Comparative analysis of skill formation processes in England, Germany and the Netherlands

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1.   Background

The comparative analysis of skill formation processes in England, Germany and Holland undertaken in, 1995-96 represented the third stage of a series of longitudinal studies started in, 1988. An ESRC Senior Research Fellowship (Award Number H52427502594) enabled the strands of a number of previous investigations to be drawn together. The first stage Anglo-German project (1988-90), an associated study of the ESRC 16-19 Initiative, tracked broadly matched cohorts of 16-19 year olds on different trajectories through education, training and employment structures in two pairs of `matched' towns: Bremen and Liverpool, Paderborn and Swindon. That study gave a differentiated picture of patterns of transition into employment in buoyant and depressed labour markets in the two countries (Bynner and Roberts, 1991).

The second stage Anglo-German project (1990-92) followed up 40 young people in each of the four towns, but this time explored broader identity formation processes involved in becoming adult (Evans and Heinz, 1994). However, one significant strand of that work (occupational identity development and skill formation processes) was deliberately under-reported at the time. This was because there was a very different **pacing** to skill development in the two countries. In particular, German young people are often not expected to reach fully skilled status until their mid-20s. Hence fully comparative analysis of the process through to fully skilled experienced worker status was not possible until the mid-1990s.

In the meantime, however, a team of Dutch researchers had become interested in our `close matching' methodology. They had developed a similar overview of young people's education, training and employment pathways (1989-90), comparable to our Anglo-German Stage 1 work. This gave them the base to match both our Stage 2 work (1991-93) (van der Aa and Nieuwenhuis, 1993) and to follow selected young people through to experienced skilled worker status (1994-1996). This work was funded by the Dutch Ministry of Education and Science, and was used to inform policy discussions about the possibility of introducing greater dualisation into vocational education and training. The Dutch interviewees were selected so as to allow direct comparisons with the Anglo-German matched pairs. Hence it became possible to carry out a sustained, systematic comparative analysis of the processes of becoming skilled in the three countries, drawing on the rich veins of data collected in the period, 1988-96. The data analysis is continuing, but a range of research findings can be drawn together to highlight some key issues in the design and implementation of longitudinal comparative research.

2.   Rationale for the research

In the early stages of our comparative work it became clear that there was a need to look at the continuing education and development of young adults within each country in a differentiated way. That is, rather than treating national systems as monolithic, it is necessary to acknowledge there are wide variations within them according to occupational area, type and size of organisation, and relationship between education and industry. Also the focus upon individuals in context gives an insight into policy in action in a way which may be very different from the idealised account of the way national policies are thought to operate. Indeed this is one of the reasons why the three-way comparison is so interesting. The German dual system, the college-based Dutch system and the plethora of possible routes in the English system apparently offer sharply different routes to the continuing education and development of workers at skilled and technician levels. Whereas what are seen by the young people as their most significant learning and development experiences may not map very well on to expectations about how the formal systems should operate in practice.

Indeed, remarkably little is known about how the requisite skills, knowledge and understanding of an experienced (skilled) worker are acquired **in practice**. There is a marked lack of evidence about the impact of different patterning of continuing education and training upon such development. From an English perspective, comparisons about the development of the technician stratum are particularly interesting, both because of the historic weakness of the English system in developing comparatively few people at this level, and because this route is also being squeezed by markedly increased HE participation rates. One further feature is that all three systems are undergoing significant change and although there is considerable debate about the suitability of different approaches to skill formation, little attempt has been made to uncover the critical influences upon the quality of learning in different contexts.

The third stage of the research built directly upon the work of the ESRC 16-19 Initiative (Banks et al, 1992), the previous Anglo-German work (Bynner and Roberts, 1991, Evans and Heinz, 1994) and the matching Dutch research (Nieuwenhuis, 1991, Nieuwenhuis and Wiggers, 1992, van der Aa and Nieuwenhuis, 1993). The focus upon known local labour markets was a strength, given their significance due to differentiation within national systems of vocational education and training (Ashton and Maguire, 1986, Roberts et al, 1987, Rees et al, 1989). The research can also be seen as adding to reflections on research within different national systems of vocational education and training, such as those reported by Ryan (1991), Nijhof and Streumer (1994), Cressy and Jones (1995) and Koch and Reuling (1995).

The initial analyses of the local labour markets (Behrens and Brown, 1991, van der Aa and Nieuwenhuis, 1993) showed clear evidence of gendered occupational socialisation processes. The samples were therefore drawn to investigate this line of research further, particularly given the differential opportunities for progression (Herget et al, 1987, Wallace, 1994) and the way men's work aspirations have in the past spiralled upwards upon completion of initial skills development, while women's spiralled downwards, (Krüger, 1990, Stafford, 1991).

3.   Research objectives

The research was designed to achieve the following:

− to provide a sustained, systematic and longitudinal comparative analysis of the processes, content and meanings of reaching experienced skilled worker status in England, Germany and the Netherlands
− to investigate the different patterning of formal and informal support for development of individuals through to experienced worker status (for example, through use of continuing education and training, work-based learning, coaching or programmes of continuous development)
− to consolidate the use of `close matching' as a rigorous and grounded method for comparative analysis in education and training
− to develop process models of continuing education and training which highlight the different ways in which skill development occurs after completion initial skill formation (such models to be of interest to policy makers and practitioners)
− to show how a fuller understanding of the differentiated ways in which other national systems operate in practice gives a much more informed base for policy analysis and advice about skill formation processes in the UK, than generalised and over-simplified pictures of German and Dutch education and training.

4.   Methods

The main focus of the research was upon the development of young adults (aged from approximately 16 through to 25), technically skilled in eight different occupational areas, through to experienced worker status in the broadly matched labour markets of Swindon, Paderborn and Eindhoven. The eight occupational areas (engineering, electrical, heating and ventilation, pharmacy dispensing, hairdressing, nursing, banking and insurance) were chosen to cover a mix of small/medium enterprises and large companies, different labour market sectors and stereotypical male, female and mixed occupational routes.

The skill formation processes in the different occupational areas were investigated with an innovative methodology of progressive close matching, whereby closely matched triplets of young people were selected for in-depth interviewing. This procedure, the basis of the comparative case analysis, delivered not only strong contextual similarities, but also a rigorous comparison of individual experiences within these contexts. Hence the processes, content and meanings of reaching experienced worker status can be examined by a sustained and systematic comparative analysis of the matched triplets, whose occupational backgrounds are rather similar. Extended interviews with the young people themselves were supplemented by interviews with a range of other key informants. From an iterative process of data collection and analysis detailed commentaries were generated on the socialisation processes and milieux, which underpin the development of young people as they move through to experienced worker status. Information from the large survey sample of the previous research and from study of the various occupational fields provided necessary background information on labour market processes and occupational developments. This has allowed development

of a picture of progression, both from an individual career perspective and in relation to pathways through particular continuing education and training systems and labour markets.

In particular, close matching has allowed investigation of the different patterning of formal and informal support for development through to experienced worker status. That is, the relative contribution of formal continuing education and training, work-based learning, coaching, peer support, support of Meisters, supervisors or other key workers and programmes of continuous development has been investigated. From this process models of continuing education and training are being developed, which highlight the different ways in which skill development occurs after initial skill formation.

Methodological innovation

The `close matching' described above is the latest in a line of methodological innovations in our comparative work. The initial broad matching methodology of Stage 1 (Bynner and Heinz, 1991), was further focused for Stage 2 (Evans and Heinz, 1994). The potential of `close matching' had been established (Brown et al, 1991), but the Stage 3 research provided the opportunity to see whether it could meet the challenge posed by Ragin (1991) of how to introduce greater rigour into comparative case analysis. The close matching process delivers strong contextual similarities, which then gives opportunities for a rigorous comparison of individual experiences within those contexts. This has to be supplemented with contextual analysis, but potentially it does give scope to highlight the interplay of structure and agency taking place in skill formation and development processes. The key point here is that previously many comparative contributions to policy debates have been too general and undifferentiated, and have been over-concerned with policy rather than `policy in action'. The use of close matching to produce a rigorous comparative analysis of the effects of `policy in action' gives a much firmer base from which to make **differentiated** policy proposals.

5. Results

The results are presented in a thematic way, drawing out and expanding upon the major themes arising from the research. The findings have been presented in a series of publications, but the separate strands are drawn together in the following commentary.

5.1 The role of key workers in moves towards the development of learning organisations

Note the argument outlined below is given in full in Brown et al (1994) and in summary form in Brown (1997a).

Aim: to see whether lessons can be learned from consideration of how support for the development of occupational competence is given in Germany and the Netherlands (and Japan, based on secondary analysis), which could inform moves towards the development of learning organisations in England.

Lessons from comparison:
– in Germany, coaching or supporting expertise is bedded in the structures of work, and are part of a system-wide `training culture';

– in Holland, in the absence of system-wide support for the development of coaching expertise, one strand of the attempt by individual companies to promote a culture conducive to learning may be to link advancement within the company to an individual's progression in learning, including recognition of how successful they are in supporting the learning of others.

Conclusion:
the `key workers' who play a leading role in enhancing an organisation's skill capacity may be different (trainer, supervisor or working coach) in different contexts. From a longer-term perspective the facilitation of the development of working coaches within organisations is dependent upon three criteria. These criteria are: there has to be a mechanism that allows a prospective coach to develop the skills of guidance and support; coaches themselves have to exemplify a continuing commitment to learning; and the development of expertise as a coach needs to be reflected in career advancement and progression.

5.2 Designing learning programmes to promote a broad occupational competence

Note the argument outlined below is more fully developed in two recent publications (Brown et al, 1997; Brown 1998).

Aim: to address concerns of policy-makers in all three countries over whether current skill formation processes are equipping young people with the ability to adjust to changes in organisational structures, work processes and technological innovation, as well as with the individual flexibility to re-orient their career direction, if necessary. This is evident in worries that vocational education and training will be too narrowly focused upon particular conceptions of jobs and occupations, which are themselves changing, and in a consequent desire for `breadth' to be an important theme in processes of skill formation.

Conclusions:
– the prime focus of the inter-relationship between education, training and employment needs to be upon learning, and learners need to develop effective learning strategies. This requires learners being given opportunities to improve their learning to learn skills, develop their core skills, and a variety of contexts in which to practise skill transfer.
– processes of review and critical reflection are pivotal, and that organised reflection on what has and what needs to be learned can act as a bridge between working and learning.
– the attention on the process skills underpinning the ability to be effective in different contexts does not diminish the need for mastery of a substantive occupational knowledge base. The development of process skills should ideally be embedded in appropriate occupational contexts. Further, mastery of a substantive knowledge base is not only central to the development of occupational expertise, but it also forms a platform for continuing learning in the future. [Critics of the German dual system sometimes consider too much emphasis is given to mastery of a knowledge base, which often gets rapidly out-of-date. However, what this overlooks is that mastery of a knowledge base does not just result in a product but itself requires a process, and this process has continuing

value because it can have a confirming or transformative effect on the beliefs of young people that they can be effective learners.]

5.3   Debates about the future of vocational education in the Netherlands

The argument outlined below is given in full in the publication by van der Aa and Brown (1996).

The Dutch educational system could be characterised as hierarchical, with a clear order of higher and lower educational types, but coherent in that transfer was possible both horizontally and vertically (van der Ploeg, 1993). The system of vocational education is integrated into the overall system and has traditionally been overwhelmingly school-based. During the 1990s, there has been considerable pressure for reform of vocational education and training (Ministry of Education and Science, 1993), with the debate being dominated by whether to move to a (German-inspired) dual system. Administrative and financial issues have featured large in this debate, but our analysis (van der Aa and Brown, 1996) suggested that there is considerable value, for curricular reasons and to increase opportunities for progression, in adopting a more highly differentiated approach, that could encompass varied patterns and combinations of education, training and employment in different occupational areas. Recent evidence suggests the new qualification structure has allowed remarkable differences in actual implementation (Onstenk 1998), and as a consequence the pressure to make most vocational education and training fit a single template appears to have subsided.

5.4   Pressures for change and prospects for the future of vocational education and training in Germany

The argument outlined below is given in full in Brown (1996a).

The anchors that have given stability to the framework of vocational education and training in Germany for over forty years include: control over education by the individual states; key roles for the chambers, social partners and the federal state; the dual system; training of the trainers; specification of training regulations; general education continued as part of vocational education; forms of work organisation make extensive use of skilled workers; and clear links between companies' product market strategies and the type of workforce skills they require.

However, the German system of vocational education and training is now facing some key challenges. These include: poor progression prospects associated with some apprenticeships; lack of opportunities after age 20 to recover from initial failure; whether to differentiate types of apprenticeship qualifications by level, shifting attitudes of (large) employers towards the apprenticeship system; attempts to promote equivalence between general education and vocational tracks; and who will fill lower-middle technical and supervisory positions in future?

While the precise elements of a new consensus for the future direction of vocational education and training will need to be constructed, it is possible to identify a number of likely trends. The primacy of the largely firm-based route to skilled status will be

increasingly challenged: experience of and learning at work remain important, but education-based `blocks' of study will become much more significant. One response to the increased instability of both occupational and internal labour markets will be to look for different mixes in the ways skills are acquired and how learning can be targeted such that there is greater linkage and interaction between what is required in internal and occupational labour markets. There will be more flexibility in how people can mix different ways of acquiring skills, drawing on varying combinations of education-based learning and learning in the workplace, over time.

Even if it is not an explicit policy objective, one by-product of introducing more flexibility, and encouragement of vertical and horizontal mobility, into the vocational education and training system as a whole, will be to open up opportunities for progression to often well-qualified young women who find themselves in occupational cul-de-sacs, with poor long-term prospects.

The era of virtual complete domination of vocational education and training in Germany by the traditional firm-based dual system is coming to an end. In future, there is likely to be a greater variety in how vocational tracks are constituted, with greater linkages to higher education, higher level education and training and continuing education and training. The balance of time spent in education-based learning and learning in the workplace may shift more towards the former. The system as a whole will be more flexible, with greater emphasis on horizontal and vertical mobility. However, education and training driven by a clear occupational focus (a sense of `Beruf') is likely to remain the choice of very large numbers of young people. It is just that, in future, it might be more accurate to portray this as a vocational academic track, based at different times and to differing degrees in work and education, rather than a primarily firm-based vocational track. Indeed there is a certain irony in that the decline in the supremacy of the firm-based dual system, with education as the junior partner, could mean that a future dual system more closely lives up to its name: with a more equal partnership between education and work in the delivery of vocational education and training.

5.5 Gender differences in processes of occupational progression

Note this line of argument was partly developed in Brown (1995a), but will be extended at some point in the future following further data analysis.

The choice of gender as the organising principle for the selection of different groups flowed from the clear evidence in our previous work of gendered occupational socialisation processes (summarised in Wallace, 1994). In all three countries, there were structural constraints on opportunities for progression associated with becoming a nurse, hairdresser or a pharmacy dispensing assistant. This sometimes led some of the women's aspirations spiralling downwards (in line with the findings of Krüger, 1990). There was also some recognition of the work fitting with a classic female `dual career' orientation: that it would be possible later in life to work part-time to fit in with child-case responsibilities and/or return to work after a `break' from work (de Brujin, 1994), On the other hand, there were examples of individuals (English hairdresser; German pharmacy dispensing assistant) with very clear progressive occupational goals who were able to transcend the conventional constraints.

The opportunities for progression in the traditionally male areas (electricians, toolmakers and heating and ventilation technicians) were much more evident. Such opportunities related both to progression within work and opportunities for further education and training. All the male respondents who became established in a first skilled job were on a broadly upward path, with increasing responsibility in work and/or opportunities for promotion. Achieving that first established skilled post though could be problematic in all three countries. Analysis of systemic data, where this was readily available as in Germany, confirmed male domination of work-based routes leading through to technical and supervisory qualifications. Overall it is clear that skilled work and associated vocational training themselves play a broader socialisation role, whereby young people may come to accept the normative criteria associated with the prospect for progression in the occupation. This may lead to differential opportunities for further progression according to gender, but individual commitments too can play an important role in whether these constraints can be transcended (Brown, 1996b).

5.6 The development of work-based learning

Some of the themes outlined below were developed in earlier publications (Brown, 1995b; 1997b).

- increasing attention is being given to work-based learning, especially by large companies, particularly making use of action learning, project work and self learning, sometimes supported by systems of tutoring, mentoring, coaching and group work;
- in all three countries attempts have been made to encourage systematic reflection upon what has been learned through the use of assignments, work-based projects or Leittexte (guidance scripts);
- other workers not necessarily trainers or supervisors, can play a mentoring, support or coaching role to those developing their skills at work. Although in some cases, such workers lacked the necessary support skills for the help to be as effective as it might have been;
- in developing occupational expertise, those becoming skilled have to develop appropriate mental models or `ways of thinking', and one key stage in achieving this is through the development of frameworks or networks which link together knowledge and ideas from different sub-areas or sets of activities;
- work-based learning experiences could range from the challenging to the rather sterile: efforts should therefore be made to create a workplace context that qualifies as a `strong learning environment', where those working and learning are able to apply their developing skills, knowledge and understanding in different contexts;
- the value of work-based learning is established in some contexts, but a key question is how can these ideas be put into practice in other contexts;
- there could be considerable benefit from establishing a European infrastructure to facilitate networking between different initiatives, programmes and alliances aimed at the promotion of work-based learning: for example, in trying to forge `alliances of learning' covering a wide range of companies in particular industries.

Informal support for on-the-job learning can be important in particular work contexts, as there is an expectation that much crucial learning will take place without formal instruction. This support role could be played by supervisor, trainer, more experienced worker or work colleague. Whether those in support roles had sufficient support skills to help others learn was itself an open question.

On-the-job learning was most successful when it allowed those developing their skills full participation in the communities of practice that form around work. This included access to all relevant aspects of practice: in relation to performance in a variety of contexts, building of relations with particular individuals and groups of people, as well as experience of processes, products and services involved in work. There are strong social dimensions to learning to be involved in a `community of practice', linking as it does aspects of organisational and occupational socialisation.

5.7   Individual meanings of becoming skilled

While some of the results given above emphasise some of the structures and constraints within which people become skilled, there is still scope for individual agency (Brown, 1996b). For example, individual engagement with work activities could vary greatly, as could the strength of occupational attachment and the extent to which young people were proactive in the development of their own occupational identities (Brown, 1997b). Additionally, it was clear that individuals attached very different meanings to the whole process of becoming skilled, depending in part on how central making a commitment to a particular occupation was in the broader processes of developing an identity (Brown, 1996b): processes associated with `making a life' could take precedence over what could be conceived as narrower concerns with `making a living'.

5.8   Development of a dynamic model of occupational identity formation

Perhaps the most useful outcome of the research was the development of a dynamic model of occupational identity formation. This is summarised in Brown (1997c), with evidence in support of the arguments being offered in preceding publications (Brown 1996b; 1997b). The model is briefly outlined below, along with discussion of underlying theoretical commitments and other key features of the model.

6.   A dynamic model of occupational identity formation

The processes whereby people become skilled are complex. The implicit model underlying common-sense thinking about skill acquisition is that there is a body of skills, knowledge and understanding that has to be mastered before someone can be considered skilled. This model highlights an important aspect of skill acquisition, but it makes the process appear as if it is a simple linear transmission process. This linear transmission process though can be problematised in a number of ways.

First, it is a static representation - it does not allow for changes to the body of skills, knowledge and understanding to be acquired. Nor does it recognise the longitudinal

dimension to becoming skilled. That is, what it is to be skilled is different, to a smaller or greater extent, at the time you start on the process of becoming skilled from what it is when you formally complete the process.

Second, the social dimension of becoming skilled is not emphasised. The skills, knowledge and understanding that an individual develops over time are acquired in particular social settings. The social context in which learning takes places needs to be acknowledged. Individuals learn with and from others, and help others learn, and the significance of this means that the process of skill acquisition needs to be placed in a social context.

Third, the body of skills, knowledge and understanding to be mastered is represented as external to the individual. This does not allow for the individual to be an agent in the construction of her or his own particular set of skills and understandings that he or she acquires. That is, even if individuals are faced with a similar (changing) body of skills, knowledge and understanding, **how** they go about trying to achieve mastery of that body of skills, knowledge and understanding may be very different.

The most significant criticism though is that the focus upon becoming skilled could itself be regarded as too narrow in certain contexts. There is a need to ask the question `for what purpose is someone seeking to become skilled?'.  Immediately it can be seen that there is a difference between learning part of a body of skills, knowledge and understanding for the purposes of a hobby, as a means of securing part-time or occasional employment, or as a means of `making a living' over an extended period of time. In the latter case, it may be more appropriate to focus upon processes of occupational identity formation.

The final additional dimension to a consideration of becoming skilled, in the context of acquiring an occupational identity, is that these processes will take place within particular `communities of practice'. There may be a broad community of practice at the occupational level, but there will be more particular communities of practice associated with particular work organisations and education and training institutions in which skills are being developed. Indeed it may be that particular workgroups within an institution have typical ways of working that differentiate them to some extent from other groups.

A dynamic model of occupational identity formation

From the above it is possible to identify to what is required from a more comprehensive model of occupational identity formation in particular work organisations. It has to:
−   be a dynamic representation, allowing for change and development over time;
−   have a strong social dimension, whereby an individual learns, works and interacts with others;
−   allow the individual to be a significant actor in the construction of her or his own occupational identity;
−   recognise the existence of general and particular `communities of practice' associated with particular occupations and organisations, and acknowledge that these can operate at a number of levels.

Any model proposed needs not only an internal coherence, but also needs to engage with other theoretical propositions, if it is to offer a more general and comprehensive explanation. A diagrammatic representation of the proposed model is outlined in Figure 1.

Figure 1: Model of occupational identity formation
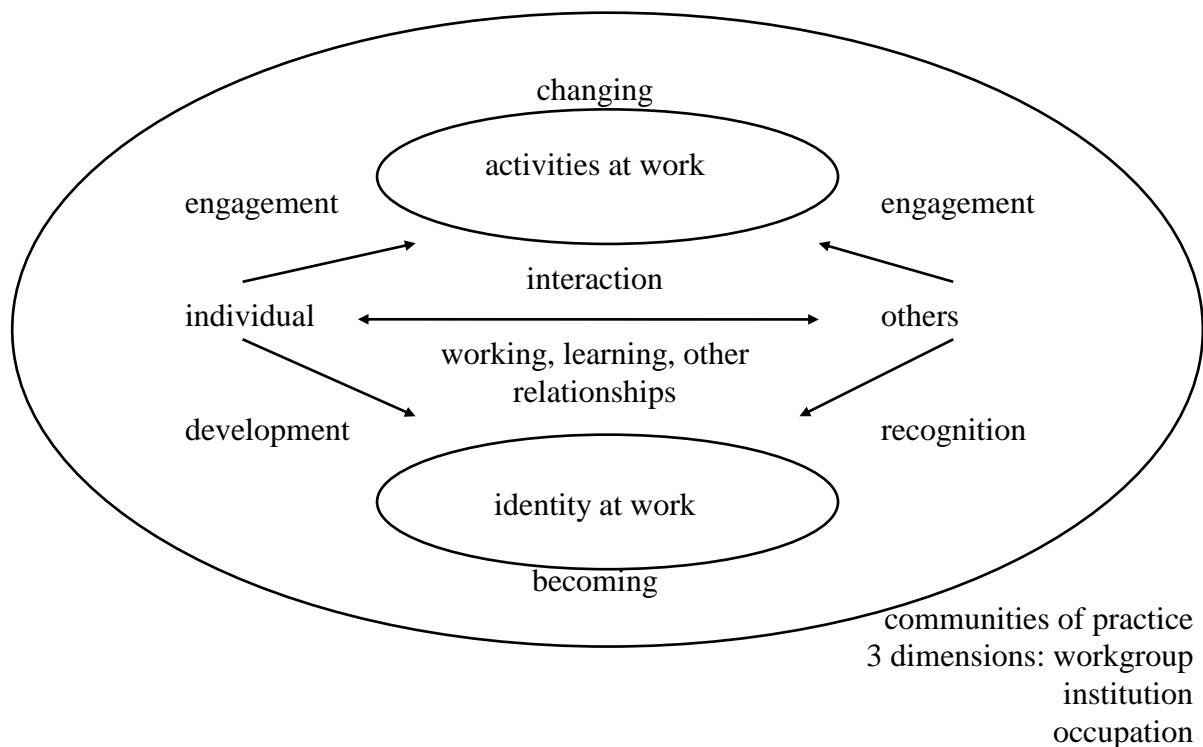
It is difficult to convey in two dimensions is the dynamic, developmental nature of the model. The sets of activities at work and communities of practice and the identities they support are all changing. It is important to remember that not all aspects of these activities, practices and identities are passively received by those engaging in them while in the process of becoming skilled. Rather the `about to be qualified' and `newly qualified' may play an important role in changing aspects of those activities, practices and identities. Indeed an understanding of such dynamism is required if a fundamental tension about occupational identity formation processes is to be recognised: that is, there is both continuity and change in how these processes work out over time.

Fundamental theoretical commitments underlying the model

Learning as a social process

An individual learns through interaction and communication with others. The process of learning though does not generate a single type of interaction. Rather learning takes place in contexts in which there may be multiple dimensions to the nature of the interactions: there may be a host of working and other relationships that have an influence upon the learning process. Individuals learn from a variety of sources and relationships. Not only are these relationships patterned differently, according to differences between individuals and contexts, but also the sheer variety in what, how and from whom learning occurs is sufficient to ensure there is not a linear transmission of learning. Changes in the particular constellations and configurations of influence and different patterns of relationships are sufficient to ensure that

learning as experienced can differ significantly for different individuals even within broadly similar contexts. Thus learning is a social process, but with differential effects and outcomes on particular individuals.

The significance of developing an identity

When considering the formation of occupational identities, there are two traps for the unwary. The first is to assume a smooth transition into appropriate skilled work for those who complete their initial skill training. This concept of progressive career development has been unravelling since the 1980s. For example, Herget (1987) found that many newly qualified skilled workers in (West) Germany did not find work they considered matched their skills and qualifications. In some cases work would be found in a completely different occupation: in such circumstances the extent to which an individual feels he or she `is' a skilled worker is problematic.

The second trap is in thinking that the occupation in which young people are training always has particular significance for them. A young person may attach far greater importance to `developing an identity' in a broader sense than to developing a particular occupational commitment.  The distinction could be portrayed as the difference between `making a life' and `making a living'. When expressed in that way, it can readily be seen that the former is of greater significance, and that the extent to which the latter (occupational) orientation is a central component of the former may vary between individuals and over time.

The net result of the above is that it is necessary to keep in mind the significance of developing a broad identity. An occupational identity being just one of a number of smaller identities that make up the overall identity of an individual.

Contested nature of experienced skilled worker status

The above arguments have indicated that the process of becoming skilled is a social activity, in which a number of others have an interest besides the individual directly concerned. While acknowledgement of formal status as a skilled worker may come through completion of an apprenticeship or similar status, both the individuals themselves and others may be wary of conferring the epithet `fully skilled' at this time.  That is, more likely to come when the individual and others recognise that he or she is an `experienced skilled worker'. Indeed there will often be a negotiation of meaning, whereby you are only an experienced skilled worker when you yourself and others recognise you as such.
One clear sign of recognition comes when others (for example, clients, peers or trainees) turn to the individual for advice, because they acknowledge the individual possesses valued skill, knowledge, expertise or experience which is acquired over time. External recognition can also come from management, through job grading and/or the type of work allocated to the individual, or through the type of work he or she can get in the external labour market.

Acquisition of experienced skilled worker status is contested in the sense that it is not clear at what precise point of time an individual reaches this status and because it depends on judgements of a number of people, who may be using different criteria in forming their judgements. However, besides external recognition an individual also has to recognise the value of her or his own skills. That is, he or she has to have a sense of self worth and recognition of and a belief that he or she owns significant skills.

Entry into a community of practice

The ideas that:
- learning is a relational social process;
- that processes of becoming skilled take place within a broader process of identity formation;
- and that recognition of significant achievement (and attainment of the status of experienced practitioner) is itself a socially mediated (or contested) process, dependent on the recognition of others and a sense of self-worth

all fit with the idea that a dominant theme in occupational identity formation is entry into a community of practice. That is, individuals are developing occupational identities that need to be related to particular socially situated, contextually embedded practice.

Interdependence of structure and agency

There may be a danger that the idea of a community of practice is elevated to a position whereby the individual is seen as `becoming' a practitioner, rather than just learning the practice, but it is still a matter of taking on identities and roles, which are pre-existent. Whereas in the proposed model, individuals may take a pro-active role in becoming a full participant in a changed community of practice, which has been partly changed by their efforts. Hence there is scope for individual agency to act upon the structures and processes in such a way so that a new community of practice develops.

Other key aspects of the model

Individual engagement with (changing) activities at work

Individuals learn how to engage in the activities at work in the way they do. Company management may have very clear ideas of what they considered to be appropriate ways for their skilled workers, and those in the process of becoming skilled, to engage with their work. Individuals may react very differently to such expectations, with behaviours ranging from complete rejection to complete engagement. Between these extremes newly skilled workers may exhibit a wide range of attitudes and behaviours in the extent to which they engage with the activities they perform at work (Brown, 1996b).

Development of individual identities at work

The technical possession of the requisite skills, knowledge, understanding and expertise necessary to be considered skilled is only one component to the development of an identity at work. One major distinction between young people becoming skilled was the extent to which they saw themselves as active in constructing their own identity, and in how they perceived their developing occupational identity. Some young people rather passively accepted their place at work: they saw themselves as likely to be doing broadly similar work with their current employer for the foreseeable future. They were not operating with any progressive notion of career, nor did they have any great expectations of work. Their identity at work seemed bound up with being an `ordinary' (rather than a `special') worker: doing the job steadily, without entertaining thoughts of promotion or changing employers. On the other

hand, there were examples of young people who were actively constructing dynamic identities, in which occupational success was an important factor (Brown, 1996b).

Engagement of others with (changing) activities at work

The above has emphasised the significance of the extent to which an individual engages with work activities and the type of identity at work that he or she develops. However, the reaction of others can also have direct or indirect effects on perceptions that the individual and/or others have on that engagement and developing identity. This is perhaps most marked when the work activities are themselves changing rapidly. A `battle' between `old' and `new' ways of working, and ways of engaging with work, is common at all times, but is given greater impetus when there is major organisational and/or technological change in a workplace.  This `battle' may be given added spice, if the proponents of the different views represent an `old guard' and a `new guard', trained in different ways and with differing sets of skills and attitudes.

Recognition of others in the development of individual identity at work

How they are perceived by other workgroup members, managers, other workers, trainees, clients and so on can all be influential in the formation of an occupational identity and an identity at work for an individual. The judgements of others may not necessarily be consistent and, even if they were, people may ascribe different values to particular characteristic. Thus a thorough painstaking approach to work may be appreciated by trainees and some clients (`conscientious; professional'), but be seen as irritating by managers and other clients (`too slow'). The recognition of others can help shape, confirm or contradict an individual's developing identity at work.

Interaction with others

The salience of the interaction between an individual and others in working, learning and other relationships is self-evident in any process of identity formation. The formation, development, maintenance and change of an occupational identity, and/or identities at work, are influenced by the nature of the relationships around which they are constructed. For example, recently skilled workers may still require the explicit support, encouragement and advice from their peers to reach the standard expected of experienced skilled workers in that company (Brown, 1996b).

Communities of practice

That individuals who became formally skilled were in the process of entering an occupational community of practice was most evident in Germany, where the whole initial vocational education and training system is driven by the principle of 'Beruf' (Reuling, 1998). However, within school-based initial vocational education and training the de facto community of practice within which the individual spends most time is the school, college or training institution. As a consequence, individuals may feel that they are still a considerable way from acquiring the full occupational identity in such circumstances, even if they are technically well-equipped to carry out the required work tasks.

Individual organisations can have their own distinctive communities of practice around which they structure their work activities and which influence their attitudes to training. Particular workgroups may have their own distinctive community of practice too. This is perhaps likely to be strongest where a specialist group is set up within a larger organisation, with people from a mix of occupational backgrounds, a different set of work activities and a different pattern of inter-relationships with other work groups. Such groups may consciously define themselves as `special' (Brown, 1996b).

Concluding discussion

From the above it is clear that the overall model looks as if it can handle a number of key tensions in any attempted explanation of occupational identity formation. In particular it looks as if it can cope with the tensions that:

- there are elements of continuity and change over time in the processes whereby occupational identities are formed;
- the individual is a significant actor in the construction of her or his own occupational identity, but the process is not wholly subjective. On the other hand, individuals and their interactions with others are partly constrained by the structures and processes of the communities of practice in which they take place, but that these interactions over time may lead to the development of changed communities of practice;
- occupational identities vary in the intensity with which they are held, and in the significance individuals ascribe to them. That is, while they are central to our research, they may or may not be of great significance to the individuals we are tracking. On the other hand, the broader process of identity formation in the sense of 'making a life' is fundamental to all individuals.

Additionally the model fits well with an existing coherent theoretical framework, as put forward by Lave (1991) in `Situated Learning in Communities of Practice'. Her general ideas [of:
- changing knowledgeable skill being subsumed in the process of changing identity in and through membership of a community of practice;
- situated social practice emphasising interdependency of agent and world;
- activity, meaning, cognition, learning and knowing being underpinned by inherent processes of social negotiation of meaning within a socially and culturally structured world;
- the way newcomers become old-timers as they develop a changing understanding of 'practice' through participation in an ongoing community of practice;
- the changing relationships of newcomers to ongoing activities and other participants]

all serve to ensure that the focus is upon a dynamic process. The model proposed can therefore be used as a tool for analysing longitudinal data on the processes of skill formation and of the way occupational identities develop and how these change over time.

7. Future research priorities

There are a number of lines of research arising from this project which might profitably be pursued:

i.   comparative research upon constructing and exemplifying a number of `ideal types' of successful transitions through to experienced skilled worker status. This could be directed at improving our theoretical understanding of the processes of learning as they relate to individual navigation through structures and opportunities in education, training and employment.

ii. research into processes of continuing education and training has traditionally had either an individualist or an organisational focus. One way forward may be to look for a reconciliation of ideas based upon the development of skills, knowledge and understanding of individuals with arguments emphasising the social context of learning within organisations and the importance of learning by groups and the organisation itself. For example, one area of investigation could be the relationship between formal and informal support in the development of individuals and organisations with a continuing commitment to learning. Such an enquiry would highlight the need to focus upon learning processes across a range of contexts.

iii. technical questions about how to make work-based learning effective in particular organisational contexts have largely been addressed or are subject to current research. Some broader questions, however, still need to be answered:

   −   is it possible to forge `alliances of learning' that cover a wide range of companies in particular industries?
   −   what are the implications for access and equity of the increasing bifurcation between different sets of individuals, groups and organisations according to their access to and/or commitment towards work-based learning?

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