Bridging the gap from student to capable practitioner

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Introduction

The purpose of this paper is to provide some background on matters relating to the transition between being a student and becoming a fully-fledged practitioner, drawing on a range of theoretical and research sources. A better understanding of this area is relevant to educators in improving the ability of courses to prepare students for practice, and for employers in appreciating the development that needs to take place at work following professional education.

The paper is structured in four main sections. The first summarises key concepts and models used in professional development including competence, capability, skills acquisition models, and knowledge types. The second considers the structures that professions put in place to support development to, and confirm achievement of, proficiency, an area where very little research has been carried out beyond curricular structures within or controlled by higher education institutions. The third examines how learning takes place in the phase between completing the course and reaching proficiency in practice, an area that is also under-researched particularly outside of a few well-structured professions. The fourth section looks briefly at how courses prepare students for professional work, an area where there is a large and growing body of research and reportage.

Concepts

Several concepts and models recur in discussions of professional development, and apply more or less across the initial or education-based phase, the practice-based phase, and in identifying criteria or levels of achievement for confirmation of proficiency. These include concepts of competence; models concerned with progression in terms of skills or competence; capability and associated principles; and the conceptualisation of knowledge.

The idea of competence is used in two main ways, one concerned with individual attributes or 'competencies' and the other with meeting agreed or codified expectations in the performance of a task or function. The former 'competency' approach is most widely used in North America, where lists of competencies have been derived through studying both 'critical incidents' (Spencer & Spencer 1993) and the attributes of effective job performers (e.g. Boyatzis 1982, McClelland 1998). In Europe this model is used by some organisations to develop internal competency frameworks, but it has been less influential in education and training where it has been criticised firstly for focusing on personal attributes rather than ability to act effectively, and secondly for perpetuating current skill-sets and approaches. It appears to have most validity in two situations, firstly for identifying skills and attributes relevant to specific contexts (partly consistent with its use for organisational competency

frameworks), and secondly when used at a broad as opposed to occupationally-specific level (see Klemp 1977).

The alternative functional or occupational model of competence (see Mansfield 1991) has been widely used in vocational education and training since the 1990s in the UK and has been adopted with some modification in Europe particularly through the work of CEDEFOP. The main contributions of the occupational competence approach used in the UK are firstly that it moves the focus from the attributes of the person to effective work performance, and secondly that it uses a threshold (competent/not yet competent) that is in principle set at a point relevant to the needs of the workplace. Although the model has influenced professional applications (see for instance Winter and Maisch 1996 in relation to social work and Lester 2001 in conservation), it has been subject to fairly widespread critique both in principle and in the rigid way it has been applied through the UK occupational standards and National Vocational Qualifications (NVQ) programme; for discussions relating to professional work see Elliott (1991), Hodkinson (1995), Eraut (2004) and Lester (2008) among others. Particular issues with the model are that it uses descriptions of practice without defining the level needed to be considered 'competent;' it describes practice in a closed and often restricted way that fails to recognise its negotiated, contextual and evolving nature; and it assumes that practice can be observed by an assessor or described rationally by the practitioner, or both.

Skills acquisition models are concerned with learning and progression in generic terms rather than with competence for a particular context or task. They evolved principally from a concern with how skills are learned in educational settings and how learners develop towards mastery. One influential source has been the extension of the well-known Bloom taxonomy into the psychomotor (observable skills) domain by authors including Dave (1967), Harrow (1972), Simpson (1972) and more recently Romiszowski (1999). These models are principally concerned with how discrete skills are learned (and therefore can be taught); Dave's stages of skill development for instance involve imitation/following instructions, manipulation, developing precision, articulation, and naturalisation. Their main limitation in professional development is that they are not easily applied to complex areas of action that involve depth of understanding and insight as well as overt skill. An alternative model developed by Stuart and Hubert Dreyfus (see Dreyfus 1981, Dreyfus & Dreyfus 1984 and Dreyfus & Dreyfus 1986) and refined in a range of complex and less complex contexts by the original authors and others is what has become known as the novice-to-expert scale (its stages are novice, advanced beginner, competent, proficient and expert); this has become widely influential not least because it lends itself to considering practice at a broad level as well as the development of specific skills and abilities. As with other skills development models it suggests movement to a point of finished development (i.e. the expert stage), something that has attracted a certain amount of critique (e.g. Flyvbjerg 1990, Eraut 2009); in particular the Dreyfus definition of 'expert' does not take account of the need to continue learning, to respond to changed contexts, or to innovate. Nevertheless the Dreyfus model is eminently usable to describe aspects of development from entry as a student to sign-off as an independent practitioner, and it adds a very necessary dimension of level or extent of ability to the idea of occupational competence.

The idea of capability was promoted in the UK through the Royal Society for Arts capability programme and the successor Higher Education for Capability initiative as a more open concept than competence, more in tune with the needs of higher education and professional development (see among others Stephenson & Weil 1992, Stephenson & Yorke 1998a, and O'Reilly *et al* 1999).

Capability has never become as closely defined as either competency or functional competence, and it has drawn on a range of sources including action learning, action research, parts of the competency tradition (in particular the work of Klemp and Boyatzis), and most of all Schön's reflective practitioner philosophy (Schön 1983, 1987). Stephenson (1998) describes capability as about both competence and the ability to become competent, to realise potential and to envisage and bring about considered and ethical change. Capability in this sense doesn't imply a particular stage of development in the same way as Dreyfus' notion of proficiency, although the idea of the 'capable practitioner' (O'Reilly *et al* 1999) does have a sense of going beyond the level of working to prescribed rules or standards to making judgements about what is right and appropriate in any given situation; Eraut (1994) describes it as having a similarity to the proficient stage in the Dreyfus model. Lester & Chapman (2000) use the idea of 'mature capability' to describe a stage of development or realisation that rather than reflecting Dreyfus' expert stage is more closely related to the idea of epistemic maturity (Kitchener & King 1981).

Two concepts that appear frequently in the capability literature are self-efficacy and ethical competence. Self-efficacy is essentially a person's belief in his or her ability to act effectively (Bandura 1977, 1995). Like capability it doesn't imply a point of development, and Bandura stresses that self-efficacy can be both developed and undermined by experiences throughout life: self-efficacy tends to be built by factors such as successful mastery of tasks, seeing and relating to others mastering skills and tasks, positive reinforcement, and responding constructively to one's own reactions, while it is reduced by failure (and negative responses to it), negative reinforcement, and negative reaction to psychological responses (e.g. failing to overcome fear or nervousness). Research (see for instance Pajares 1997 in addition to Bandura's work) indicates that self-efficacy is a major factor in effectiveness regardless of actual level of competence. Ethical literacy (Lunt 2008) or ethical competence (Friedman 2007) go beyond the normal exhortation on professionals to act in accordance with ethical codes, and imply an ability to 'read' situations from an ethical perspective, engage with ethical dilemmas, and resolve value-conflicts. There is an implication of moving from a 'competent' level (to return to Dreyfus) which might imply ability to know and follow ethical rules as written, to a level where the practitioner develops a lived set of values and takes responsibility for interpreting ethical principles into the practice situation.

In terms of knowledge, one set of concepts that have had significant influence in professional development emphasise the difference between declarative or 'espoused' knowledge (Argyris & Schön 1974, 1978) – essentially the knowledge that can be described or written down by a practitioner to describe the reasoning and processes behind a set of actions – and the 'knowledge in use' (*ibid*) that actually informs the actions. Argyris & Schön have shown that particularly in complex situations there can be a significant difference between the knowledge that a practitioner thinks or says informs action, and that which is actually being used. The difference between the two is partly explained by 'defensive routines' (*ibid*) or 'defensible accounts' (Eraut 2009) that practitioners use to give the impression of rationality and control, and partly by the fact that much of the knowledge that informs practice is tacit. Tacit knowledge pervades practice: drawing on the Dreyfus model, Eraut (*op cit*) comments that tacit knowledge is central to situational understanding, intuitive decision-making, and the routinised procedures that characterise proficient or expert handling of less complex cases.

This has implications for the way that professional knowledge is conceptualised. A fairly common way of considering professional knowledge is as consisting of a combination of researched and codified knowledge from academic disciplines (propositional or disciplinary knowledge, or what Schön refers to as the profession's 'science'), as well as the 'how-to' knowledge about practices, procedures and the best ways of doing things (technical-rational knowledge, or the profession's 'applied science'). The balance between these aspects, as well as the extent to which the profession draws on single or multiple disciplines, will vary between professions. Mastery of disciplinary and technical-rational knowledge may be sufficient to take a practitioner to a marginally competent level, but proficient and particularly expert practice also draws on transdisciplinary or dispositional knowledge that is more personal and stems from the practitioner's engagement with specific practice situations (Eraut 1994, Scott *et al* 2004). Lester (2012), drawing on Scott *et al*, describes this kind of knowledge as "concerned with adequacy for complex practical situations that resist analysis and routinisation; (it) is reflected in expert practice and is essentially non-predictable, non-deterministic and not easily amenable to being codified" (p269). Scott *et al* also identify a fourth category, critical knowledge, which arises from dissonance between evidence as experienced and other knowledge-claims; this is typically fuel for challenge, creativity and paradigm-changes. It is worth noting that Scott *et al* do not give precedence to any one knowledge-type, and from a transdisciplinary perspective it is the context and the actors within it that take centre stage rather than academic or professional knowledge-structures.

Professional development and assessment structures

Bines (1992) classifies professional education and development routes into three broad types: pre-technocratic or apprenticeship, in which learning is largely on-the-job, practical, and supervised by experienced practitioners; technocratic, in which the programme is structured so that the entrant learns disciplinary knowledge, applied knowledge and practice in separate (normally sequential) phases, typically supervised respectively by academics, practitioner-academics and experienced practitioners; and post-technocratic, where knowledge and practice are learned in a 'practicum' (Schön 1987) that involves partnership between academics and practitioners. Twenty years ago Bines commented that the technocratic model was favoured by the majority of professions, but suffered from poor integration of the different phases and lack of attention to the practice-based phase. It could also be added that the science-applied science-practice hierarchy implied in the technocratic sequence has proved cumbersome in some occupations including nursing, teaching and social work, all occupations that have struggled to define themselves as professions in the technical-rational mould. The post-technocratic approach aims to overcome these difficulties by gearing development towards proficient practice, though in doing so it also runs the risk of losing some of the broader and more liberal aspects of professional education.

In a more recent study Lester (2008, 2009) examined development routes in 21 professions, focusing on practices as reported by UK professional bodies. The findings indicated that although the dominance of technocratic routes was confirmed, these are becoming more flexible in structure and there is also a blurring of boundaries between different types of route. While traditional apprenticeship-type routes have largely disappeared, various primarily experiential routes have emerged either structured formally through training contracts and learning targets (such as school-based teacher training routes) or open to individual entrants to structure themselves in order to work towards objectives and standards set by the profession. Half the professions in the study had some

form of practice-based entry route, in most cases limited to part-experienced or mature entrants. Parallel development routes, typically involving day- or block-release courses alongside practice, are also reappearing as a major variant on the traditional sequential technocratic route; some professions see these as a way forward in the context of the increasing cost to students of full-time higher education, and two-thirds of the professions in the study operated both parallel and sequential routes. Integrated programmes as described by Bines appeared only in five professions, principally in health and teaching. There was a fairly strong trend to increasing the flexibility of entry-routes, in some cases moving away from predefined routes to sets of criteria that needed to be met, either at different stages of entry or progression, or (less commonly) only at the point of final assessment.

In terms of assessment, it is probably fair to generalise that initial professional development has been assessed off-job principally through written examinations and in some cases through a project, and on-job through informal sign-off by senior practitioners. The main trends noted in the Lester study were towards increasing both the rigour and the relevance of assessment, with a marked movement to having a more formal assessment process for the practice-based phase. This latter takes the form either of a set of criteria that have to be met as the practising period progresses, or a final assessment using one or more of a presentation/interview, portfolio of work or collection of reports, or site-based assessment, with some professions using both ongoing and summative approaches. In contrast with the findings a study carried out fifteen years earlier (Eraut & Cole 1993), the majority of professions now use explicit criteria for practice-based assessment. Interestingly in view of the large sums of public money invested in them, none use UK occupational standards in their raw form; the tendency is either to use broader and more holistic criteria describing proficient practice, or to focus on skills and attributes needed to practice effectively. This division between proficiency and attributes approaches can be equated roughly to the point at which practice is assessed, so that professions (such as nursing) that sign off new entrants at a relatively early stage of their development tend to focus on skills and attributes, while those that require several years of immersion in practice (such as surveying, engineering and conservation) focus on proficiency and broad capability.

A final trend noted in the study was towards improving routes for people moving into a profession from an adjacent or subsidiary occupation. 'Technician entry' can be frustrated by the need to go back into full-time higher education in order to qualify for entry to the related profession, and some professions have taken active steps to address this either through part-time or work-based university routes with credit for prior learning, or by creating routes to qualified level that bypass higher education (including the experiential routes referred to above). Numerically however the proportions of entrants who progress through these routes is relatively small outside a few professions where it is an established means of entry (see also Skills Commission 2011), and routes need to be complemented by appropriate publicity and support if they are to work.

Development through practice

The way in which learning actually takes place through the initial stages of professional employment has been the subject of little study until recently, and has tended to be something of a 'black box' partly informed by general theories of training and development and partly by assumptions that development takes place automatically through timeserving in a relevant environment. Most of the work that has been done in this field has been in the health sector and to a lesser extent teaching, a notable exception being the LiNEA project (Eraut *et al* 2005) which examined and compared learning

in the first three years of practice in engineering, accountancy and nursing. Eraut's extensive work on professional learning has been developed over many years, is well-theorised and provides a number of accessible and tested models explaining learning in the workplace (see for instance Eraut 1994, 2004, 2009).

A major theme explored by Eraut is the transfer and transformation of knowledge between education and workplace settings. His conclusion is that this process is much more complex than commonly perceived, and involves (1) extracting the knowledge from the context it was learned in, (2) understanding the new setting, (3) recognising what knowledge and skills are relevant, (4) transforming them to fit the new setting, and (5) integrating them with other skills and knowledge to produce effective performance. He comments that higher education focuses on the first and sometimes the third steps, while employers may give some attention to the third step but tend to underestimate what is involved in the second. Very little attention is given to the last two stages, partly because the processes involved are largely tacit and include things such as mulling things over until the pieces seem to fit, using insights from different areas of knowledge, and learning the cultural knowledge relevant to the situation – the 'how things are done around here' that experienced workers take for granted but are far from apparent to newcomers.

The professions studied in the LiNEA project differ in the way they structure initial development, with nursing using a higher education course integrated with practice (50% of the course time is in a practice setting), engineering generally being entered with an engineering degree which is followed by a practice-based training phase, and accountancy using a variety of routes but typically entered by non-accountancy graduates who attend a course alongside their practice-based training. In theory therefore nurses should be the best-equipped for the transition to the workplace, and accountants the least. In practice however common issues were encountered across the three groups, and nurses in particular suffered a 'transition shock' on starting real practice, caused by a huge increase in responsibility and workload, the pressure of the work environment, and lack of attention to the transition process; after four to six months half the cohort were reported as having a crisis of confidence, something also reported in nursing-specific research (e.g. Duchscher 2008). An implication is that even where courses are strongly practical and involve substantial amounts of time spent in the workplace, the transition to becoming a fully-fledged practitioner is still substantial. In Dreyfus' terms it might be posited that while new graduates of practically-oriented courses may have some *skills* that are developed to a competent, proficient or even expert level, in terms of overall *capability* they are likely to be at an advanced beginner level, at best verging on competent.

Eraut's research indicates that bridging the gap between student and capable practitioner is achieved most effectively in working environments where particular factors are present. In particular, opportunities are needed both for consolidation and refinement of existing competence and for expanding and broadening capability through progressive, supported participation in new activities. Specific activities which account for the majority of practice-based learning include:

- working alongside experienced practitioners where there is an opportunity to watch, listen and participate, and gain some sense of their tacit knowledge
- working with others to solve problems or achieve objectives, particularly where there is time to converse and get advice

- tackling challenging tasks, particularly where there is constructive feedback and support to build self-efficacy
- consolidating, extending and refining existing skills through practice
- experimenting and trying things out
- working with clients.

These factors are much more likely to be present in organisational environments firstly that enable work to be organised and allocated so that is challenging without undermining confidence, and secondly where there there is a supportive social climate and constructive interpersonal relationships. Similar conclusions were reached by Fuller & Unwin (2004) in their research on apprenticeships, where they note the importance of an 'expansive' learning environment to producing effective, high-quality learning that aids development beyond the immediate work role. Among other things such environments contain opportunities for learning that go beyond the immediate job, opportunities for reflection and innovation, supportive managers and colleagues, and time to make a gradual transition to "full, rounded participation" (p130). The 'Ascent to Competence' model proposed by Levett-Jones and Lathlean (2009) is also informative, drawing on Maslow's hierarchy of needs to identify factors that promote and inhibit learning in the development of student nurses.

Improving courses' ability to prepare students for practice

In the light of the above it is apparent that off-job and particularly full-time courses have a difficult job to do to prepare new entrants for practice. Traditionally the main role of degree courses has been to develop propositional knowledge along with the intellectual skills to use it, though not necessarily in practical situations. Professional degrees and courses have typically included activities where knowledge is applied to practice through case-studies and diagnostic exercises, applied project work, and in some cases periods of work experience, often unstructured from the perspective of learning. Led principally by medicine and the wider health sector along with teaching, architecture, and engineering, there has been a move to recognising that degree courses need to develop more of the 'how-to' or technical-rational knowledge used in practical situations along with a broader range of professional skills. The main directions this has taken are (a) bringing practice-based learning environments (or close substitutes) into the course, and (b) using problematic situations as a primary source of learning rather than only as a means of illustration and application.

The idea of the 'practicum' can be described as a learning environment in which manageable problems drawn from practice can be explored and tackled with a certain degree of safety (see Schön 1987). It can include actual experience of work in situations where there is (also) a learning objective and support for learning as in the practice-based components of nursing and teaching courses (Glenny & Hickling 1991); contained work experiences, such as law students' participation in clinics with members of the public who are seeking legal advice (Grimes *et al* 1995); or projects providing realistic work experiences, as with architectural students working in collaboration to prepare a design for consideration by a client. Practica can be arranged to provide a gradient from safe, relatively controlled learning environments to those that provide exposure to real-life working situations and some of their pressures and risks.

The use of problematic situations as a primary source of learning – 'problem-based learning' (PBL) – was pioneered by McMaster University's medical school in the 1960s, and subsequently filtered out

into other medical schools, health occupations and areas such as business and management. Boud & Feletti (1991) describe PBL as having four characteristics:

- the problem is a source of new learning, not just a site for application (as with a conventional case-study approach)
- the focus is on process knowledge (though not to the omission of propositional knowledge)
- tackling the problem develops real-life skills of diagnosis and decision-making
- working on problems develop both independence and interdependence.

Analyses of research and reports on PBL in medicine by Norman & Schmidt (1992) and Vernon & Blake (1993) indicate that it aids retention of knowledge and transfer of concepts into practice, improves self-directed learning, and enhances skills such as problem-solving, diagnosis and decision-making. Technical skills on the other hand do not appear to be improved specifically by PBL. Clearly PBL can be used at different levels of complexity and with paper-based case-studies through to practicum-type situations, with corresponding effects on the type and extent of learning. More recently PBL has been combined with an action learning philosophy (see Taylor 1997 and Katz 2000) to produce a more reflective, self-managed approach that places greater emphasis on the ability to take the initiative, reflect critically on information, evaluate one's own practice, and use supervision actively. This 'enquiry and action learning' (EAL) approach gives students more control of how they use PBL, moving it away from being a tutor-led vehicle for achieving predefined objectives.

The other trend apparent in some professional courses has been towards a model where learners have more control of their learning, through a facilitative rather than a didactic approach (Taylor 1997, Boud & Costley 2007), through reviewing and building on previous learning, and through the use of learning agreements (Anderson *et al* 1996, Stephenson & Yorke 1998b). The extent to which this is feasible tends to increase with the amount of exposure students have to working environments, with typically more flexibility on courses that run alongside work or are geared to the further development of more experienced practitioners than on those designed for school leavers. The negotiated approach (see Lester & Costley 2010) has tended to be taken up most effectively in programmes for experienced practitioners, but it is also used effectively by some universities to improve and formalise the learning from undergraduate work experience modules.

Concluding comments

The discussions above suggest various points at which attention can be given to improving the transition from novice student to proficient practitioner. Courses can be designed effectively so that students have exposure to real or realistic practice situations, and move beyond developing theoretical knowledge and discrete skills into engaging with issues that require them to develop and use broader capability. Universities and other course providers can also prepare students for the ongoing learning journey that they will need to undertake in the workplace, and in particular to anticipate the rapid and different kind of learning that will need to take place in the initial stages of work. Realisation among all concerned – course providers, employers, and professional bodies and agencies – that even the best-prepared student will enter the workplace as an advanced beginner will help avoid misplaced claims and expectations, and more importantly cushion some of the transition shock for new entrants. The provision of appropriate learning structures, environments and support in the first few years of employment appear critical, whether those are achieved through formally

supervised training programmes or more open mentored frameworks shaped largely by the developing practitioner and their employer. Finally there is a need for the different stages of professional development to be well-integrated (or at least fully cognisant of each other), so that the transition between them is progressive and positive.

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