Graduate e-literacies and employability

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Abstract
Graduate employability has become a major concern of politicians, of government and state funding agencies and of the universities since the expansion of higher education began in the 1960s. In this chapter we review recent developments in thinking about graduate skills, with a particular focus on e-literacies, and their relationship to the wider employability agenda. We base our analysis on data that we gathered during a European-commission funded project in seven universities across Europe. Our study explored the work universities have been doing in developing undergraduate e-literacies, the skills and attitudes of their undergraduate students, employers’ perspectives on graduate skills, and likely directions for graduate e-literacy development in the future.

Background
Recent trends in graduate employability thinking
Governments of all persuasions and worldwide regard education as the foundation upon which they will build successful economies that are able to withstand the buffeting of changes in the global marketplace in which they exist. This concern with education as a key ingredient in prosperity is reflected in their interest in expanding and improving education, by whatever means is open to them politically. The European Union (EU) expresses this interest openly in its various policy and strategy documents, for example, ‘becoming the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion’ (EU, 2000, 2003a, 2005). Remaining, or becoming, one of the most advanced and developed states or super-states is seen to be closely linked to the ‘knowledge economy’ where
intellectual, rather than physical, resources are key to wealth-generation. Information and communications technology (ICT) is a vital part of the knowledge economy, providing the automation, the creativity tools, the local and global communications and part of the support for mass post-compulsory education. A population that is e-literate and confident is a \textit{sine qua non} for success in the modern world. All governments look to their education systems to ensure that those who ‘graduate’ from them are competent at relevant skill levels.

EU member states make similar pronouncements (UK, 1998; Finland, 1999), and these are mirrored by government agencies in the USA and Australasia (US, 2002; US, 2005a, 2005b). Worldwide, developed and developing countries seek to raise e-literacy to raise prosperity (Kerala, 2005; UNESCO, 2005; NZ, 2000). Much of this interest in e-literacy focuses on higher education, the expansion of which has been rapid in developed countries, and continues to increase (EURYDICE, 2002).

Industry and commerce, whether huge, small, local or global, are dependent upon ICT-based high productivity, communications and knowledge management. To have a workforce with low ICT skills is to be severely hindered in the marketplace. The large volume of ICT training materials now available is testimony to the need to enhance employees’ ICT skills. Employers increasingly expect their recruits, at whatever level, to come adequately skilled.

For individuals, looking at almost any aspect of modern life, urban or rural, to see ICT present in some form or another, and to lack the skills to manage ICT to best personal advantage is to be excluded from development paths and from opportunities for self-improvement. One route to these skills is as part of the education process, and learners expect to be taught in settings where they can acquire the skills they need, whether in the period of compulsory education, at university or college, or in lifelong learning.

So far we have considered a view of ICT and e-literacy skills that assumes individuals are largely living and working within single countries. However, within the European Union in particular, and with respect to its interactions with the rest of the developed world, a further aspect of e-literacies emerges, namely their role in the \textit{mobility} of workers and learners (EU, 2003b). For individuals, to be able to move freely and to take up employment or study in other countries, they need to be assured that their skills and knowledge are comparable to those required elsewhere, that is, they need to know that they are able to meet \textit{standards}, and possibly to have suitable accreditation as proof. In the area of ICT skills, the European Computer Driving Licence (ECDL) provides one such accredited standard (ECDL, 2005), and some are being developed within some countries’ education systems. Standards for other e-literacies are much less well developed.

On a day-to-day basis, employers seek graduate recruits for varied reasons: they have (up-to-date) specialist knowledge of subject matter; they have gained matu-
rity since leaving school; they have learned how to cope with advanced and largely independent study; they can think flexibly, creatively and into the future, etc. For example, a typical list of graduate competences is given by the Council for Industry and Higher Education in the UK, which offers a set of ten employability skills that graduates should possess (CIHE, 2003), including:

- cognitive skills: ‘the ability to identify, analyse and solve problems, work with information and handle a mass of diverse data …’
- generic competencies: ‘high level and transferable key skills such as the ability to work with others in a team, communication skills, listening & questioning, written communication …’
- technical ability: ‘having the knowledge and experience of working with relevant modern technology. The ability to apply and exploit information technology.’

What sorts of skills are we talking about?

Many employability skills are couched in high-level language, but in reality are demonstrated by recruits through their ability to carry out specific tasks, using tools and sources provided by the employer or available freely outside. For example, ‘working with relevant modern technology’ may equate to use of Microsoft Office applications, a web browser, an authenticated intranet, a company knowledge base or staying connected while on the move, some elements of which graduate recruits will have experienced in the course of their studies, and others of which they may not have seen, or even be aware of. Ideally the match between university experiences and employer expectations will be close, or at least will be easily bridged.

Some skills are assumed to be possessed by all graduates, or at least are not specifically expressed by employers as a need, and among these are often the ‘e-literacies’, broadly consisting of the ‘ability to work and live in a changing digital world’. Thus the e-literacies for employability will be particularly focused on: ICT basics (productivity tools), information management (search, retrieval, storage), problem-solving using these e-literacies, digital communications, digital presentations, data handling and assessment of quality of information.

What have universities been doing?

E-literacies are gained in a complex context, where home, friends, educational establishments, special courses and self-tuition all play a part. Thus for many individuals the sources of training and support on which they draw for their skills development and maintenance will be complex, and consist, in varying amounts, of:

- formal training courses within formal education (e.g. e-literacy skills classes)
informal training within formal education (e.g. as part of subject-specific classes)
formal training courses outside formal education (e.g. commercial ICT skills courses)
formal training in the workplace
informal training in the workplace by colleagues (e.g. mentoring or spontaneous)
self-tuition by exploration or with manuals, help-files, etc.
informal tuition from friends, family or colleagues.

Universities have sought effective methods to develop e-literacy skills and knowledge in their graduates to enable them to be better fitted for employment, both as they begin their careers and also in the longer term. Some have adopted an identifiable ‘accreditation approach’ with specific courses, whereas others have adopted an ‘embedded’ approach where skills development is integrated into the curriculum and accredited as part of the degree award. Recent developments from around the world in this area can be found in the proceedings of conferences on e-literacy, for example eLit 2005 (www.elit-conf.org/elit2005/). Increasingly these skills development programmes are seen as part of an employability agenda within the university as much as within an academic skills agenda.

Some universities monitor aspects of student e-literacy and attitudes, as part of institutional research that underpins strategy. The University of Edinburgh has been collecting data on the ICT skills, knowledge and attitudes of newly arriving students since 1990 (Macleod et al., 2002; Haywood et al., 2004). There has been a steady rise in PC ownership, in the range of ICT applications that new students feel comfortable using, a view of the increasing importance of ICT in studies and careers, and the disappearance of gender as a factor. These e-litceries appear to be international, as similar skills and attitudes were found across Europe (SEUSISS, 2001; SPOT-PLUS, 2003) and in the USA (ECAR, 2004).

Exploring employer perspectives on graduate ICT skills
The SEUSISS project (Studies of European Universities Skills for ICT in Staff and Students) was a two-year, EC-funded, collaborative activity of seven universities in seven countries, designed to provide European universities with some of the information and tools necessary for them to address current issues in e-literacy, specifically ICT skills. Students were surveyed at these universities regarding their ICT skills, experiences and attitudes; senior staff were asked about ICT skills training; and, to discover how well student ICT skills and attitudes matched employers’ needs and wishes, a representative sample of employers in each country (40 in total) was interviewed. In addition, statements about ICT skills by employer
and professional organizations were researched. Employers were asked what use their organizations made of ICT, what their experiences were of the skills of graduate recruits and finally their expectations for the future in terms of changes in ICT which would impact on them as employers and graduates as recruits.

In general it was found that employers felt most graduates were adequately skilled in use of ICT, although there were gaps (presentation software, databases and information management), with some disparity between what graduates thought they could do and the reality once in the workplace. Many employers did not even bother to emphasize ICT skills: ‘We don’t even talk about that, neither do we mention it in the recruiting ads. We take it for granted that people, when they come here, are able to work with the normal software; that is, Microsoft Office, e-mail, and the web. We don’t even ask them about it. We consider it self-evident.’ This did vary to some degree between different European countries, probably reflecting the extent to which ICT skills development was embedded in education. In reality, many employers seemed to seek little beyond fluency with MS Office and comfort with using the internet. Larger companies had extensive training schemes, but those graduates entering small to medium enterprises (SMEs) would largely have to self-train, and even in large companies there was an expectation that graduates would work out what they needed: ‘Graduates are expected to be proactive in determining any training needs they have, including IT skills.’ Only a minority of employers were seeking certification of skills (e.g. ECDL) beyond the possession of a degree.

The publications and websites of professional associations and commercial organizations were searched for evidence of their views on educational needs of recruits, in particular ICT skills, but very little information was available on this subject, despite their widespread use of the web for publicity. It would appear that in some countries, perhaps most, these bodies look to universities to define what skills they need.

Examining the short-term horizon with employers, it seems that graduates will need greater skills in:

- web publishing: many companies said that this was an expanding area for them
- mobile working: ‘more networking, both as “culture” and in terms of software and hardware’
- knowledge/information management: ‘Graduates have good ICT skills and learn fast, although there is a lack of “knowledge management” thinking.’
- security: ‘a greater emphasis on security – documents, viruses, encryption’.
Futures
What new skills?

Technology does not stand still and so the range of e-literacies will expand and deepen steadily with time. Some of these will quickly become standard, indeed dominant, features at most universities, for example the virtual learning environment, online assessment, the hybrid or digital library, and the e-portfolio. Although primarily viewed as tools for the educational institution, many large companies are developing in-house training and professional development systems that make use of these same tools, and so fluency with them is an advantage for the lifelong learner. Similarly, the educational environment will increasingly expect students to be able to present work in an internet-ready form, through the use of personal websites for example, and companies now routinely also use intranet or internet media to supply and share documentation in HTML or PDF format.

The distinction between secure and open is of much greater significance to the employees of most commercial organizations than it is to the majority of students, who may not perceive, or appreciate, the security concerns of their university, and the processes that it puts in place to ensure security where it is needed. By tradition, many universities have a policy of ‘openness wherever possible’, whereas commercial organizations often take a diametrically opposed position. Thus new graduate recruits will need to learn quickly about firewalls, virtual private networks, divisions between intranet/extranet/internet, password renewal, digital signatures and so on. Those employees who are mobile workers or travel regularly will find that they are expected to stay online to a substantial degree, even though the mobile phone is still dominant in the area of commercial communications. Laptops, wireless connections, handheld devices, remote access to the company systems, transfer of digital documents, information search and retrieval en route will become a normal part life for some graduate recruits. In both universities and commerce, knowledge management is fast becoming a major concern and so students should acquire an understanding of how information and knowledge can be systematized and shared through knowledge bases. Alongside this lies an even greater pressure to find, assess and convert data gained through information search, retrieval, storage, and re-retrieval processes.

In the research areas of higher education, groupware and social networking applications have become frequent, and the RandD side of commercial organizations uses similar tools, sometimes in collaboration with universities. For meetings that require voice or sight, voice-over-IP and desktop videoconferencing are the norm in many large organizations, and are being adopted rapidly by small companies too as they reduce travel and telecommunications costs dramatically. Thus graduates entering these technology-rich working environments will be expected quickly to take up use of these e-tools too.
What new jobs?

The traditional pattern of graduate recruitment has changed in many developed countries as the university participation rate for 17–21-year-olds has expanded to reach 50% or more, and as more non-traditional entrants join universities. Graduates are now taking employment in a wider range of industries, especially in the server sector. Employment is less stable, with a greater element of short contract, freelance and self-employment options than in the past. Thus graduates need to be able to respond quickly and appropriately to the job market, and to shape their skills to demand. All large organizations are now international in reach, often global in location and composition, and so graduate employees may find themselves working and travelling across countries and continents. Thus ability to review their e-literacies in this global context is essential.

What future training?

The key to the successful graduate in their career will be self-development, assessing their own needs and acquiring new skills or updating old ones. The roots of this self-appraisal process lie in the training given at university (and before). In addition to skills development, there needs to be an awareness in the learner regarding their strengths and weaknesses in these skills, and also of their time-limited nature, and hence an awareness of the need for constant reappraisal. Universities themselves play a role in future skills development for graduates by ensuring that these are explicitly updated in continuing professional development courses offered to alumni.

What do universities do about all this?

Universities must recognize that skills are acquired formally and informally, and support both routes. They need to choose whether to adopt a ‘training and accreditation’ or an ‘integration and self-certification’ route, or a hybrid of the two. As undergraduates will often have been exposed to only part of the set of e-literacy skills that they might find useful, some approach is needed that ensures all have access to skills development independently of curriculum taken, that offers a self-development route. One way of dealing with this is by embedding employability perspectives in e-literacy skills development and (self-)assessment offerings. To do this effectively means keeping abreast of employers’ needs, thereby identifying gaps in university provision and filling these quickly. It also involves giving guidance to students on the skills (types and levels) they ought to be acquiring during their studies, enabling them to check their competence by self-testing, and perhaps offering self- or external accreditation as seems most appropriate.
What can employers do?

Employers can make the task of universities less uncertain by defining more clearly what graduate e-literacy skills are needed. What do they value? How do they rank the importance of different skills both now and for the future. We recognize that this is not easy, but the employers we spoke to in the course of the SEUSISS project did have expectations and made assumptions about what graduates should be able to do that could be translated into clear descriptions to guide universities. To make this as public as possible, employers could ensure that their expectations are made explicit through networks and associations as much as through direct contacts. Creating scenarios of the working day of their graduate recruits would enable students to assess the skills they will need, and reduce uncertainty.

Finally, employers emphasized to us the need for transferability of skills, of generic understanding not blind following, and of generative uses of e-literacy skills rather than simple training. To quote one employer who summed up neatly what others had implied: 'Universities are there to educate and not to train – I want people who can think and learn.'

Conclusions

The e-literacy skill set of graduates across the European universities in our study appeared to be at a level generally acceptable to employers. Skills were broadly similar in each university (country), suggesting that mobility of graduates seeking employment would not be impeded in this respect. However, it was clear that undergraduates bring many of their skills with them to university on arrival, often quite well developed, and some universities do rather little to systematically develop them further. It was also clear that, as employers expand the range of new technologies in everyday use by employees, for example mobile learning, universities may need to review and revise their definitions of their graduates’ skill sets.

References


