

IT EMPLOYERS' SKILLS DEMANDS: DO THEY KNOW WHAT THEY WANT?

Lucia Baillie
City University London
Professional Liaison Centre
Northampton Square
London
EC1V OHB
Tel: 020 7040 4050
Fax: 020 7040 0238
Email: L.Baillie@city.ac.uk

IT graduates face a barrage of information these days telling them that IT employers are finding it difficult to recruit graduates with suitable skills and that there is a skills gap in IT employment. Graduating with a first degree in IT is not, it seems, enough to guarantee a job within the IT sector that matches students' expectations. But what skills are employers really looking for and should HEIs build the development of 'workplace' skills into their curriculum?

City University has set up a new degree scheme within the Department of Computing called the Professional Pathway where students can combine work in IT related employment for 4 days a week with 1 day a week study after an initial full-time first year. It runs traditional thick sandwich degrees for the students on its three undergraduate computing degrees.

Action research is currently being carried out through the Professional Liaison Centre with employers and students participating in both degree schemes to establish what skills are sought in the IT world and how the University can address the issues raised. We are currently undertaking a 'skills audit' with employers as well as developing previous findings from students that focused on their perceptions of the skills they have to offer prospective employers. Interviews and focus groups are being held with students and employers with the aim of ascertaining their views on what are the skills that tomorrow's IT employees will need.

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In 1999 a report was compiled by the Information Technology, Communications and Electronic Skills Strategy Group entitled 'Skills for the Information Age' (DfES 99), wherein they sought to develop a national strategy to meet the skills needs of the ITCE (Information Technology, Communications and Electronics) sector. In their review of employees within the IT sector at the time, three important points are highlighted: 1) less than 50% of specialist IT workers are currently employed in what can be defined as the ITCE sector, with the remainder employed in a wide range of "user" sectors, 2) nearly two-thirds of graduates working as IT practitioners do not have IT-related degrees, as employers look for other skills other than strictly technical ability, 3) many large companies continue to recruit non-IT graduates and put them through their own training programme.

Using this information as a base, action research has been undertaken in the Department of Computing Placements Office at City University with employers of undergraduate placement students, to ascertain what skills they look for when employing new graduates and whether their views can be incorporated into students' placement preparation. The Department of Computing currently runs two types of degree option. One is the traditional sandwich scheme, where students take their third year in industry and return to complete their degree in their fourth year. The second is called the Professional Pathway option, where students complete one year of full-time study and, on entering their second year, spend up to four days a week in IT related work and attend University for one day a week. This option also takes four years to gain an undergraduate degree and in this time the Pathway students take the same modules and exams as their full-time peers. The Pathway scheme is currently in its second year and has 28 students enrolled on it. Students who are in the top 50% academically are offered the option to enter the Pathway scheme. Whilst on placement, students on both schemes are required to undertake employment in IT related work, whether the company is in the IT sector or not. Employers offering employment to both traditional one year placements students and Pathway students were interviewed on their attitude to graduate skills and a student's work place supervisor was targeted for the interviews. For ease of reference, skills were divided into technical skills and 'business skills', using the DfES definition of key skills as a starting point. Employers were asked to name both the technical skills and the business skills they would require from a graduate about to embark on IT work within their team. Employers were asked how they measured skills of new graduates and what pointers, if any, they used to ascertain a prospective employee's ability. They were also questioned on what they thought a University's role should be in enhancing a graduate's skills portfolio. Results are being used to shape the preparation undergraduates are given before embarking on their placements. In total 50 work place supervisors were questioned, from a range of companies that encompassed both the IT and the non-IT sector. The first issue to emerge was over the definition

of technical skills. When asked which technical skills are most useful to a new IT graduate, over half of the employers questioned cited the Microsoft Office suite, with particular emphasis on Access and PowerPoint. As a University offering computing degrees, the level of technical knowledge taught is aimed at a much higher level and there is an assumption, possibly erroneous, that students will be comfortable with such packages, when probably, apart from Word, students will never have encountered, Excel, Access or PowerPoint. Employers in the IT sector did ask for more specific technical skills, but those in other sectors such as finance or business tended towards far more generic descriptions such as 'basic programming skills'. As regards business skills, communication, problem solving and team working consistently rated as most important for employers. Interestingly, numeracy did not score very highly and was the least requested business skill after 'aptitude for business'. This view echoes research undertaken in 2000, where findings indicate that employers expect graduates to be numerate and therefore do not actually rate this very highly as a skill (Hesketh, 2000). Employers were asked how important business skills are in relation to degree subject and about 75% said that they were very important. When asked their reaction to the statement 'I consider soft skills to be as important as technical knowledge' three quarters of the employers agreed, with the rest strongly agreeing.

Work place supervisors were also questioned on how they measure a graduate's skill set. Interestingly, the most popular answer was CV combined with intuition. Few companies used tests of any description and few used set questions or scenarios in an attempt to bring out any relevant business skills. Smaller companies especially tended not to have formal interview techniques nor job specifications against which to measure attributes. When questioned about Key Skills certification, the employers interviewed here tended not to hold them in high regard. One felt they were a 'blunt instrument', whilst the most popular reason for not regarding them highly was that they fell short of the required graduate standard. This shows a lack of understanding of how Key Skills levels operate. Employers by and large preferred industry certificates, whilst acknowledging that it is almost impossible for a graduate to have any, as both price and lack of work experience make them prohibitive. In other research undertaken by Bennett et al on Skills Development and Higher Education, it was found that NVQs are very rarely incorporated into a company's training programme, despite these qualifications having been specifically designed for that purpose (Bennett et al 2000). Much work has to be done before employers give Key Skills the credence that the Government believe they deserve. Finally when asked whether HEIs should provide training in business skills the answer, inevitably, was a resounding yes.

It would seem that from the research undertaken, employers of graduates into IT positions want young people who have a mixture of technical and business skills and producing IT graduates with a good

degree that rests of technical knowledge is not sufficient to guarantee them employment of a high calibre upon graduation. In a DfES report entitled 'The labor market for Engineering, Science and IT graduates: are there mismatches between supply and demand?' (Mason 99), it was found that this is especially true in SMEs where employers need technical staff who can interact with clients. The rise of smaller companies who may not have adequate resources for training provision means that today's IT graduates must present themselves as a rounded competent employees before they can secure a post. However as Hesketh points out, it is important to draw the line between employers' needs and an employers' responsibility to provide training. If an employer cannot articulate at what level they desire certain skills other than basing them on an intuitive form of assessment, how can HEIs adequately ensure any work done with students is of a required level? Why should academics be expected to provide skills for a business world, when their own environment is very far removed from the world that many of our undergraduates aspire to enter? The role of a University is not to provide a the perfect employee, business must also take on it's own responsibility. In some ways it is a question of matching demand with supply. In research done with students on both placement schemes, about two thirds of students said they learned their 'business skills' in the workplace, or in previous employment, with very few reporting that any of the work undertaken at University had helped shaped any business skills. It seems that they do not consider handing in assignments on time, or planning revision, or group working as a training ground for skills that can be taken into the workplace. Bennett et al also note that students can often fail to make the connection between skills that they learn at University and business skills they will need in the workplace if these links are not made manifestly clear. Problem-solving especially is a core of the undergraduate computing degree programme, yet students may not realise that this skill, in particular, is prized by employers and therefore may not adequately demonstrate it on their CV. From this current year, all students embarking on a placement in the Department of Computing, have their CV approved by placement staff. This means that students can be guided in seeing the hidden business skills which they are acquiring through their academic work, by staff who know what employers are looking for. Lunchtime seminars have also been set up where placement staff talk to students about employer expectations. Perhaps, it is as much as we can do to encourage students to see their academic learning from a different perspective.

With regard to the technical skills many employer in this research deemed important, students are given the option to undertake a self assessment and learning package on-line. Again in order to be accepted for placement they must show that they have completed an intermediate level in the Microsoft office suite. This in theory, should be easy enough for a student of computing to achieve this quickly. Again students are encouraged to demonstrate on their CV that they are at least conversant with these programmes.

From the research undertaken and other studies, it appears that if employers are questioned in their views, they will set high standards, but when probed further, these standards are difficult to quantify. The question for the University is how far should they go in reorganizing courses to accommodate such demanding, yet 'fuzzy' criteria. In the Department of Computing we have decided to tackle the problem differently by asking the students to make the connections and allowing them the full experience of tailoring their skills to their aspirations, as indeed any employee seeking a job would. They will learn more business skills in their placements and as they mature will be able to see the connections themselves and once graduated will have the dual backgrounds of work and University from which to enrich their careers.

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