumulative impact over the lifetimes of individuals" (p xi). Their analysis also highlights the implications for the housing market of changes in the labour market. Issues of geographical and occupational mobility are

therefore bound up with a whole raft of social, economic and political factors outside the more narrow confines of discussions solely about education, training and employment.

6.   UK VET research which does not fit easily within the sub-headings of the COST framework

The COST action A11 focuses upon 'flexibility, transferability and mobility as targets of vocational education and training', and this review has sought to keep largely within the five main sub-headings of the initial framework. Such an approach, however, does downplay the significance of other areas of VET research.   In particular, other targets of VET like promotion of social justice, mainstreaming equal opportunities (Rees, 1998), addressing special needs (Bynner et al, 1997), and tackling issues around the racialisation of post-16 education and training markets (Ball et al, 1998), are not fully embraced within any one heading. Further, in the UK, "to a large extent the 'problems' of poor participation, fragile motivation and status differentiation in post-16 education and training are rooted in compulsory schooling" (Ball et al, 1998, p31).

Hence we have decided in this final section to point to issues and approaches which permeate any consideration of VET, rather than belonging to any particular sub-component of VET. It is not that these issues do not engage with the major themes of flexibility, transferability and mobility, rather that they do so at a higher level of generality. As a consequence, as a first step we examine and contextualise research as it relates to each one of the specified targets (flexibility, transferability and mobility). Then we examine the critical role for guidance in facilitating flexibility, transferability and mobility within VET. The final section of this review then examines the possibilities for research collaboration from a UK perspective.

6.1   Flexibility as a target of VET

6.1.1   Flexibility of VET system as a whole

One important aspect of flexibility in VET relates to the flexibility of the VET system as a whole.   This incorporates issues at a number of levels, spanning the flexibility and responsiveness of local VET provision through to flexibility of national systems of VET. At the macro level there are concerns around national (and international) frameworks of access and progression, and the extent to which these facilitate mobility of those in education, training or employment in different institutions, organisations, regions or countries. In the UK, considerable attention has been paid to the development of different types of credit frameworks to operate in different contexts. This is an issue on which there has also been significant national variation within the UK and this will be addressed in a subsequent sub-section.

Flexibility of a system could also be judged according to the extent to which it allows differentiation in the creation of individualised education and training pathways, whereby individuals are able to 'tailor' their education and training in a way which is appropriate to a particular chosen path. 'Individualisation', though, also has some wider connotations, relating to the increasing singularisation of individuals and their biographies.   That is, differentiation should be facilitated so as to equip young people with the prospect of more flexible careers involving more frequent job changes (Brown, 1995), while 'individualisation' also allows the prospect of individuals making their own self-determined choices, irrespective of any more instrumental 'requirement'. Irrespective of motive, however, the use of formal additional qualifications could be important for those in work to maintain their

"'employability', of keeping fit in both the internal and external labour market for jobs through the acquisition of externally validated credentials" (Brown, 1995, p. 36).

The pursuit of flexibility as a requirement for the VET system has a number of distinct dimensions. There is flexibility in the extent of openness of entry in terms of access to different types of employment and in how easy it is for individuals to get their achievements in organisationsal pace recognised formally within the qualificational space, without necessarily taking formal programmes of study (Brown, 1998). The first type of flexibility has been a long-standing feature of the UK occupational system, and NVQs were intended to enhance the second aspect.

Next there is the extent to which occupational flexibility is encouraged through the provision of programmes of study, which orient individuals towards broader vocational areas rather than training them for particular occupations. This was the rationale underpinning the development of GNVQs. There is also the need to consider flexibility of a VET system in relation to how easy it is to move between vocational and general education at different levels. Advanced GNVQ programmes were intended to act as qualifications with a dual orientation, allowing access either to employment or to higher education.

Another consideration is the extent to which VET systems incorporate curricular flexibility, thereby allowing for some degree of individualisation as to how VET programmes are constructed. The use of modular or unit-based systems may increase the scope for this type of flexibility, provided sufficient scope is allowed for an individual to choose some elements of her or his own programme. GNVQ was explicitly designed so that individuals could take additional units or additional qualifications within their programmes of study. Modern Apprenticeships also utilise frameworks which enable programmes to be constructed whereby individuals can take additional units or additional qualifications besides the NVQ Level 3 qualification, and thereby offers enhanced prospects of progression within either vocational or academic pathways. Although Vickerstaff (1998) questions whether TECs are the most appropriate delivey mechanism for Modern Apprenticeships. Overall aspects of these issues can perhaps best be exemplified for the UK through a more detailed consideration in the following sub-section of the openness of the UK occupational system.

Openness of UK occupational system

One of the critical characteristics of the UK VET system is that access to most types of employment is more or less unregulated in terms of preconditions for job access (Tessaring, 1998). This is coupled with weak recognition and respect for qualifications generally, such that it is quite difficult for those completing particular VET programmes to be clear about their subsequent progression. This is in sharp contrast with the position in systems that continue to be organised much more strongly around occupational labour markets, with more clearly defined entry level jobs and career paths, which are themselves clearly related to attainment and recognition of particular vocational qualifications (Marsden and Ryan, 1990). The UK situation is therefore highly flexible (or, depending upon your perspective, disorganised), in that in many jobs it is possible to enter without particular qualifications, and to continue working without necessarily becoming formally qualified subsequently either.

This also has implications for additional qualifications, as there is a major issue around the fact that the English system of education, training and employment for those in work puts

relatively little emphasis upon formal qualifications. Hence much learning while working and even in more formal training events is not externally recognised, with recording of participation and achievement often occurring mainly within the company. Where external recognition is granted, this may be in relation to quite short training courses, for example on health and safety. The state views continuing vocational training as the responsibility of enterprises although within an exhortatory framework encouraging lifelong learning, achievement of national education and training targets, and so on. The state does, however, provide support to facilitate the development of sectoral qualifications based on NVQs, and individuals taking programmes leading to the award of NVQs are eligible for tax relief on the costs of the programmes.

Within the English system there is little transparency of achievement within continuing vocational training: from an individual's perspective this tends to be linked to performance in her or his current role and could possibly be (weakly) linked to advancement in the internal labour market. From the enterprise perspective, the major aims are organisational: seeking to improve quality, raise productivity, enhance skills of the workforce and the like. The major beneficiary of continuing vocational training is the enterprise, with the weak links between performance of particular sets of work tasks and the possession of certified knowledge undermining the necessity of individuals undertaking continuing vocational training, except where it is of direct benefit to them in performing their work tasks more effectively.

The relatively open entry to most types of employment is coupled with the openness of a competence-based system, which is not formally dependent upon prior achievement. This means it is possible for an individual to develop occupational skills through working and then to seek to have her or his competence attested, through a successful demonstration of the required elements of competence, resulting in the award of units or a complete NVQ certificate, as appropriate. The UK occupational system is flexible insofar as it presents relatively open access to employment and vocational qualifications, although in practice NVQ assessment was seen as too bureaucratic (Beaumont, 1996) and unreliable (Wolf, 1995), resulting in very poor take-up in many areas. This neatly illustrates the way qualifications can be both flexible and inflexible in different dimensions.

Thus the intended openness of access to assessment of occupational skills in NVQs was compromised in practice by the inflexibility involved in specifying in great detail the criteria associated with occupational competence (Jessup, 1991). Garrett (1990) saw the speed of change in some companies, and the need for them to move towards becoming learning organisations overwhelming competence specifications based on existing work practices. The switch to NVQs also had adverse effects on many learning programmes in vocational areas (Brown et al, 1991). The more or less exclusive concern with outcomes led to a neglect of the processes of learning (Brown and Evans, 1994), and a fragmentation of learning for individuals as they concentrated upon the achievement of disaggregated elements of competence (Hodkinson and Issitt, 1995).

6.1.2 Credit frameworks

The arguments for a shift to credit-based systems in HE, and to facilitate progression between FE and HE, have been comprehensively detailed by Davidson (1992) and Robertson (1993; 1996 and in the HEQC (1994) report). A more flexible system of credit accumulation and transfer would facilitate lifelong learning and mean that individuals "can build portfolios of

credit or records of achievement as they move in and out and through the system. The system itself is not tightly bounded by attachment to specific institutional contexts, but involves a looser arrangement between the learner and the institution governed by the award of credit as people develop their learning 'careers'" (Edwards et al, 1998, p71).

The proposals for credit accumulation and transfer systems (CATS) in further education have taken different forms in the constituent countries of the United Kingdom. In Wales, the full range of institutional stake-holders with interests in further education have collaborated in setting up a credit framework which "enables *all* learning, vocational and academic, to be mapped and linked. This facilitates student choice, customised learning programmes, accredited opportunities for core skills development, and a personal record of achievement in credit terms" (Edwards et al, 1998 p72, emphasis in the original). The developments in Wales merit closer scrutiny and working papers coming out of the Unified Learning Project explore the significance of these developments (Raffe et al, 1998).

In England, there has been the development of Open College Networks (OCN), a system whereby credits are awarded for the achievement of agreed learning objectives, which can often be linked to the development of personal skills (Edwards et al, 1998). Such a system is particularly valuable for adults returning to learning, and can be used as a bridge for subsequent progression to more formal vocational (or academic) programmes (McGivney, 1994; Maguire, 1997).

In Scotland, a modular National Certificate was introduced in 1984. This provided a single framework of modules for students across a range of settings: school, full-time education, youth training and employment. Croxford et al (1992) showed this led to a rapid growth in participation and that the modules were well received by students, although the National Certificate was perceived as low status, especially at school, and there some "apparent inflexibilities in the timetabling and choice of modules, both at school and college" (p8).

Overall, in Scotland, as a consequence of the Higher Still reforms, far more progress has been made towards a unified system for post-compulsory education than in England, giving particular emphasis to flexibility and diversity (Howieson et al, 1997). The new system, to be introduced in 1999, will have "a unified system architecture (excluding work-based provision), building upon the existing flexibility of course structure and student pathways" (Raffe et al, 1998, p181).

The introduction of credit-based systems may be accompanied by a range of other measures designed to increase flexibility of provision. These include unitisation (Stanton, 1997); accreditation of prior experiential learning (Butler, 1993); and credit recognition agreements (Davidson, 1992).

6.1.3 Can a credit accumulation system help overcome divisions between academic and vocational qualifications?

In England, Finegold et al (1990) argued that weaknesses in post-compulsory education were not attributable solely to problems with particular routes, but were linked to the divided system, which produced separate academic and vocational qualifications. Since a unified system of qualifications remains politically unacceptable, as A levels remain sacrosanct, attention has switched to whether it is possible to have some form of overarching

qualification, which gives greater support for learners undertaking a combination of vocational and academic qualifications. Richardson et al (1995) argued that one strategy for curricular reform was to use a 'steps and stages' approach, so as to support incremental change within the existing system, but with a clear long-term goal of establishing a unified system.

6.1.4 Credit for 'learning while working'

Flexibility of the VET system may be enhanced by facilitating arrangements which give credit for 'learning while working'. For example, many large employers (British Airways; Ford; Sainsburys; Sears; Vauxhall) have worked with universities to create tailored degree programmes, which are partly taught and assessed in the workplace. There have been a number of national initiatives, and a host of projects focusing upon different aspects of learning through work in higher education programmes (see, for example, Employment Department, 1992; Brennan and Little, 1996). The Higher Education for Capability movement has been particularly active in this area, and publishes the Capability journal, as well as organising conferences and publishing reports, which focus upon curricular innovations aimed at broadening HE provision so students are equipped to use knowledge in ways which are relevant to the world outside the education system.

This, however, moves us into a possible debate about jurisdiction: should the COST enquiry into VET include 'vocational' HE within its remit? While that is an issue for discussion in other COST fora, the approach taken here is not to go into this area in detail, but just to signpost issues from within vocational HE which have applicability to the broader VET field. [Also, it should be noted that the role of work-based learning in HE has recently been reviewed (Brennan and Little, 1996), so further information can be sought there.] For example, Stephenson and Laycock (1993) highlight the value of engaging student, tutor and employer in negotiation of learning contracts so as to make clear the relationship between working and learning. Oxtoby (1995) points to the role of a mentor in supporting a learner in the workplace, while the whole issue of giving credit for the exercise of 'academic' skills (such as reasoning, critical reflection, problem-solving, analysis and planning) at work presents a challenge to the way we 'compartmentalise' academic and vocational knowledge and learning and our ideas about where knowledge is generated.

6.1.5 Flexibility of a VET system in terms of opportunities from progression

New (vocational) qualifications take time to become widely understood and accepted and those promoting the BTEC National Diplomas and Certificates had encouraged these qualifications to be viewed as giving students opportunities for progressions to a variety of forms and subject areas in HE. Spours (1997) argues that GNVQ student completion rates and progression possibilities were inferior to those in the qualifications that they had been designed to replace. The new qualification (GNVQ) was in practice acting to narrow the horizons of those completing the programmes.

6.1.6 Flexibility of VET in particular localities: operation of post-16 education and training markets

VET provision also functions in particular localities and judgements can be made about the flexibility of local post-16 provision and how well it meets the needs of its actual and

potential client groups. In the UK over the last decade there have been explicit attempts to set up quasi-markets in education and training. One on-going research study, by a team of researchers from King's College London, has sought to examine the operation of the post-16 education and training market in one particular setting in south west London (Gewirtz et al, 1993; 1995; Macrae et al, 1996; 1997; Ball et al, 1998). Ball et al (1998) highlight some of the market dysfunctions associated with the 'cut throat' quality of the behaviour of, and relationships between, providers: "markets reward shrewdness rather than principle and privilege the values of competition over 'professional' values (Ball et al, 1994; Gewirtz et al, 1993) .... . Various respondents identified new forms of inter-institutional behaviour emerging in the context of market relations: the use of mis-information, marketing madness and impression management, and 'ethical drift.' Our analysis of data suggests that it is certainly questionable whether these new forms of behaviour best serve the needs and interests of all students or are effectively related to the needs of the economy or local communities or make best use of scarce resources" (p18). Macrae et al (1997) go on to argue that the limited horizons for action established in compulsory education for those with the least cultural and material capital are reinforced, rather than challenged, in the subsequent post-16 education and training market.

6.1.7 *Policy analyses of the introduction of market-based reforms in education and training*

The studies of the operation of the education and training markets on the ground are complemented by policy analyses. For example, Gleeson (1993) highlights the strongly political and ideological motives for the (previous) government introducing education and training market reforms, including circumscription of the scope for action of local authorities. The political imperative was to try to remove any perceived barriers to the operation of more flexible labour markets, with the process of market creation itself acting to reinforce the privileged position of stronger interest groups in society (Ranson, 1994), and with training policy paying particular attention to the interests of employers (King, 1993). Such analyses emphasise the dangers of looking for rationality within a single policy area (such as VET), rather than viewing such decisions as themselves part of a wider political process.

Thus a number of recent policies have in practice reduced flexibility within the VET system: most notably the introduction of NVQs, which acted to narrow VET provision in many occupational areas. Tremlett et al (1995) also shows how the set-up of Training and Enterprise Councils, and the funding regimes under which they operated, acted to narrow provision towards competence-based NVQs, and marginalise vocational education and training driven by anything other than short-term employment needs. Beliefs in the value and appropriateness of introducing market-based models for education and training are underpinned by assumptions of rational behaviour by individuals when making choices in a free market. Hodkinson and Sparkes (1995) show in their study of the introduction of training credits that the choice process in practice differs greatly from an idealised form of technical rationality: pragmatic rationality is considered a more appropriate descriptor.

Companies themselves had traditionally largely defined the quantity and quality of initial and continuing training in the UK (Sellin, 1995). One consequence of this was a 'vicious spiral', whereby the substantial reduction of lengthy firm-based (apprenticeship) training led to skill shortages, which led to 'poaching', which undermined the viability of the remaining schemes. In theory, local Training and Enterprise Councils (TECs) could have filled the breach, given their responsibility to identify regional skill requirements and to direct financial resources of

the government-funded youth and adult (unemployed) training programmes. In practice though, the TEC's own funding regimes and outcomes targets prevented them from supporting high cost, high quality, lengthy training programmes in favour of shorter, cheaper and easier to run training schemes (Felstead, 1994). These market failures were intended to be addressed in part by the development of the Modern Apprenticeship scheme.

However, problems with a lack of flexibility with aspects of formal VET provision should not be used to paint a negative picture of all the work-related learning which takes place, precisely because so much of this takes place outside the formal system (Eraut et al, 1998a; Ashton, 1998). That is, flexibility and responsiveness may be more evident outside the formal system of VET. There is also an irony in the narrower forms of VET provision, consequent upon the market-based reforms, come under pressure from the behaviour of companies in the labour market, who in many areas can and do express a preference for graduates. The development of a 'mass' HE system and has meant that the supply of graduates far outstrips the number of opportunities to get what were formerly defined as 'graduate jobs'.

This has had three significant consequences. First, graduates are increasingly likely to start in a wide range of jobs, and are often prepared to move between jobs to build up experience in the first few years after graduation. By this means, they move progressively towards a job which is broadly commensurate with their qualifications. Second, it does mean that employers can recruit academically well qualified people to fill positions in a way that adds value for the employer: for example, Mason (1996) found that graduates recruited to relatively junior positions in banks were more likely to see beyond confines of the immediate task and take opportunities, for instance, for cross-selling of products to customers. Third, Wilson (1995) argues that there is some evidence that when more highly qualified people are recruited the nature of the job to which they are recruited itself changes.

Indeed, Soskice (1993) argues that, in a UK context, it makes more sense for employers to recruit graduates, with generally more highly developed communication skills, willingness to learn and other 'key qualifications' but without any appropriate specifically vocational training, than to attempt to develop or secure individuals who had been through initial vocational training. [This was prior to the development of the State-financed Modern Apprenticeship system]. The argument is that graduates can then be given specific training and/or develop their skills through on-the-job training or programmes of learning while working.

(As outlined in more detail in section 2.8) Rajan et al (1997) point out, from their survey of 950 small and medium-sized companies in central London, that growing companies were likely to prefer graduates, precisely because they were reckoned to have the intellectual and behavioural traits most able to cope with learning by doing; coaching by line managers; and learning from interacting with suppliers and customers. That is, recruitment of graduates meant that the companies often had to do little formal training, as the graduate recruits were expected to learn through the exercise of significant work responsibilities.

6.1.8   Flexibility in the light of changing business processes in dynamic companies

When considering flexibility within VET, there is a tendency to concentrate upon formal provision and downplay flexibility associated with work itself and changing business processes. However, such processes are of interest not just as a target of formal VET provision, but as an

essential part of a more broadly defined VET, as they are central to learning at work. Brown and Attwell (1998), in a discussion of the interactions between changing patterns of training and changing business processes, make the point that there seems as though there are two essential developmental tasks young entrants have to be able to do if they are to function effectively in dynamic companies which are operating in knowledge-intensive environments. First, they need to be able to transfer what they have learned in other contexts to their new working environment. Second they need to engage in knowledge development in and on behalf of their companies. Both these processes warrant further investigation as neither process is unproblematic, and they point to the need to consider issues of transferability and knowledge development and the implications of supporting the development of these both within work and initial and continuing vocational education and training.

The transferability issue is debated more fully in a later section (6.3, but there are proposals for how the development of the ability to transfer skills, knowledge and understanding could be facilitated. How to support young people so that they are able to participate in knowledge development activities is a tougher challenge for VET. That major knowledge creation and development activities will figure only in work with a relatively high skill content and/or in particular sectors in the immediate future does not undermine the strategic significance of this issue.

Indeed the focus upon particular kinds of knowledge development has been identified as a key factor in innovations designed to increase the supply of creative knowledge value: "what is important for the production of knowledge value is not so much facilities or equipment in the material sense, but the knowledge, experience, and sensitivity to be found among those engaged in its creation" (Sakaiya, 1991, p270). This way, knowledge is assumed as the real driving force of our era, but also strictly linked with day-to-day problem-solving and problem-setting in working situations, and more generally with the professional competencies and expertise (Brown and Attwell, 1998).

In the UK context, the findings of Rajan et al (1997) (outlined in more detail in section 2.8) are perhaps significant: growing SMEs in London considered graduates were most likely to have the intellectual and behavioural traits necessary to contribute to such processes. The type of knowledge creation and development discussed here is not confined to formal knowledge related to knowing what, why and how but also to knowing who (Lundvall and Johnson, 1994). Know-who is a kind of knowledge which is becoming increasingly important, referring to a mix of different kinds of skills, in particular the social skills, allowing the access and use of knowledge possessed by someone else, often through a combination of professional and personal networks (Eraut et al, 1998b).

6.2 Mobility as a target of VET

6.2.1 Initial education system selects and structures, rather than facilitates, subsequent progression

A major problem affecting UK VET provision is the way GCSE examination performance at age 16 operates to differentiate, select and structure, rather than facilitate, subsequent progression (Ball et al 1998; Young 1998). The ESRC 16-19 Initiative, using data collected in the late 1980s and early 1990s, demonstrated qualitatively and quantitatively the extent of this differentiation in subsequent pathways (Banks et al, 1992; Bates and Riseborough, 1993).

Indeed, Roberts (1993) argued that, as qualifications gained at 16 were the best single predictor of subsequent career directions, there was a mirage of increased social mobility being achieved through participation in VET. More recent research highlights the way performance prior to and at age 16 also acts to influence the construction of 'learner identities', and these in turn influence how "alternative courses of educational action are evaluated" (Rees et al, 1997, p493).

6.2.2 *Skills supply and skills mismatches*

Another dimension of mobility concerns occupational mobility, and this may have implications for issues around skills supply. For example, Houghton (1993) argues that apparent skills shortages may relate more to skills mismatches: "that is, that there may be sufficient numbers of workers with 'shortage' skills being produced, but they move into jobs which do not use those skills. The reasons for this may lie beyond the spheres of education and training. There is evidence that some [people] are not prepared to accept the terms and conditions under which they would have to work when using their training and skills" (Edwards et al, 1998, p49). Thus there are large numbers of qualified teachers and nurses not working in those areas; financial institutions in the City of London often recruit engineering and other technological graduates; and low pay sectors like clothing manufacturing often find qualified staff switching over to become buyers for large retailers (Brown, 1994). There are also examples of mature graduates with 'shortage skills', who are nevertheless unable to get employment utilising those skills (Hogarth, 1997).

6.2.3 *Labour market segmentation*

On the other hand, elsewhere there may be too few possibilities for occupational mobility as where low skilled, low paid workers with few prospects of progression feel trapped in their current work (Forrester et al, 1995). Gallie (1994) also highlighted the growing polarisation in skill experiences between lower manual workers and other employees. Green and Montgomery (forthcoming) investigated young workers' experience of their job as an important stage in the transition from school to work, and found that more than one in six young people acquired only firm-specific, rather than transferable skills, in their first substantial job (usually lasting just over two years). [The findings were drawn from a survey of 21 year olds in early 1992, using a randomly selected sample of participants drawn from the 1970 Birth Cohort Survey.]

These young workers had left education with few qualifications and were then failing to acquire in their first jobs the skills necessary for mobility in the labour market. Elias and McKnight (1998) take stock of more recent charges in the youth labour market, and they highlight how "the main 'entry occupations' for young people without higher education qualifications appear to have been scaled down dramatically. A consequence of this is that the work-related training typically provided by employers in such jobs will also have disappeared, possibly leaving those who do not gain access to higher education more vulnerable than at any time in the last decade" (p22). Young people leaving education with few qualifications are now most likely to be recruited in areas of low wage employment, with little substantive work-related training. The polarisation in the labour market for young people between work with and without access to training and prospects of progression is intensifying.

6.3 Transferability as a target of VET

6.3.1 Context

If transfer is regarded as a learning process, then the developmental nature comes to the fore in questions like: how much more learning is required for individuals (or groups) to cope with significant changes in context and can facilitation support the learning process? Changing contexts and arrangements of learning between education, training and employment can be a powerful means to develop transferable key skills, the ability to transfer skills, knowledge and understanding, and a sense of significant skill ownership. Within VET programmes therefore there has been increasing attention paid towards developing orientations towards flexibility, change and the future, rather than simply training for existing jobs. This has led to the development of the concept of lifelong learning and placed increasing focus on the relationship between school to work transition and continuing training as underpinning the development of skilled work for flexibility, innovation and the creation of enterprises and jobs.

Additionally because of the uncertainties of the future European labour market, even a successful transition from school to work will often not result in permanent employment as an experienced skilled worker in one occupation. Rather, occupational mobility and flexibility will become of increasing importance for individuals as well as for organisations. Therefore a positive attitude towards lifelong learning will become more and more part of occupational identity, such that methods and approaches used in educational systems will have to be developed in order to foster the interaction between learning for and at work and within and across different sectors of education in an integrated and iterative way.

6.3.2 Promotion of transferability

Because many jobs are becoming more complex through task integration, this puts a premium upon the ability to transfer knowledge and skills to different situations (not least so as to reduce the learning time). Research highlights the importance of learners developing mental maps (Soden 1993), so as to be able to organise what they have learned, with the increased possibility that they could then apply this elsewhere.

Transfer though tends to be highly specific and it needs to be **guided**: it rarely occurs spontaneously. Perkins and Salomon (1989), in their review of research on transfer, argue transfer is possible, depending upon how knowledge and skills have been learned and how the individual deals with that knowledge in different contexts, and that two conditions are generally required for transfer to take place: context-specific knowledge and general skills have to be brought together and the approach to learning needs actively to seek ways to encourage transfer.

If one intention of a learning programme is to help learners develop the ability to transfer skills, knowledge and understanding, then learning contexts are required which draw attention to the significance of skill transfer. For example, this could involve actively helping people to look for opportunities to transfer skills, knowledge and experience and giving them opportunities to practise making successful transfers (Blagg et al 1992). Exposure to a **range** of contexts then can be valuable both for the way it can enhance and lead to a more complete ownership of a skill and because it allows learners to make connections (and think about transfer) between contexts.

Pea (1987) argues that it is necessary to promote a transfer culture, and this would include organising an affective climate directed at transfer. Hence attempts should be made to make transfer strongly linked to learner motivation and commitment. The whole thrust of this approach then is that learners in particular, but also trainers and tutors, are encouraged to analyse contexts for the possibility of skill transfer. Those supporting learners, particularly in the workplace, have to want to support skill transfer and this condition was often not met in the past.

Hayes (1992) highlights the potential for simulations or extended project work to integrate a number of strands of learning and to seek to promote the ability to transfer from that base. The requirement that learners integrate a broad range of experiences, besides having the capacity to develop the ability to transfer, can itself also help in the development of learners' critical thinking and conceptual skills. This does though depend upon learners being given opportunities for reflection so as to broaden the generality of skills and knowledge learned (Hammond and Collins, 1991).

6.3.3 Ideas upon how to promote transferability

A recent document on the need to promote transferability in learning programmes comes from Tim Oates of the Qualifications and Curriculum Authority (QCA). In a "Key Skills Strategy Paper" Oates (1998b) argues that the current specifications of key skills in GNVQ and other programmes have certain benefits, but that they do not engage with the issue of how to design learning programmes such that individuals are able to transfer what they have learned to new contexts. Oates highlights the value of the development in learners of adaptability "the transformation of existing skills and knowledge in order to perform effectively in unfamiliar tasks" (Oates, 1998b, p1). Note that what Oates terms adaptability could be broadly regarded as what is termed transferability in the context of European debates about these issues (Nijhof and Streumer, 1994). The key elements of the Oates argument are as follows:

- "the promotion of `true transfer' may best be secured by implementing a record of achievement for continuous recording of the way in which a key skill has been deployed and redeployed across an increasing range of contexts.....adaptability - throughout lifelong learning - is best promoted not by a drive towards attaining units, but by continuous review of application of skills in varying contexts. Recording of achievement processes, supported by structured review and tutoring support may be the best vehicle to promote this in all phases. The achievement of vocational and academic qualifications would be an outcome of these processes directed at adaptability, rather than adaptability itself being the focus of `hard' certification" (Oates, 1998b, p3).

- "skill transfer can break down unpredictably from person to person.....it seems to be down to the strategies which people use in coping with unfamiliar problems - the skills of transfer, and not just the possession of transferable skills.....we must recognise that summary assessment and certification of key skills or transferable skills is necessary, but insufficient. This needs to be supplemented by processes which encourage learners to analyse the way in which they are acquiring key skills, in analysing the links between activities they have undertaken in the past and the demands of new activities, and target-setting using frameworks of key/transferable skills. However, it is probable that normal

assessment and certification processes are unlikely to sensitively discriminate the `surface' learning from the `deep' learning effects. In consequence the argument that urgent attention be paid to the shape of *learning programmes* is a message UK education and training could do well to heed" (Oates, 1998b, pp 6-7, emphasis in the original).

- the strongest evidence on the value of this approach comes from a project on Cognitive Acceleration in Science Education (CASE) by Adey and Yates (1990). Students taking part in this initiative achieved higher grades not only in science subjects but also in subjects in which there had been no intervention. The curricular approach focused upon the following:

  1. **cognitive conflict -** students had to `struggle' with intellectually challenging problems. This approach required greater coherence in structuring learning situations, and the challenge had to be such that it could support learner development , without demoralising the learner through constant failure;
  2. **reflection** - learners were explicitly encouraged to think about and reflect upon their own thinking processes;
  3. **bridging** - learners were encouraged to adopt a conscious approach to transfer, in that they were encouraged to apply existing strategies to new tasks or situations;
  4. **reasoning patterns** - these were not taught directly, but teachers who were aware of these were "better equipped to help pupils develop the reasoning patterns for themselves" (Adey and Yates, 1990, p2).

- Oates also highlights how problem-solving approaches in maths have yielded enhanced performance in the application of skills through stimulation of enquiry in unfamiliar settings (Boaler, 1996). Medical training is also quoted as an area which has been effective in securing skill transfer. Although Oates (1998b)refers to evidence of skill transfer in medical training from the USA and New Zealand (Newble and Clarke, 1985), problem-solving approaches are now almost universal in the early stages of medical training in the UK and these have had marked effects on motivation and resulted in significant reductions in drop-out compared to the more traditional academic approaches previously used. These approaches also utilise a careful sequencing of theory and practice, focus upon learning styles and deliberate use of a wide range of learning styles (Newble and Clarke, 1985).

- Oates goes on to argue that although "the precise details of the models vary.....they share a common theory-driven pedagogy, focusing on principles of fostering autonomous redeployment of skills, through learning programmes where difference in context is managed carefully as a key aspect of the learning programme.....the crucial component therefore seems to be the following: pedagogy and programme management driven by a coherent model of skill transfer, not the simple implementation of a list of key skills" (Oates, 1998b, p24).

If one intention of a learning programme is to help learners develop the ability to transfer skills, knowledge and understanding, then learning contexts are required which draw attention to the significance of skill transfer. For example, this could involve actively helping people to look for opportunities to transfer skills, knowledge and experience and giving them opportunities to practise making successful transfers (Blagg et al, 1992). There is a need to create and sustain a

culture within organisations which values learning and development, and reflection can be an important process to help achieve this (Brown and Evans, 1994).

Any individuals with an ability to transfer what they have learned between contexts will need to be reflective both of their own practice and their own learning. The value of encouraging learners to reflect upon their own learning to try to get beyond surface level knowledge has long been recognised. In particular, attempts should be made to support reflection upon practice: that is, set up a spiral where what is **learned** from reflection on practice can inform action, thereby leading to further learning and so on (Winter, 1991).

An emphasis on reflection can also act to draw attention away from concerns with the acquisition of a fixed body of knowledge or a set of immutable competences: practice itself should always be **developing**. Hence it will be necessary for individuals to be able to continue to build and refine their own base of knowledge and understanding through reflection on practice, building a spiral of action and appreciation, leading to reflection-in-action (Schön, 1983). Critical reflection on experience then is seen as a motor for learning at work (Kolb, 1984). From this perspective, the acquisiton of additional qualifications in the organisational space is vital, and recognition in the qualificational space could play a role in helping individuals achieve mobility in the labour market.

One key message for those charged with designing effective learning programmes for the development of flexibility, transferability and mobility is that the prime focus of the inter-relationship between education, training and employment needs to be upon learning. Particular attention should be given to ways of outlining learning outcomes and processes in broad terms, so as to avoid the pitfalls associated with highly detailed criterion-based assessment systems. A focus upon learning immediately draws attention to the need to ensure learners possess or develop effective learning strategies. In particular, if the intention of a learning programme is to help learners develop the ability to transfer skills, knowledge and understanding, then learning contexts are required which draw attention to the significance of skill transfer. Processes of review and critical reflection are pivotal for this. Organised reflection on what has been learned and what needs to be learned in future can act as a bridge between working and learning, and as a bridge between the skills that are currently required and those that may be needed in future.

6.4 Critical role for guidance (in facilitating flexibility, transferability and mobility within VET)

6.4.1 Role of guidance in education and training markets

"The idealised learner within market models of the learning society operates as an autonomous customer, constructing a personalised pathway through modular curricula, leading to a tailored qualification, and owing no allegiance to any one institutional provider" (Edwards et al, 1998). This was the rationale behind the policy of the previous Conservative government, when individuals were urged to invest in lifelong learning in order to 'develop their personal competitiveness' (DfEE, 1995). In such circumstances, the quality and impartiality of educational and careers guidance becomes critical, and this was emphasised in successive national enquiries (Dearing, 1996; Kennedy, 1997). Where intense competition for students squeezes collaborative action, then the impartiality of institutional guidance is at risk (Connelly et al, 1996; Payne 1996). In practice, evidence is mounting that in-house

advice from providers was thoroughly compromised by their own concerns for recruitment and retention (Ball et al, 1998; Schagen et al, 1996).

Advice from guidance practitioners in the recently privatised careers companies is seen as more impartial, but even here the scope for individually tailored advice is severely compromised by requirements for practitioners to produce individual action plans. These action plans, for statutory clients (aged 18 or under), have to give a clear sense of direction, even if the narrowing of occupational choice was wholly inappropriate for the individual at that time. Such forms of action planning are predicated upon a technical-rational model of occupational choice, which Hodkinson et al (1996) has shown bears little relation to what happens in practice.

6.4.2 Pragmatic rationality in models of occupational choice

Hodkinson et al (1996) show that occupational choice should be considered more as a process, with individuals making pragmatic decisions at key points, in the light of particular sets of circumstances operating at the time. Similarly, Ball and Vincent (1998) draw attention to the way young people may differentiate between formal, official information ('cold knowledge'), which is often lacking in credibility, and 'hot knowledge', which is highly valued. 'Hot knowledge' is "usually evaluative and unequivocal. Such 'hot knowledge' is often absolutely decisive in making a choice or rejecting an institution entirely. Such knowledge is also particularly valued because the evaluations, advice, comment are often tailored to the personal characteristics of the individual" (Ball et al, 1998, p30). The specification of official information as 'cold knowledge' would also tune in with the findings of Russell and Wardman (1998) that most 16 year-olds pay relatively little attention to careers information materials when making decisions about their future at the end of compulsory schooling.

The number of young people who are 'active choosers' (Macrae et al, 1996) may be outweighed by those who through lack of knowledge, confidence and pressure of time respond to particular opportunities in a pragmatically rational way rather than making more considered choices (Hodkinson et al, 1996). Young people also hold very different views about the labour market, skill development and careers: "knowledge, perceptions, beliefs and attitudes towards skill formation are socially structured and not shared equally. Associated with this orientation is the notion that a series of **'cognitive filters'** operate within the skills formation arena that strongly influence individuals' decision-making.

Furthermore it is generally recognised that such 'cognitive filters' are asymmetric: **the least privileged in terms of social background have the least knowledge about how the system itself operates**" (Penn, 1998, p4, emphasis in the original). Penn et al (1993) similarly have shown that first generation international migrants have a significantly more restricted understanding of contemporary occupational and training structures. This means that attention has to be given to broad careers education, and without that notions such as flexibility and mobility will have little meaning, if both external constraints and internal cognitive filters are acting to limit individuals' thinking about skills formation, occupational choice and career development.

6.4.3 Adult guidance

The extent and nature of careers guidance is often circumscribed for young people, for whom careers services have a statutory duty to provide guidance. The position for older people in relation to access to guidance is much weaker, with the national (Fryer) report on lifelong learning underscoring the point about the "inadequate or insufficiently available impartial guidance and counselling for would-be learners" (Fryer, 1997, p21).

6.4.4   *Guidance within learning programmes*

Within learning programmes too, if learners are following individualised learning pathways, then this requires access to and greater flexibility from guidance services (HEE, 1997). Similarly, if an individual has a variety of ways to accumulate credit, including through assembly of a portfolio of evidence, then guidance becomes more central to that process (Cooper, 1996). However, "the models of guidance in practice mostly continue to seek to match individuals to available opportunities" (Edwards et al, 1998, p36).

Harris and Unwin (1998) have shown that even the information-giving aspect of guidance presents challenges for guidance practitioners: "the careers adviser is in the position of having to try and assess where the student is at in terms of their awareness, understanding of and interest in various post-16 routes, before they can begin to enter in to any kind of dialogue between the student and themselves, as opposed to simply being a source of information" (p34). Harris and Unwin (1998) also found that for both parents and students "whilst there is an understanding of the 'big picture', that is the importance of training and qualifications, the more detailed picture of the various routes open is less clear" (p35).

6.4.5   *Guidance and learning at work*

Where companies have made use of wide-ranging employee development schemes, then guidance and support can play a critical role in facilitating participation, development and progression (Harrison, 1997; Payne, 1996; Carroll, 1996). Indeed, Harrison (1997) goes on to make the point that, without appropriate information and guidance, individual choices may be problematic: "for whilst they are given responsibility for anticipating their own development needs, they are given no real information about changes in the organisational structure or future trading patterns of their employer" (Edwards et al, 1998, p54).

Other proposed developments such as the National Grid for Learning and the University for Industry offer innovative ways to access learning products and services (University for Industry, 1998), but are dependent upon learners becoming familiar with what is available, and the strengths and weaknesses of different types of provision.

6.4.6   *Research into the guidance process*

These pleas for more guidance, however, should not be taken as blanket evidence that any increase in the guidance available is automatically 'a good thing'. The guidance process has to engage the clients. It is noticeable that, when young people are asked about their satisfaction with careers guidance interviews some focus less upon the particular advice given and stress their judgement is influenced by whether they felt the guidance practitioner was interested in them and they 'felt understood' (Wilden and La Gro, 1998).

Similarly, Bloomer and Hodkinson (1998) point out how the current, policy-driven FE obsession with retention and completion is portrayed as in the interests of all, yet may not

always be in the interests of learners. They give an example of a student praising a tutor for helping him "decide to leave, despite the fact that this advice must have worsened college statistics and possibly reduced its income" (p66). It is a common-place to reiterate that guidance should be client-centred, but analysis of interviews in practice have shown the very low level of common ground between practitioners and clients in identifying 'helpful interventions' (Wilden and La Gro, 1998). This should give pause for thought: perhaps rather than blanket calls for more guidance, what would be really useful is more research on what constitutes 'effective guidance', and how this relates to the concerns of practitioners and clients, and how they perceive the development of the guidance process.

6.5   Possibilities for research collaboration

6.5.1   Some Potential Gaps, Weaknesses and Blindspots in Current Research

A number of the publications covered in this review seek to identify areas for further research (Ashton, 1997; Darling et al, 1998; Edwards et al, 1998). Drawing on these, and also upon the 'mapping' that we have undertaken in assembling this review, we would suggest the following as areas that have been relatively neglected and where there is potential for more or different research:

The first covers the question of how employers actually utilise and deploy skills. The linkages between skill supply, demand for skills, and job design and work organisation are substantially under-researched. The need is to open up the black box of the firm and skill usage, especially in the service sector where the majority of the working population are now employed and where the bulk of job growth is occurring. Integrating the issues of the supply of skills, demand for skills and their deployment and utilisation within a single causal cycle would be extremely valuable and is the focal point of the new ESRC Research Centre on Skills, Knowledge and Organisational Performance's research programme.

It would seem particularly important to try to look at those jobs that are relatively low status and/or low skilled and which tend to attract limited attention from researchers. For example, personal and protective services (care assistants, domestic staff and security guards) will be the fastest growing occupational group in the UK over the next few years, and in Europe the European Commission is expecting growth in these sectors to be a major means of tackling structural unemployment.

Second, Ashton (1997) details the need for and dimensions of a research strategy based around learning in the workplace. To this we would add a plea for the better integration of workplace learning research (with its often painstaking focus on the experience of the individual worker), with the general rhetoric, theorisation and model building now going on under the banner of the learning organisation and knowledge management. The insights that existing work on workplace learning can offer would greatly strengthen this work, and would also help to counterbalance the tendency by existing research to focus on the organisation and/or a managerial perspective, rather than acknowledge the interests, perhaps divergent interests, of the individual worker.

Third, there is the question of whether employers' product market strategies, work organisation, job design and IR/HRM systems alter if they are supplied with more skilled employees? If this does occur, how and in what ways does it happen? Given UK policy

makers' belief that boosting skills supply is of itself sufficient to transform economic and organisational performance, this would appear a particularly important issue to probe.

Fourth, the UK is unique in Europe in maintaining a private education system which is largely based on class (rather than say religious affiliation). Although this private system only educates a small minority of young people (about 7 per cent overall, though a much higher proportion of 16-18 year olds) its influence on the education system as a whole remains very significant. For example, the survival of A levels is sometimes attributed to the resistance (and lobbying power) of the public schools to the reform of a market niche in which they have a strong comparative advantage, and at a broader level the survival and indeed relative buoyancy of the private system both illustrates and supports the deep-seated traditions of elitism with which particularly English education is suffused. It is also apparent that some occupations, of which the judiciary is the most obvious example, continue to recruit almost exclusively from those who have attended public school and Oxford or Cambridge universities (Adonis and Pollard, 1997), and that attendance at an elite school has an extremely powerful positive effect upon the subsequent life chances of the child.

Despite the many interesting issues that the private system raises, it remains a topic that policy makers are on the whole anxious not to confront or discuss, and in recent years, despite a number of studies (for example, Boyd et al, 1989; Edwards et al, 1989; Rae, 1989; Walford, 1990 and 1991; Walden, 1996; Whitty et al, 1998), the area remains relatively under-studied.

Finally, Edwards et al (1998) in their study of the literature on lifelong learning identify "a range of issues which are susceptible to and would benefit from additional research and evaluation" (1998:81). These include, greater work on how skills are measured and recorded; in-depth longitudinal studies of individual participation and progression within the context of lifelong learning policies; more work on older adults; the roles of the various stakeholders; how guidance systems operate; the quality assurance of learning provision; the training of trainers (see also Darling et al, 1998); the use of information and communication technologies (ICTs) in delivering learning; the development and use of learning networks; the funding of lifelong learning; and the wider benefits of lifelong learning for the individual, economy and society.

6.5.2. *Future Research and Organisational Issues for the UK and EU - A Possible Agenda*

We have flagged up what we believe to be the major areas where further, new or better research effort is required within the UK context. Many of these issues will strike chords with researchers elsewhere in Europe, for example, the need for a far better understanding of the processes of workplace learning. Below we highlight two points, one a research issue, the other concerning the organisation of VET research.

Emergent/Developing Nationhood and VET - the UK as a test tube

A range of research (for example, Ashton and Green, 1996; Green, 1990) suggests that the role of VET in state formation is extremely important. The UK is currently engaged in a project of devolution of government to two countries - Wales and Scotland, which are set to gain their own parliaments. Both countries, though particularly Scotland, already have education systems that are divergent from that found in England. VET may be an area of policy in which both countries seek to build their statehood, delineate distinctive national

identities and emphasise their separation from England. Moreover, both countries are relatively small and may be able to develop more coherent and integrated policy communities within which the role of research might be able to take a different course from the current norm in England. It certainly seems likely that if the development of radical policy agendas related to the learning society, and qualification and curriculum reform are to occur in the UK, they are most liable to do so within the contexts of these two new national policy foci. This presents researchers in Wales and Scotland with major opportunities.

Only Connect

At several points above we have remarked upon the disjuncture between different bodies of VET research and the tendency for work not to carry across disciplinary boundaries. As Huddleston and Unwin put it:

> The research which informs the development of post-16 education and training and, in particular, vocational education and training (VET) comes from a range of disciplines which often do not have the language or inclination to speak to each other. For example, curriculum issues and qualifications' structures tend to be considered by educationalists in isolation from, say, economists' analyses of the labour market and business strategy. Hence we find that qualifications for both education and work are judged within an educational paradigm and that thus arguments about parity of esteem and the academic/vocational divide are based on the premise that vocational qualifications must prove themselves against an academic yardstick rather than being properly valued in their own right. Given the historical and continuing divisions which characterise post-16 education and training in England and Wales, it is important that research from the worlds of education, training and employment becomes more widely shared and assimilated.
> (1997:144).

We strongly agree with these sentiments. All too often the model of research that emerges from our review is that of moles burrowing away in parallel tunnels, each unaware of the efforts of their colleagues. Unless and until research becomes better integrated and able to adopt an holistic approach, although our knowledge of the detail may improve, understanding of the deep-seated problems that confront UK VET will remain, at best, fragmentary.

This need raises very significant issues about the long-standing tradition of organising research within mono-disciplinary boundaries, the need for inter-disciplinary research groupings and/or networking arrangements and infrastructure, and problems of assembling and supporting a 'critical mass' of researchers who can work together on integrated research projects that can bridge current divides. At present, even a basic database of UK VET research is lacking, and, as a first and very basic step, we would urge the creation of such a database, so that researchers (within and outside the UK) can find out what research has been done on a particular topic/area, and who is currently working in the field.

Moving beyond this, there is a need to try to create fora in which those working in different disciplines can meet and exchange information and views. This covers both those working in the UK, and those researchers active in the wider European dimension.

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