Developing professionalism in new IT graduates? Who needs it?

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Developing professionalism in new IT graduates? Who needs it?

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Abstract — **A new graduate may require a period of 'acclimatisation' through a process of 'developing their professionalism' to fit into their work environment. The e-Skills UK Technology Counts Insights 2010 report suggests that 110,500 new entrants a year are required to fill IT & Telecoms professional job roles, with 20,800 coming from education (predominantly graduate level and higher). However, 43% of recruiters were reporting a lack of suitable candidates for IT & Telecoms posts where growing importance will be placed on relationship management, business process analysis and design, project and programme management. IT & Telecoms professionals are increasingly expected to be multi-skilled, with sophisticated business and interpersonal skills as well as technical competence. As the report also says: 'UK growth will continue to be primarily in high-value roles with an increasing need for customer and business-oriented skills as well as sophisticated technical competencies.'**

The diverse needs and requirements of the IT sector, as specified by various employer groups and professional bodies including BCS, IET, eSkills, the CBI and the SFIA Foundation, are discussed. According to the CBI, '62% of entrants to the IT sector need to draw on managerial and professional business skills almost immediately.' For organisations to succeed, their IT graduate recruits must supplement their IT skills with managerial and professional business skills. Well considered CPD will ensure that recent graduates can enhance their 'academic' skills with the necessary work-based skills for the benefit of both themselves and their new employer. The focus of the improvement will balance the student-centred needs for development and the engaging employer's commercial needs.

1. Introduction

In recent years many organisations and professions have placed an increased focus on what it means to be "professional". This focus has meant universities have been challenged to develop courses that aim to help professionals learn more from applying knowledge in practice rather than learning about practice (Chivers 2005).

What it means to be "professional" has often been expressed in the form of competencies covering areas such as knowledge, skills, behaviour, attitudes and values. The value of competences has sometimes been criticised, but also widely adopted. In their 2008 paper "the significance of workplace learning for individuals, groups and organisations", Eraut and Hirsch defined it as the ability "to perform the task and roles required to the expected standard" and considered the link between capability and competence. "All their (individuals) competence will be within their capability, but not all their capability will be needed for any specific job. So they (individuals) will also have additional capability which provides a useful resource for change in the job and changes of job" (Eraut and Hirsch, 2008).

To build this competence many organisations now provide individual learning and development activities or structured programmes to meet the needs of their staff. In addition, professional bodies are moving towards a higher level of mandatory Continuing Professional Development (CPD) in order to improve the skill level and professionalism of their members. More people therefore are building a portfolio of completed training and development activities combined with workplace coaching and self directed learning that may lack the coherence that could lead to a qualification.

All of this has led to an environment where there is also a growing demand for bespoke learning that effectively balances formal educational approaches with informal facilitated learning. Of course, not all organisations are interested in formal qualification outcomes for their staff development, but many do see university accreditation as a confirmation of quality and rigour and individuals welcome the ability to enhance their transferable skills and gain the recognition that qualification can provide.

2. The IT Professional Skills Landscape

Available data suggests that IT skills are in demand. Recent figures from Reed's annual job index suggests the UK need for IT professionals is 23% higher than at the start of 2010. The e-skills uk Technology Insights 2011 reports that there are approximately 144,000 workplaces in the UK's IT & Telecoms industry – 87% of which are IT and 13% Telecoms – and that, despite the state of the UK economy, demand for IT & Telecoms professionals has risen in the quarters up to and including the second quarter of 2010. At this time there were over 90,000 advertised positions in the UK (e-skills UK, 2011).

However, what could be seen as good news in terms of job prospects for IT graduates has been met by some with anxiety and warnings of an imminent skills shortage. These fears are based on a growing realisation that despite a highly IT literate population (relative to other countries) the education and learning sector has failed to deliver enough candidates with the necessary technical skills that they can apply in the workplace. And although Higher Education (HE) remains an important source of IT related talent for the sector's requirement the number of applicants to such courses in the UK has decreased by 44% since 2001 and, from 2002-2009, applicants to Computing degrees has dropped by 33%. Added to these concerns is a growing recognition that technical skills alone are not enough. Increasingly IT professionals must have a core business knowledge to cope with managing lifecycles, relationship management and project management. Recruiters surveyed by e-skills in the

second quarter of 2010 reported difficulty filling IT & Telecoms positions due to a lack of candidates with the required skills, qualifications or experience (e-skills UK, 2011).

3. Industry challenge to HE

The BCS study of Established Professions notes that 'Professional institutions have control over higher education products for many established professions' but that in the case of IT 'there is little control over higher education intake and its quality' and that this 'may result in a pool of poor calibre people in IT'. The study recommends that 'the IT profession must specify degree requirements, bring employers and e-skills UK together to define and facilitate appropriate change in academia. Currently many degrees are targeted at roles which are fulfilled overseas, and so IT degrees need to become much more business-oriented' (BCS, 2006).

This challenge to HE can be met in several ways. Firstly, HE could specify an HE benchmark for Information Technology – one that is aligned with an established body of knowledge such as the one the BCS (The Chartered Institute for IT) maintains for it's Chartered IT Professional (CITP) qualification (BCS, 2009). This core body of knowledge would form a common underpinning for every IT professional and span the profession and would broaden, govern and inform individual IT Professional thinking. Secondly, HE could engage with the employers to provide well considered CPD that would ensure that graduates could enhance their 'academic' skills with the necessary work-based skills for the benefit of both themselves and their employer. With numbers of IT graduates falling, it is imperative that HE ensures that those who choose a career in IT benefit from learning that enables them to progress throughout their careers.

4. The Professional Body View

The ambition of the BCS is to make IT the profession of the 21st century. They state that "The world economy is becoming ever-more dependent on the potential of technology to deliver information, products and services to its populations. The BCS is committed to improving the ability of business and other organisations to exploit the potential of information technology effectively and consistently and to building an IT profession that is respected and valued by all its stakeholders" and "the IT profession is as much about Information as about Technology and must be seen - and see itself - as an integral part of the business."

The BCS ambition is to see the IT profession respected in the same way as older established professions. During 2005 and 2006 they carried out a study of these professions collecting data to analyse how established professions operate, their best practices and how they progressed to maturity. Seven professions and some of their associated professional institutions were surveyed: legal, accountancy, construction, procurement, human resources, health and management. Their study led to the development of a

Professional Maturity Model derived from the Carnegie Mellon University Capability Maturity Model (BCS, 2006).
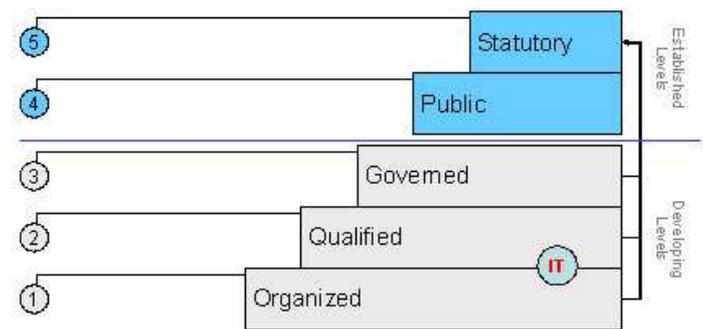

Fig. 1.   Professional Maturity Model derived from the Carnegie Mellon University Capability Maturity Model®.

In this model, the BCS's desired level of maturity for the IT profession is at an 'established' level, i.e. at level 4 or 5. However, it is currently considered to be between levels 1 and 2, i.e. at the Organised level - it is recognized as a community. The steps required to attain level 2 include: the need for qualifications to be brought together in a single open regime; a professional core body of knowledge to be defined and commonly agreed; training, skills and assessment programmes defined for professional qualifications; and for CPD to operate. To reach level 3 there is a requirement for IT professionals to develop leadership, management and broader business skills in accordance with a recognised competency framework.

5. Emerging frameworks

Organisations employing skilled IT professionals are often looking for very specific skill sets. A report from the CBI Higher Education Task Force entitled "Stronger together – Business and universities in turbulent times" indicated that employers are least satisfied with the business/customer awareness, self-management and communication skills of new graduates (CBI, 2009). According to the CBI, '62% of entrants to the IT sector need to draw on managerial and professional business skills almost immediately.' These are also key skill development areas indicated by e-Skills in their learning objectives for their IT internship programme.

The Skills Framework for the Information Age (SFIA) is harnessing business expertise to develop accurate IT job profiles which will provide a common reference model for the identification of the skills needed for effective use of IT and detail the skills required for particular positions. Any employers specifying their CPD needs would to be able to indicate their requirements using SFIA as a common industry framework.
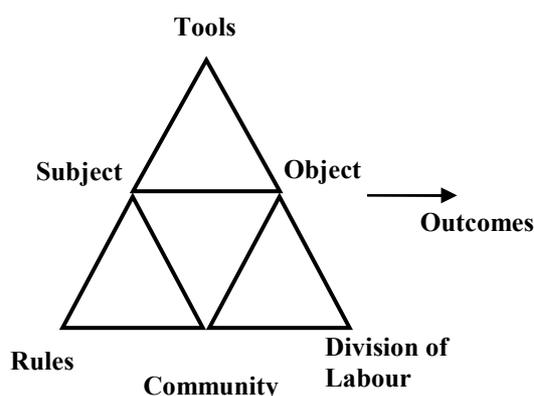
Fig. 2. An Activity Theory representation of 'Developing Professionalism' (adapted from Engeström, Y., 87)

Activity Theory (AT) can be used to highlight the relationships between the different elements involved in the process of 'Developing Professionalism'. In AT terms, the activity of the **Subject** is mediated by the **Tools** towards achieving the **Object** and producing **Outcomes**. This activity is governed by the **Rules** set by and operating within the **Community** whose members function according to a **Division of Labour** (Engeström, Y., 87). In this case, the Subject can be seen as the IT Graduate wishing to Develop Professionally (the Object) and achieve a higher level of Professionalism (the Outcome) within the IT Profession (the Community) by undertaking CPD (the Tools). This CPD is accredited by the IT Professional body (the Division of Labour) according to their agreed standards and professional core body of knowledge (the Rules). When different objectives are set (i.e. new levels of professionalism are required) then changes will take place in all the relationships. Thus the CPD courses may need to alter to reflect changes in standards and the division of labour may need to accommodate different accreditation functions. A similar analysis by an employer may for example, lead them to place less reliance on 'off-the-shelf' IT training and to look instead at staff development as a longer term, strategic process incorporating accreditations within an academic framework.

6. Open University's response to the Challenges

Working more closely with employers and professional bodies the employer engagement team at the OU recognised a common/growing demand for accreditation frameworks that could take into account and incorporate previous and ongoing professional development and internal learning and development programmes. Frameworks that could be flexible enough to incorporate the highly specific learning and development courses and technical programmes delivered in house or through specialist providers; in house coaching or mentoring and individuals own self directed CPD, sometimes blended with additional bespoke provision that the university could design. Different types of training may be taking place over very different timeframes and traditional training is usually done in much smaller chunks than formal qualifications. In a climate where most people are working longer hours, and organisations require more flexible workforces – smaller chunks of immediately relevant learning that can be build, at a suitable point, into a qualification are therefore more attractive.

In order to provide this level of flexibility, the university needed to provide new models that moved away from a very standard, structured approach to learning in which the start, middle and end points are very clearly and narrowly defined, to a model where the formative and summative assessment points would be common, but the start points and some of the content can be individually negotiated.

There follow brief details of three examples of the university's response to the need to:

- enhance employability by ensuring that people quickly have the skills that their organisation and profession require;
- recognise the value of "informal learning" and self directed CPD
- help people "get better at getting better"
- combine all the above in more flexible models of accreditation

7. Foundation Degree in Combined Professional Studies

The FdCPS gives students the chance to negotiate what to study across a wide range of subjects. They can align their learning programme with their personal, academic and career development aspirations, which may develop and change as their studies continue. For example, they can, if they wish, develop both Information Technology and Spanish language skills, or combine humanities with engineering and management, provided that they are coherent and backed by their employer and the OU.

The FdCPS also gives employers the opportunity to have a direct role in negotiating a programme of study that meets their specific business needs. The OU will help individuals and employers to design a coherent programme of study that seeks to align students' personal, academic and career development aspirations with the current and future skills needs of the organisation. This process is facilitated through the production of an agreed higher education learning plan (HELP), which is developed as part of the initial compulsory work-based learning module.

8. Postgraduate Certificate in IT Professional Practice

The Open University has been working with IBM and British Airways to understand the needs of organisations employing IT professionals. In this work great emphasis has been placed on using the SFIA competency and Procom frameworks as a common language shared between business, students and academia. A postgraduate certificate – the Certificate in IT Professional Practice (CIPP) - has been developed by the university in conjunction with eSkills, a number of employers and Lancaster University Management School. This is designed to meet the needs of graduates

joining the IT industry who have little formal IT training i.e. no IT or computer science first degree, and who are likely to have some form of IT management in their role. It covers six key areas: IT professional foundations; Foundations of leadership and professional skills development; Management of change for IT professionals; Foundations of IT project management; Business solutions design and development and Problem solving for business analysis.

Students engage with academic materials and assessment which relates this to their professional environment. The output is a portfolio to demonstrate competencies. The Certificate is designed to be flexible for both students and organisations by allowing study only on the units that they need, thus allowing students or organisations to create their own pathway through the qualification to suit their needs. Accreditation is achieved through the completion of a portfolio of evidence which recognises that individuals may have completed previous study that can be counted.
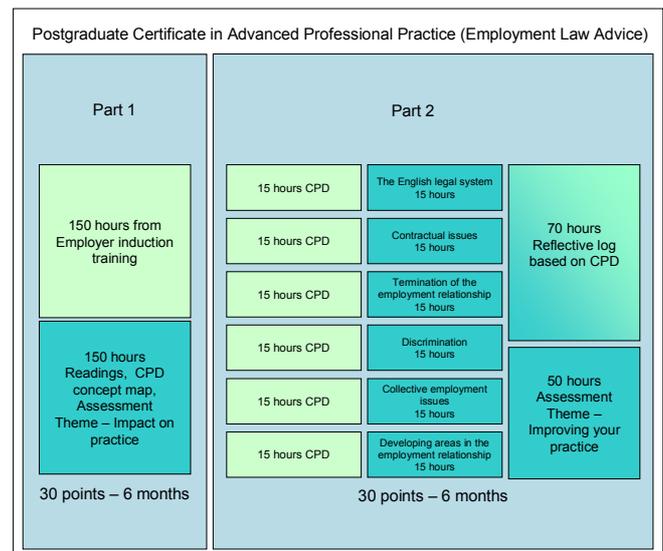
9. Versionable Postgraduate Certificate in Advanced Professional Practice in ……

As more organizations provide or encourage their employees to follow more "bespoke" learning and development, i.e. pathways that suit their individual CPD requirements, they increasingly face the challenge of how to find a way of designing career paths that both incorporate this training and provide the quality assurance and transferability that industry recognition and university accreditation gives. Additionally with the increasingly dispersed nature of many workforces there is the growing challenge of ensuring consistency of approach to learning and development and cross fertilisation of new ideas and shared learning across the workplace.

The Postgraduate Certificate in Advanced Professional Practice being developed in the Open University provides one solution to this problem by allowing organisations to bring in relevant in-house curriculum into an accreditation framework. This has the additional attraction of focusing the learning on improvement in practice, sharing the learning within an organisation and continued self-directed professional development. It also provides a framework within which IT graduates and early stage professionals can combine both specific technical and broader more generic management skills.

Delivered mostly on-line it allows participants to study largely at their own pace whilst still being connected to a wider organisational group. The curriculum can reflect development activities already undertaken within the organisation or new curriculum developed to cover specific areas required. The emphasis within the PG Cert is again on putting professional development and knowledge acquired into practice and ensuring that professional development continues, practice improves and a greater professionalism is achieved.

One example of the use of the PG Certificate has been with an organisation running a legal helpline, but the framework can be versioned to meet other employers' needs.

Fig. 3. Framework for PG Certificate

The first part of the qualification uses the organisation's existing induction training as a starting point for the qualification with participants then employing academic frameworks to assess the impact this development had had on their practice. The second part of the qualification contains six modules, developed specifically for this organisation. Participants study these as well as undertaking additional, self-directed CPD and complete a reflective log which records this CPD. They also start the process of examining how they would build the new knowledge into their practice. The final assessment asks students to develop a case study demonstrating the improvement in their practice. The qualification was developed in conjunction with the organisation and fitted around their situation. The format of the qualification enabled the organisation to reduce the necessary study time and utilise development that the participants had already undertaken.

The PG Cert can also fit into a Masters qualification as and when students chose to move on to that study. Whilst the employment law subject matter of this particular example is unlikely to be relevant to the IT sector the framework used here can be adapted to fit a number of environments.

All three examples support "individual pathways; they are designed to encourage the kind of reflection that helps people to understand, articulate and apply what they have learnt better and quicker and the involvement of the organization or profession in designing the learning has helped to reinforce the links between individual, group and organisation learning".

10. Conclusion

We have identified that the IT Skills landscape is changing and that there is a need to drive the IT Profession further up the Professional Maturity Model to develop greater professionalism. From the employer's point of view there is a need to look at staff development in the longer term and from HE's point of view there is a need to develop flexible CPD 'Tools' that will accommodate these 'Rule' changes and take

into consideration the 'Community' of IT Professionals and IT Employers. In answer to the question 'Developing professionalism … who needs it?' the answer is surely that the Professional Bodies need it, the employers need it, the individuals need it and the universities need it; we all need it.

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