



Research undertaken on behalf of the Higher Education Careers Services Unit

Working Paper 4

The fit between graduate labour market supply and demand: 3rd year UK undergraduate degree final year students' perceptions of the skills they have to offer and the skills employers seek

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January 2012

THIS IS A WORKING PAPER EXPLORING ONE OF THE KEY THEMES INVESTIGATED IN THE FUTURETRACK STAGE 3 SURVEY, REFLECTING ONGOING WORK.

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The fit between graduate labour market supply and demand: 3rd year undergraduate degree final year students' perceptions of the skills they have to offer and the skills employers seek¹

The role of Higher Education in skills development

As higher education has expanded, there has been increased emphasis on the skills students learn during their time in HE, beyond the knowledge, technical and academic skills related to their subject or indicated by their achieved class of degree (Mason, Williams and Cranmer 2006:2). As a result, concern to assess and measure the impact of the wider generic skills that students derive from participation in tertiary education has grown. Since the 1970s and earlier, employers and their interest groups have increasingly articulated dissatisfaction with graduate skills - not simply shortage of technical skills but also of management and interpersonal competences to accompany them (e.g. CBI, 1970; CBI, 1989; Trades Union Congress, 1989). There has also been increasing interest in the development of 'transferable skills' (Ainley and Corney, 1990) and latterly 'employability skills' (HEFCE 2010). The concept of 'employability' has been most usefully defined recently as 'the ability of an individual to secure and sustain employment and progress within the workplace', recognising that different types of employment have different 'employability' requirements (Belt *et al.* 2010: 1-5, UKCES 2010: 2-3). However, there is considerable debate about what 'employability skills' are, particularly with reference to 'graduate employability skills'. There is often a confusion between basic literacy and numeracy skills; organisational skills (such as team working); individual personality traits and capacities developed in families and communities (such as optimism, interpersonal skills, capacity and willingness to work hard); socialised and formally-learned capacities (such as problem-solving and communication skills); knowledge and evidence of capacity to obtain and use knowledge effectively (for which HE qualification were traditionally assumed to be a proxy indicator and possession of such skills tended, by many employers, to be equated to achievement of qualifications from *elite* universities and particular courses); and finally social and commercial awareness.

Research on employers' perceptions of the graduate labour supply has consistently found that although graduate recruiters generally have had a positive impression of graduates overall, they also reported a lack of some capacities in job applicants and recruits, particularly a lack of business awareness and capacity for self-management, as well as skills shortages in STEM subject areas (CBI 2008, CBI and UUK 2009:49). The Institute of Directors (IOD, 2007) reported that although 68 per cent of the employers they surveyed were satisfied with the occupational and technical knowledge and skills (that is, the knowledge and skills related specifically to their degree subject) of their organisation's graduate employees, only 55 per cent were satisfied with their generic employment-related skills. Only a quarter of their members thought that young people (both graduates and non-graduates) were well prepared

¹ This paper refers only to those students who embarked full-time on 3 year undergraduate degrees in Autumn 2006. It will be revised and updated with the addition of responses from those who completed 4 year programmes, or completed three year programmes after a deferred year, when the Futuretrack Stage 3.2 survey data become available in Autumn/winter 2010/11).

for employment, while 40 per cent thought that they were unprepared. 'Employability skills' were seen to be particularly short supply in areas such as team-working and IT (CBI and UUK, *op. cit.* 9).

Consequently, the CBI (2009:40) notes that a key issue is

'raising the level of employability of our graduates by ensuring they have the important generic skills in team-working, reasoning and communicating that are required for many modern careers'.

and the CBI and Universities UK (*op cit.*:6) state that the most important lesson to draw from their report is that

'universities and business need to maintain and increase their activity in developing employability skills in all students, despite the economic downturn and the pressure on budgets [...] History shows that investment during a downturn leads to success when pressures ease, and investment in employability is an investment in the future'.

Various attempts have been made to establish which skills are most sought-after by employers and the most useful for graduates. The Dearing Report (1997) identified communication, numeracy, IT and 'learning how to learn' as key skills which were 'relevant throughout life, not simply in employment' (NCIHE, 1997), while the DfEE, in 1998, produced a more specific list of the 'skills which are required in almost any job' (DfEE, 1998, cited in Stewart and Knowles, 2000:68). These skills were:

- basic literacy and numeracy;
- the ability to work well with others;
- communication skills;
- self-motivation;
- the ability to organise one's work;
- a basic capability to use IT; and
- dedication and commitment

Other authors have added or modified this list of skills, with the CBI (2007:12) proposing that business and customer awareness and problem solving were among the key skills, while UKCES (2009:10-11) also cites problem solving as a key personal skill, along with understanding the business where the graduate is employed. With reference to people starting their first job, Martin *et al* (2008:25) reduce the list to the statement that although employers do not expect the 'finished article', they do expect candidates to '*at least be enthusiastic, literate, numerate and able to turn up on time*'. All of these have generally been expected as pre-requisites to embarking on any HE course, to a different level in the cases of literacy and numeracy and possibly more honoured in the breach than the observance by some students in the cases of enthusiasm and punctuality, but nevertheless the *sine qua non* of capacity to participate completely in and benefit from HE.

Alongside identification of a lack of employability skills development, there have been attempts to establish how HEIs are delivering these skills and how their success in doing so can be measured. Since 2001, HEFCE have developed measures of university performance that include indicators of graduate labour market outcomes

and in 2009 the Department for Business, Innovation and Skills (BIS) proposed to ask all universities to produce a statement on how they promote student employability, what they are doing to prepare their students for the labour market and how they plan to make information about the employment outcomes of their provision available to prospective students (BIS, 2009). DIUS (2008:6) put the onus for employability skills development very clearly on universities:

'We want to see all universities treating student employability as a core part of their mission. So we believe it is reasonable to expect universities to take responsibility for how their students are prepared for the world of work'

Consideration of these skills is consequently an implicit element of the Secretary of State for Higher Education's recent announcement that, in the face of financial constraints imposed by the recession

'The truth is that we need to rethink the case for our universities from the beginning. We need to rethink how we fund them, and what we expect them to deliver for the public support they receive' (Cable 2010)

Skills and attributes can be divided into categories based loosely on the 'hard and soft currencies' schema developed by Brown and Hesketh (2004). Their formulation pays attention both to what people know and have done and also who they are. Skills and experience fall broadly into Brown and Hesketh's 'hard currencies' category, which includes evidence-based records like academic credentials, work experience and sporting and musical achievements in so far as these demonstrate the acquisition of desirable skills and attributes. Personal qualities and attributes, such as interpersonal skills and time-management, together with factors such as appearance and how efficiently job applicants express themselves during the selection process are 'soft currencies' which are also important to employers in evaluating job candidates. They suggest that students who are aware of the importance placed by employers on softer skills and who know how to demonstrate these skills in their application forms are likely to be successful in finding employment – they are the 'players' who know how to 'play the game' (Brown and Hesketh: *ibid*).

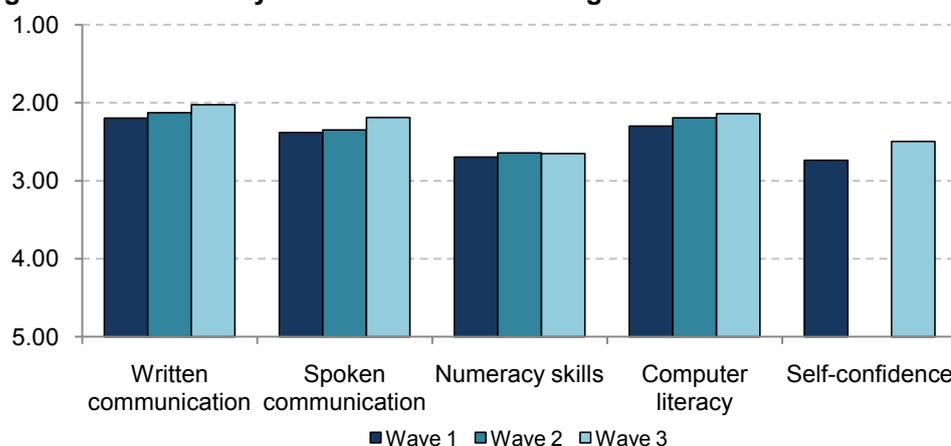
Respondents to the Futuretrack survey were asked a series of questions about the skills and attributes they believe they have, whether they have developed these through their course or through other means, and what kinds of skills and attributes they think employers are looking for when they are recruiting for graduate jobs. Following this, we aim to establish whether the graduating students appear to have the necessary skills for finding the kind of employment they aspire to, both immediately post-graduation and in the long-term. The extent to which their evaluations are realistic will become apparent when we have Stage 4 data, when we survey them two years after completing their degrees.

Skills students think they have

Students were asked at each of the Futuretrack stages completed so far to assess their strengths and weaknesses in relation to a range of skills on a scale of '1 to 5', with '1' meaning they believe their skills are excellent, and '5' meaning their skills are

not very good. Figure 1 shows their mean ratings at each stage of the survey. There was no question about self-confidence in the Futuretrack stage 2 survey.

Figure 1 Third year finalists' mean rating of their skills on a scale of 1 to 5*

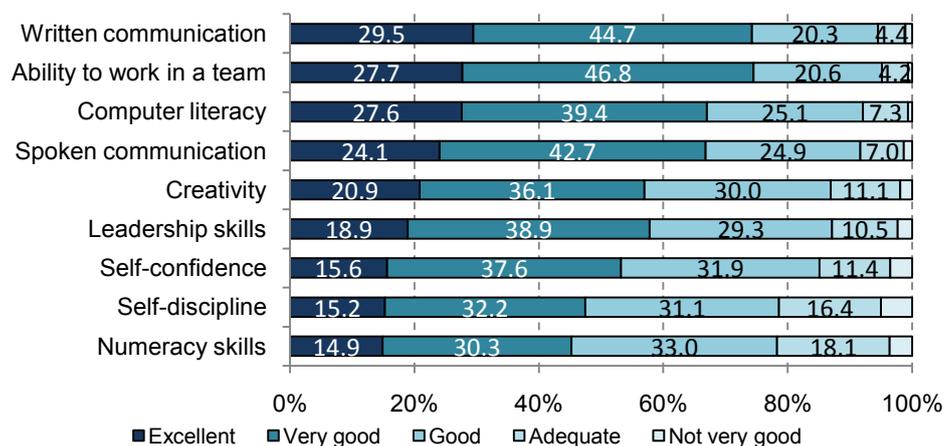


*Mean scores where 1 = 'excellent' and '5' = 'not very good'

Source: Futuretrack 2006 combined dataset: UK based final year students who responded to stage 3 (weighted).

As Figure 1 shows, in all cases, students rated their skills more highly at each successive stage of the survey. Numeracy skills show less improvement on average, because only a minority of students study subjects where the development of these skills is integral to the course syllabus. At Stage 3, respondents were asked to rate their competencies in some additional skill areas, and their responses are shown in Figure 2.

Figure 2 Students' self-rating of their skills



Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

As this Figure shows, written communication and team-working skills were the areas in which respondents were most likely to rate their competence highly, with just under three-quarters rating themselves as 'excellent' or 'very good'. Conversely, self-rating of self-confidence, self-discipline and numeracy were considerably less likely to have been high, and were also the items most likely to be rated as 'not very good'. It may be that students are simply more self-critical when it comes to the less objective

measures, and it must be noted that the majority of students rated their skills as at least 'adequate' in all the areas identified.

However, if we compare those studying different subjects, we get some indication of the different attributes and self-rated strengths of those who acquiring different kinds of skills and knowledge in different contexts, as Table 1 shows.

Table 1 Extent of high self-rating of core skills by selected broad subject groups

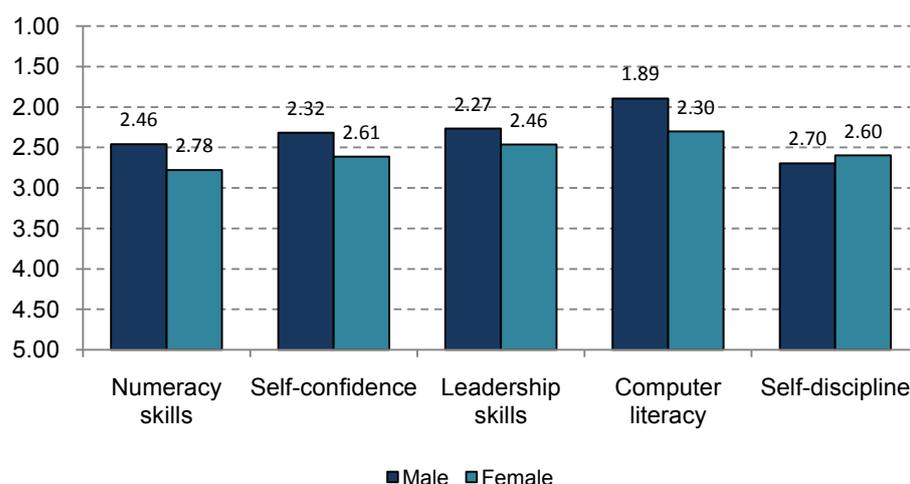
Broad subject of study	Percentage rating their skills as excellent or very good				
	Written communication	Numeracy	Ability to work in a team	Self-confidence	Self-discipline
Physical Sciences	73.6	55.1	75.1	52.7	43.9
Engineering & Technologies	60.8	63.9	69.1	58.9	46.6
Mathematics & Computing	69	70.7	72.1	51.1	51.6
Law	82.6	43.2	73.6	58.7	52.1
Social Sciences	75.1	43	72.8	53.4	46.6
Business & Administration	73.6	58.2	76.7	62.6	55.6
Historical & Philosophical Studies	83.5	33.4	69.4	52.2	46.1
Creative Arts & Design	68.7	38.3	80.5	54	48.7

Source: Futuretrack 2006 combined dataset: UK based final year students, selected subjects (weighted)

These differences in confidence about written communication, numeracy and team working are scarcely surprising and the relatively low self-rating of numerical skills, even in discipline areas where high numeracy might be expected to be a prerequisite, possibly reflects different reference groups implicitly used for comparison by different groups of students. The two measures that are more focussed on personal attributes and more broadly socialised aspects of personality: self-discipline and self-confidence were, like numeracy, somewhat less likely to be rated highly. This is likely to reflect differences in the gender and age profiles of students studying different subjects as well as the skills developed in the course of study – but even so, the range from highest to lowest is narrower than for the 'harder' competences.

In addition to subject differences, there were differences between different groups of students, and this has implications for the role HE has to play in promoting equality in terms of gender, age and ethnicity. As Figure 3 shows, in four of the skill areas, the mean score for female students suggests that they continued to rate their skills less highly than male students, as had been found at the outset of their courses, with their mean score marginally higher in only the area of self-discipline.

Figure 3 Students' self-rating of selected 'graduate employability skills'*



*Mean scores where 1 = 'excellent' and '5' = 'not very good'

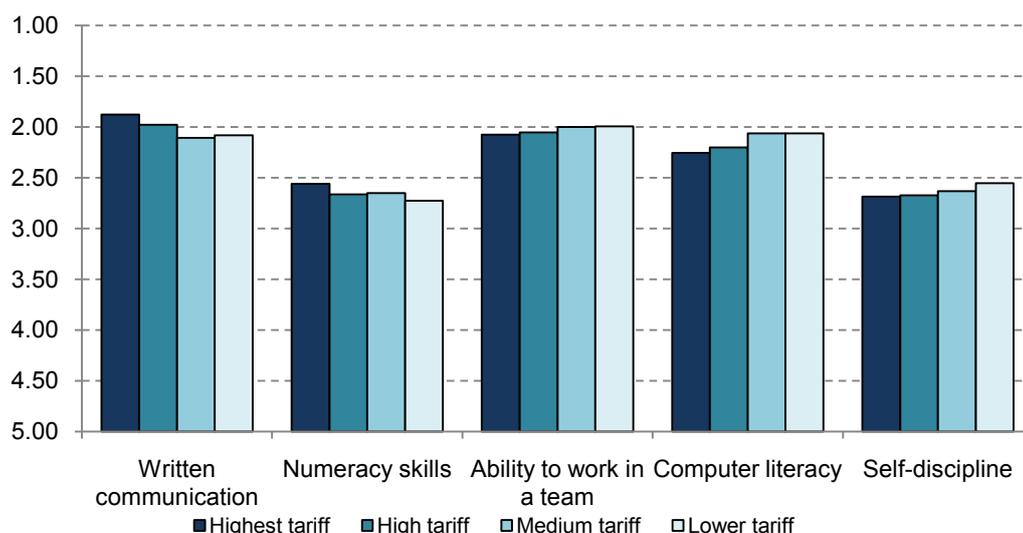
Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

The skills female students were more likely to rate themselves relatively low on – numeracy, self-confidence, leadership and computer literacy, are all skills that have traditionally been found to be associated with the male gender stereotype and to be higher among men, on average, than among women (Baron-Cohen 2003). They are also, as will be seen, skills that are less likely to be developed on courses in female dominated subjects.

The pattern is less clear when looking at differences between ethnic groups. Students from a Chinese background rated their skills lower than students from other ethnic backgrounds in all areas apart from numeracy and computer literacy, but students from a Chinese background have, across a range of questions on diverse subjects, shown a tendency not to choose either very positive or very negative answers. There is similarly no very clear pattern across the age groups, although older students tended to rate their spoken communication and self-discipline more highly than younger students.

There are also some differences when looking at the different types of HEI. Students at the highest tariff universities rated their skills in written communication and numeracy more highly than those attending less elite HEIs, but as Figure 4 shows, tended to rate their 'softer skills', such as team-working and self-discipline slightly lower on average than students at other university types. These differences reflect, to a substantial extent, the types of courses they had been studying on, as well as the strengths and weaknesses with which they entered HE and developed in the course of their time as full-time students, and we explore this further below in terms of the skills and knowledge they believed they had developed on their courses.

Figure 4 Students' self-rating of their skills by HEI type*



*Mean scores where 1 = 'excellent' and '5' = 'not very good'

Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

It is, however, important to bear in mind that self-rating is subjective and highly context-influenced. People compare themselves with their reference groups, and generally, these are likely to be, in the case of students, other members of their peer group and within their own HEI or others in the same situation with whose abilities and attributes they are familiar.

Skills students have developed on their course

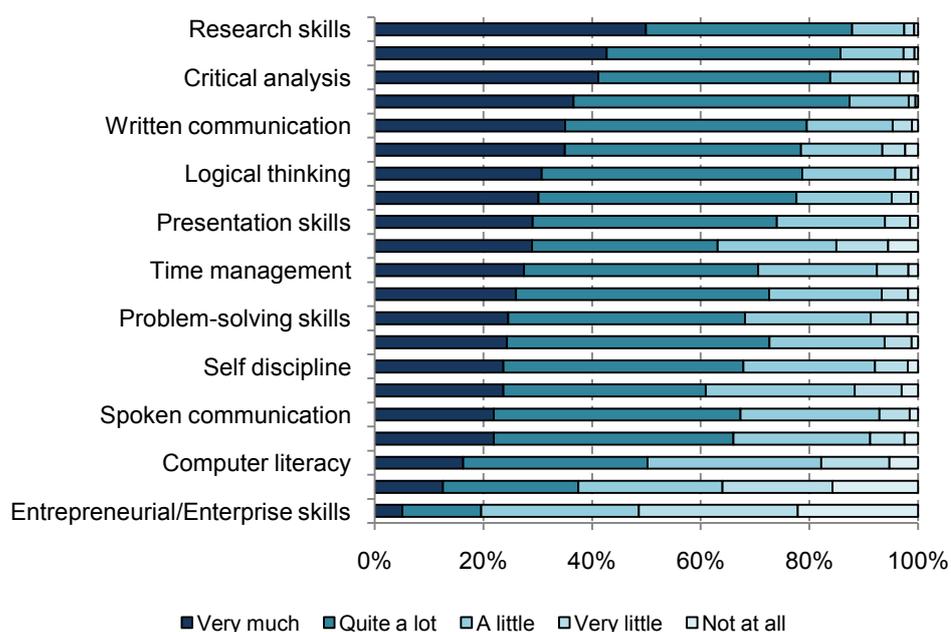
The discussion above refers to the skills students felt that they did or did not possess. Students were also asked the extent to which they thought they had developed different skills *on their course*.

There are various ways in which HEIs have attempted to incorporate skills development into their teaching and learning provisions. These include modifications to existing course content, for example through embedding the development of particular skills within the wider academic content, the development of new courses and teaching methods, and the provision of stand-alone skills courses offered either at the departmental level or on a university-wide basis (Mason, Williams and Cranmer 2006: 4). Despite this potential for a range of delivery methods, 16 per cent of HEIs in the CBI and UUK survey (2009 *op cit*: 20) reported significant problems in addressing employability issues with their students. Additionally, there is some debate about the extent to which such teaching can have an impact on graduate careers. The research findings of Mason, Williams and Cranmer (2006:24) suggested that there was no evidence that the emphasis given by departments to teaching employability skills had a significant independent effect on either whether a graduate found employment within six months of graduation or whether they secured employment in graduate-level jobs. This uncertainty is reflected in the views of the students surveyed by the CBI and UUK (2009) who found that two fifths of the

students believed that it was primarily their own responsibility to develop employability skills, although a large proportion also believed that universities had a key role to play.

As was found in an earlier cohort study (Purcell *et al.* 2005:36), Figure 5 shows that research skills were the skills that Futuretrack students approaching the end of their three year undergraduate programmes believed their course had enabled them to develop 'very much', with half of the final year respondents choosing this option, a proportion that was even higher than the proportion who said that their course had enabled them to develop specialist knowledge. This possibly reflects the necessary importance of information accessing or processing that constitutes a significant aspect of virtually all undergraduate programmes. Ainley and Allen (2010:48), in a trenchant analysis of how pedagogic practice and successive government policies have 'deskilled' secondary and tertiary level education, perhaps go too far in the assertion that learning has largely been transformed into information processing, but to a substantial extent information management has enabled a wider range of people to access knowledge without having to internalise it by a cumulative process of learning.

Figure 5 Extent to which students considered that their course had enabled them to develop different skills



Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

The small proportion of respondents who said that their course was enabling them to develop their ability to use numerical data and their entrepreneurial skills is similar to the findings by the CBI and UUK (2009, p. 23) who also found that these skills were the least likely to be developed in HE, whether at all or fully, and that 29 per cent of students did not expect to acquire adequate numeracy skills in HE. Table 2 shows the subjects that were significantly above or below the mean value for each skill among the 3rd year Futuretrack finalists.

Table 2 Subject groups significantly more and less likely to have reported development of particular skills and capacities their courses*

Skill/competence/capacity (mean score for all 3rd year finalists)	MORE likely to say they have developed this skill (with a mean score significantly lower than average)	LESS likely to say they have developed this skill (with a mean score significantly higher than average)
Research skills (1.66)	Linguistics & Classics (1.38) Historical & Philosophical Studies (1.39)	Maths & Computer Sci (2.21) Engineering & Tech (2.10)
Specialist knowledge (1.75)	Hist & Phil Studies (1.52)	-
Critical analysis (1.79)	Linguistics & Classics (1.43) Hist & Phil Studies (1.48) Law (1.49)	Engineering & Tech (2.27) Maths & Computer Sci (2.16)
Ability to apply knowledge (1.78)	Law (1.58)	Mass Communications & Documentation (2.04)
Written communication (1.91)	Linguistics & Classics (1.43)	Maths & Computer Sci (2.49) Engineering & Tech (2.40)
Independence (1.96)	Linguistics & Classics (1.75)	Engineering & Tech (2.32)
Logical thinking (1.96)	Law (1.58)	Mass Comm & Doc (2.30) Creative Arts & Design (2.30)
Self-reliance (1.98)	-	Engineering & Tech (2.29) Maths & Computer Sci (2.21)
Presentation skills (2.05)	Architecture, Building, Planning (1.51)	Maths & Computer Sci (2.44)
Desire to go on learning (2.29)	Linguistics & Classics (1.91)	Engineering & Tech (2.85) Business & Admin (2.70) Mass Comm & Doc (2.66) Maths & Computer Sci (2.55)
Time management (2.11)	-	Engineering & Tech (2.43)
Inter-personal skills (2.10)	-	Maths & Computer Sci (2.50) Engineering & Tech (2.43)
Problem-solving skills (2.18)	Law (1.72) Maths & Computer Sci (1.81) Allied to Medicine (1.90) Physical Sciences (1.93) Arch, Build, Planning (1.96)	Linguistics & Classics (2.73) Mass Comm & Doc (2.54) Hist & Phil Studies (2.41)
Self-discipline (2.18)	Linguistics & Classics (1.96)	Engineering & Tech (2.53) Maths & Computer Sci (2.45)
Ability to work in a team (2.30)	Allied to Medicine (1.75) Education (1.95) Business & Admin (2.00) Mass Comm & Doc (2.01) Arch, Build, Planning (2.05)	Hist & Phil Studies (2.84) Law (2.75) Linguistics & Classics (2.73)
Spoken communication (2.20)	Allied to Medicine (1.93)	Maths & Computer Sci (2.70) Engineering & Tech (2.51)
Self-confidence (2.24)	-	Maths & Computer Sci (2.63) Engineering & Tech (2.51)
Computer literacy (2.57)	Maths & Computer Sci (1.81) Arch, Build, Planning (2.08) Physical Sciences (2.23) Engineering & Tech (2.26)	Hist & Phil Studies (2.96) Linguistics & Classics (2.91) Law (2.82)
Entrepreneurial/Enterprise skills (3.49)	Business and Admin (2.57) Arch, Build, Planning (2.19) Engineering & Tech (2.20) Creative Arts & Design (2.25)	Hist & Phil Studies (4.02) Linguistics & Classics (3.90)

*mean scores on scale where 1 = 'very much' and 5 = 'not at all'. Where no subjects are given, there were no significant differences by subject.

Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

As would be expected, different subjects were more or less likely to be rated by students studying them as having enabled them to develop different skills. Students in Engineering and Technologies and Mathematics and Computer Sciences were the most to rate their skills development as below the mean on many of the skills. Whether this reflects a general tendency to underestimate their skills or that their courses are focussed on subject specialisms that do not enable them to develop transferable skills to a great extent is not clear. If the latter is the case, the findings may support the DIUS (2008:14) statement that while there is a lack of high-level maths and science knowledge, the key issue is that there are not enough graduates who combine this knowledge with a capacity to work effectively in industry. It will be interesting to see whether this situation changes as the students on four year courses, who make up a large proportion of the Futuretrack cohort studying these subjects and who are more likely to have done work placements or engaged in other ways with industry, complete the survey.

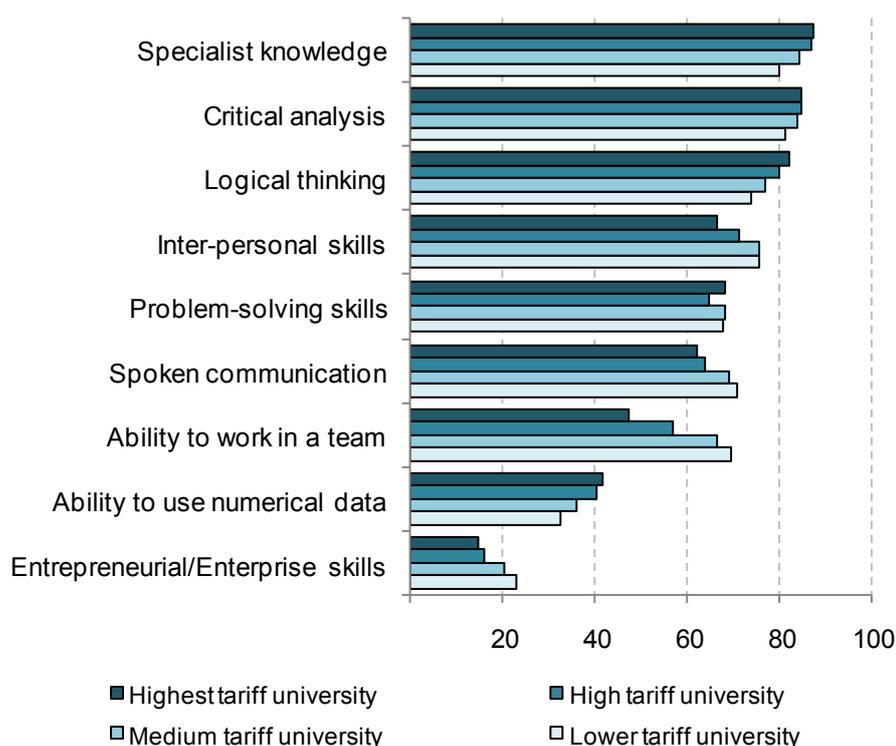
It is nevertheless the case that students studying the subjects that have developed numeracy skills were among the most likely to view the subject they have studied as an advantage in looking for employment. Conversely, although the students studying Historical and Philosophical Studies and Linguistics and Classics were the groups most likely to say that their subject had enabled them to develop the kinds of transferable skills listed, they were less likely to have considered that the subject itself that they had studied is an advantage in looking for employment. It appears that these students do not believe that employers are aware of the kinds of useful transferable skills they had developed on their courses.

In the case of three of the skills that few students considered they developed very much, entrepreneurial or enterprise skills, and the ability to use numerical data, responses might be expected to show high degree of polarisation since they are integral to the syllabus on few courses. Computer literacy involves another skill-set that students were unlikely to say that their course had enabled them to develop 'very much', due to the fact that the majority of students enter HE with a reasonable degree of competence in this area, so it would be expected that only specialist courses where IT skills are integral to the substance of the course would require them to develop these to an advanced level. Spoken communication and team-working skills were also unlikely to be rated as having been perceived as being developed very much on students' courses, but like computer literacy, they were, as was seen above, skills in which students already had confidence in their competence.

Despite this belief on the part of respondents, the low propensity of students to state that skills such as spoken communication and team-working have been substantially developed their courses is important when considering the role HE should play, and has the potential to play, in enabling graduates to develop 'employability skills' beyond the remit of subject and technical knowledge and expertise. As will be seen, students have understood that communication skills and team-working are among the skills most commonly sought by employers, and it is clear that some courses develop these more than others, both related to and independently of the vocational orientation of courses and the opportunities and constraints inherent in the

academic and practical course content. As discussed previously, these differences relate to type of course and the overall profile of skills development at different kinds of HEI. Figure 6 shows the propensity of students at the different tariff category universities to consider that they had developed key skills ‘very much’ or ‘quite a lot’ when presented with the 5 point scale ranging from ‘very much’ to ‘not at all’.

Figure 6 Extent to which students considered that their course had enabled them to develop key skills to a substantial extent, by type of HEI attended

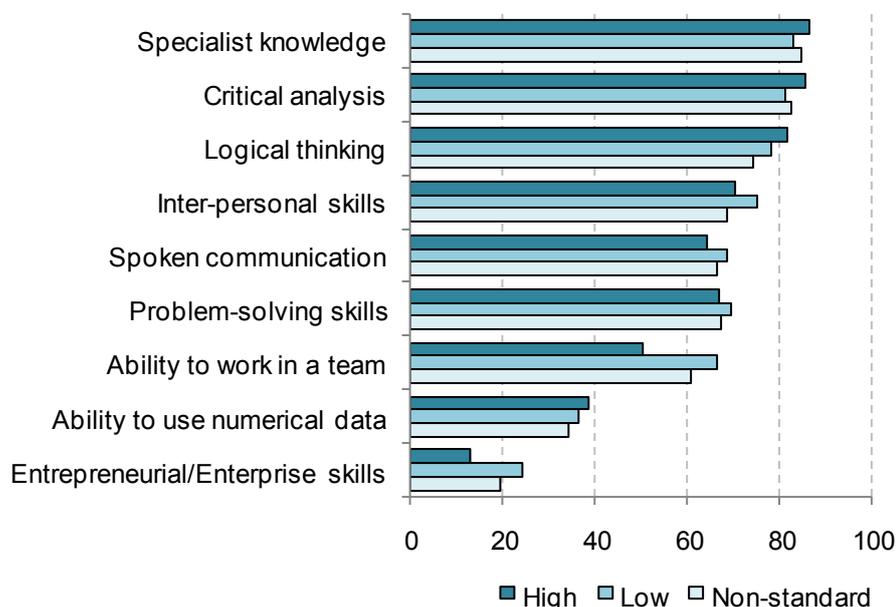


Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

However, as is well documented and has been illustrated by previous Futuretrack analysis (c.f. Purcell *et al.* 2008: especially 7-17), access to different subjects and HEIs varies considerably by socio-economic and educational background, in other words, the cultural capital of students and the competences with which they entered HE (see Sen 1995, Bourdieu and Passeron 1977). The comparison of responses by the individual prior educational achievement levels (selecting those who were non-standard applicants and those with high and low tariff scores²²) in Figure 7 shows similar patterns to those above, but suggests that while established high achievers were more likely to report amplification of the more academic skills, the value-added of HE to low achievers may be higher in terms of social and organisational skills.

²²‘Non-standard’ were those who did not enter with prior qualifications that could be assigned tariff points: mainly UK students who had entered HE as mature students after labour market experience, although a small proportion are overseas students with qualifications from other countries not translated into ‘tariff equivalents’. For simplicity of presentation, we include only those students with tariff scores of above 360 points (high) and between 1 and 239 points (low) – since these constitute distinct categories and generally, the omitted (medium tariff-scoring students) patterns were systematically between these where there are clear differences.

Figure 7 Extent to which students considered that their course had enabled them to develop key skills to a substantial extent, by prior educational credentials



Source: Futuretrack 2006 combined dataset: selected categories as labelled) of UK based final year students (weighted).

With reference to prior educational advantage³ skills developed on courses appear to have been mediated by the type of HEI to which these prior advantages (or lack of them) gave access, but this will be clarified at Stage 4 when we are able to identify early career outcomes.

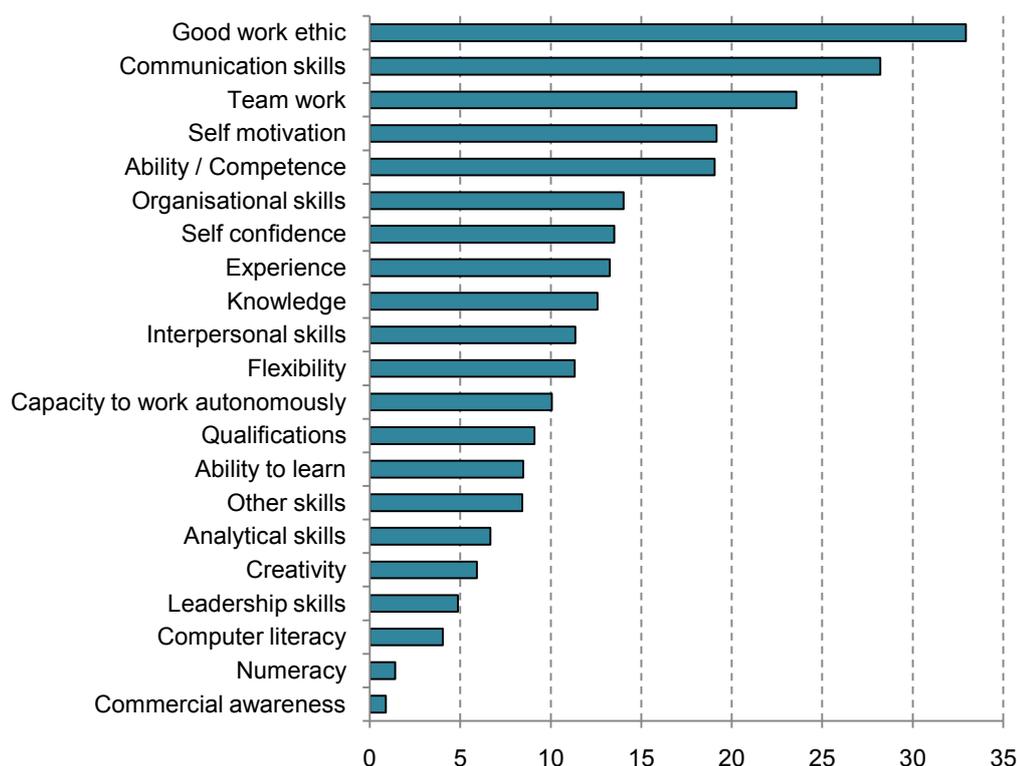
Skills students think employers look for

Various attempts have been made to establish the skills and attributes employers look for in recruiting graduates. The list produced by the DfEE was given at the start of this paper. Inevitably there are important attributes that are difficult to define but intrinsic to recruitment interactions, in the ways in which job applicants present themselves or are evaluated by recruiters, such as gender, physical appearance and social background (Allen and van der Velden, 2001); a combination what Comte (1854) called 'natural inequalities' and Bourdieu and Passeron (1977) 'cultural capital' (although these are infrequently mentioned in surveys of employers and were also rarely mentioned by Futuretrack respondents).

In the Stage 3 questionnaire, students were asked 'What do you consider to be the three most important skills or attributes that employers are looking for in recruiting graduates?' and the skills and attributes cited were then grouped into broader categories, shown in Figure 8.

³ 'Educational advantage' was defined at the Futuretrack Stage 2 analysis as having studied prior to HE entry at an independent fee-paying school or a State school that accepted pupils on the basis of academic or other abilities (Purcell *et al.* 2009:13).

Figure 8 Skills and attributes students think employers look for in recruiting graduates⁴



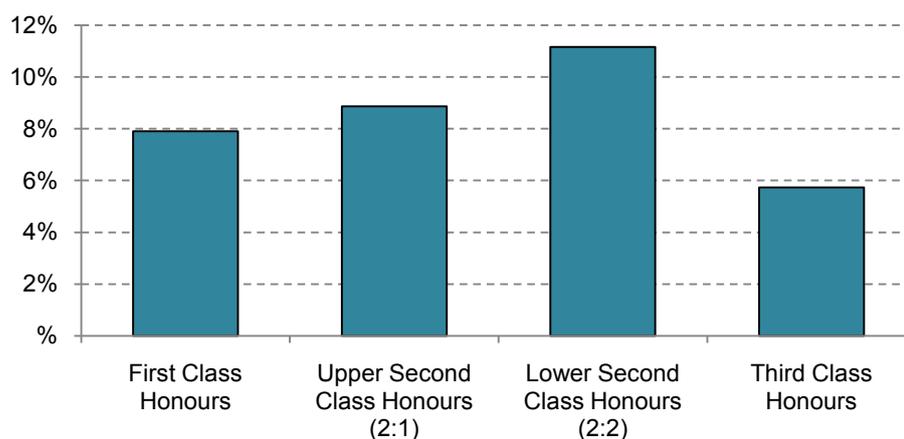
Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

In general, the list produced by the respondents bears a very close resemblance to lists produced by employers and revealed by research investigating the skills sought by graduate employers (e.g. Hillage and Pollard 1998), reinforcing the CBI and UUK's (2009 *op. cit*) finding that more than three quarters of students were confident that they knew what employers are looking for as far as the more general 'employability skills' are concerned. Those towards the end of the list are likely to reflect the different extent that particular types of skill are developed on courses and the particular labour markets which students intended to enter; for example, creativity and computer literacy were more often seen as skills *possessed* rather than skills *developed in HE*, but the fact that numeracy and commercial awareness were least often mentioned vindicates employers' claims that these are under-developed and under-valued by graduate recruits.

Archer and Davison (2008:8) found that a good degree classification was considered more important by employers than the reputation of the university itself, however it is interesting to note, as Figure 9 shows, that the students who were most likely to believe that qualifications were one of the three things employers look for were those who expected to get a 2:2 degree, in other words, those who were likely to be concerned that they were not expecting to achieve at least the 2:1 that many employers list as a prerequisite.

⁴ This meant that if a respondent mentioned two skills or attributes that fell into the same broad group – (e.g. 'interpersonal skills' and 'social skills'), the skill or attribute was only counted once in the totals.

Figure 9 Respondents saying qualifications were one of the three things employers look for in recruiting graduates



Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

The value of work experience on the development of employability skills has been strongly promoted by employers' interest groups and successive governments and their agencies and in the Futuretrack Stage 3.1 survey, almost 10 per cent more of the students who had done a work placement said that they had all the skills employers look for than those who had not done a work placement (88 per cent compared to 78 per cent). However, authors such as Mason, Williams and Cranmer (2006), Stewart and Knowles (2000) and Brown and Hesketh (2004) have found that it is the quality and relevance of the work experience that is important. Work experience that is unrelated to a student's career ambitions, particularly if it is relatively unskilled work, does not necessarily develop the skills and attributes employers look for. This is particularly important when looking at the term-time and vacation employment undertaken by students, which is discussed in Working Paper 3 in this series. The proof of its value will be demonstrated by the employment outcomes of this cohort, which will be explored at Stage 4 of the survey.

In addition to team-working and other organisational and personal skills developed in the course of collaborative activities, whether in employment or extra-curricular activities, there are other key areas where students' own rating of their skills or the development of skills on their course does not appear to coincide with the skills and attributes they believe employers look for or with employers' own views about the skills possessed by graduates. For example, two of the four skills that were most frequently mentioned by students as being something employers look for are related to self-management – good work ethic and self-motivation. Maher (2004) also found that employers were most likely to say that self-management was the most important skill they looked for among graduates. The responses of the Futuretrack final year students showed that the majority reported that their courses had enabled them to develop the following relevant attributes 'very much' or 'quite a lot': independence (79 per cent); self-reliance (78 per cent); time-management (71 per cent); self-discipline (68 per cent); interpersonal skills (67 per cent); and two thirds also considered that their courses had developed self-confidence (66 per cent). This shows that the graduating students themselves generally had confidence in their 'self-management' skills, in contrast to the CBI (2009) survey finding that self-management was one of

the skills that employers were likely to say that graduates were lacking, with one in five of the employers they surveyed saying that they were 'not satisfied' with the level of self-management skills graduates possess and only 14 per cent saying they were 'very satisfied'.

However, the categories used in surveys are important and throw up intriguing paradoxes. For example, the recent IOD survey (IOD 2007:3) that found that 77 per cent of employers surveyed thought that their graduate employees 'always' or 'often' demonstrated a good work ethic. This raises the question of whether graduates can have both a strong work ethic but poor self-management skills, or whether this seemingly contradictory set of findings reflects different expectations on the part of recruiters and recruits about what graduates in the given organisations might be expected to do, as new graduates, and what they might require to be inducted into, as employees in particular contexts?

The ranking produced by the Futuretrack respondents of 'what employers want' reflects in many ways the rankings produced by authors such as Hinchcliffe and Jolly (2010), Archer and Davison (2008) and the IOD (2007) when they asked employers to rank the most important skills they were looking for in recruiting graduates. Communication skills were found to be ranked as most important to employers by Archer and Davison (2008:3), followed by team-working skills and integrity. Hinchcliffe and Jolly (*op cit.* 11) found that interpersonal skills were by far the most likely to be ranked as the most important skill by employers, with written communication skills being the second most likely. Interpersonal skills are ranked somewhat lower by the Futuretrack respondents, although this may reflect the separation of interpersonal and communication skills in the Futuretrack ranking. Similarly, in the IOD's (2007:2) ranking of skills that employers believed it was important for a graduate to possess, literacy and oral communications skills were ranked second and third, behind honesty and integrity, with traits related to having a good work ethic and self-management also appearing in their top ten skills.

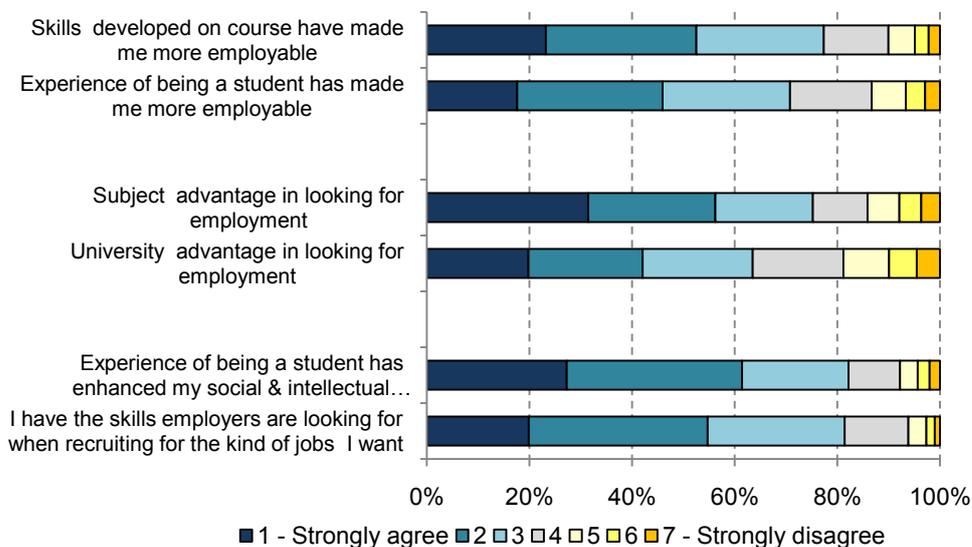
Almost three quarters of final year students thought that the experience of being a student had, in itself, made them more employable, and more than 80 per cent agreed to some extent that the experience of being a student had enhanced their social and intellectual capabilities more broadly. This may explain why students believed that their skills in areas such as team-working are relatively good, despite also believing that their course had not enable them to develop these skills very much. Skills such as team-working can be learnt outside the classroom, for example, by taking part in extracurricular activities such as sports clubs, and previous research has shown that employers are increasingly looking for evidence of these kinds of activities on applicants CVs (Adnett and Slack, 2007; Blasko, 2002; Tchibozo, 2007). It also highlights that the role of higher education is not simply to enable graduates to find employment: it also serves a broader role in personal enhancement and social integration, which is discussed in another paper in this series (Atfield and Behle 2010).

Did students believe that they had 'graduate employability skills'?

A test of whether students believe that they have the skills that they think employers are looking for is how confident they are that they will be able to obtain appropriate employment after they graduate, so they were also asked a series of questions about the relationship between their skills and competencies and their potential position in the job market. Figure 10 shows their responses. As can be seen, more than three quarters agreed to some extent (selected 1 to 3 on the seven point scale) that the skills they had developed on their course had made them more employable, and over 80 per cent believed that they have the skills employers are likely to be looking for when recruiting for the kind of jobs they wanted to apply for. Only six per cent of respondents disagreed with the statement that they had the skills they thought employers would be looking for and ten per cent said the skills they had developed on their course had not made them more employable.

As Figure 10 shows, almost three quarters of final year students thought that the experience of being a student had, in itself, made them more employable, and more than 80 per cent agreed to some extent that the experience of being a student had enhanced their social and intellectual capabilities more broadly.

Figure 10 Students' opinions about the relationship between their skills and experiences and the job market

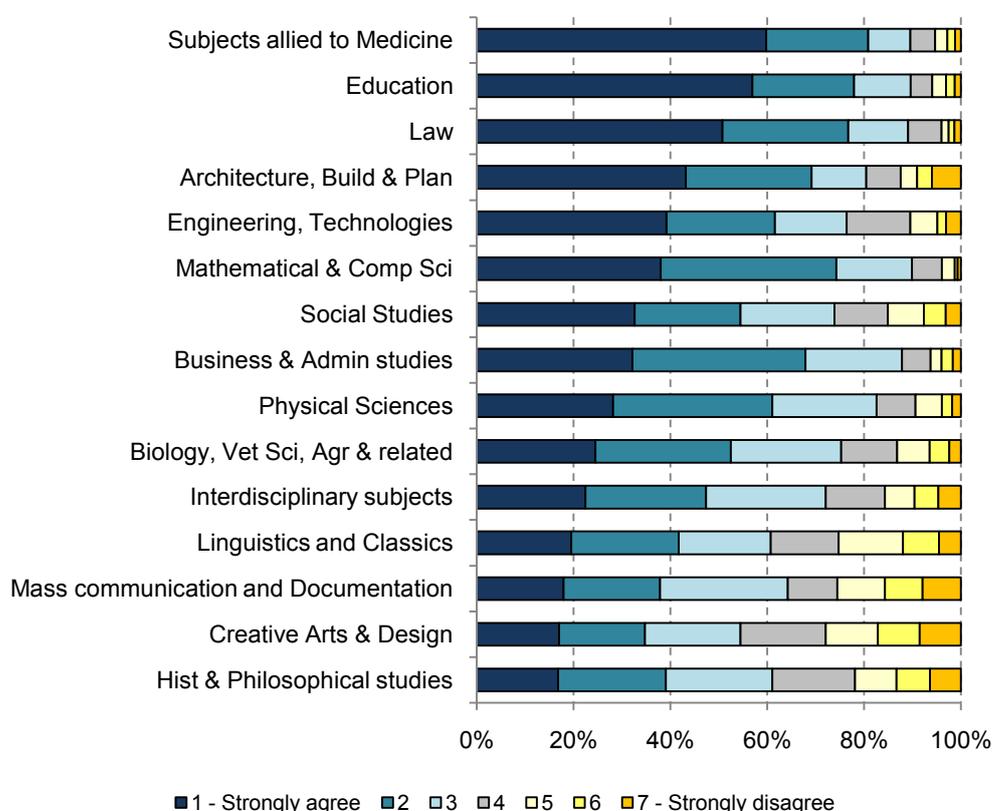


Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

Figure 11 shows, as in previous studies, that those who were studying vocational subjects were most likely to believe that the subject they had studied would be an advantage in looking for employment. Sixty per cent of respondents studying subjects allied to Medicine strongly agreed that their subject would be advantageous and students studying other vocational subjects, such as Law and Education, were also more likely than average to believe that the subject they studied would be an advantage in looking for employment.

The group least likely to strongly agree that the subject they studied was likely to give them an advantage in finding employment were students studying Historical and Philosophical Studies. These students were unlikely to be planning to go into employment directly related to their degree subject, and many believed that there were very few jobs that were related to their subject. Despite this, they are more likely than students studying Creative Arts and Design to agree to some extent that the subject they have studied is an advantage, with 61 per cent giving a score of 1 to 3 on the seven point scale, and the mean score given by students in this group was 3.25, which is better than that given by students of Creative Arts and Design (3.47) and Mass Communication and Documentation (3.29).

Figure 11 'The subject I have studied is an advantage in looking for employment' by broad subject group



Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

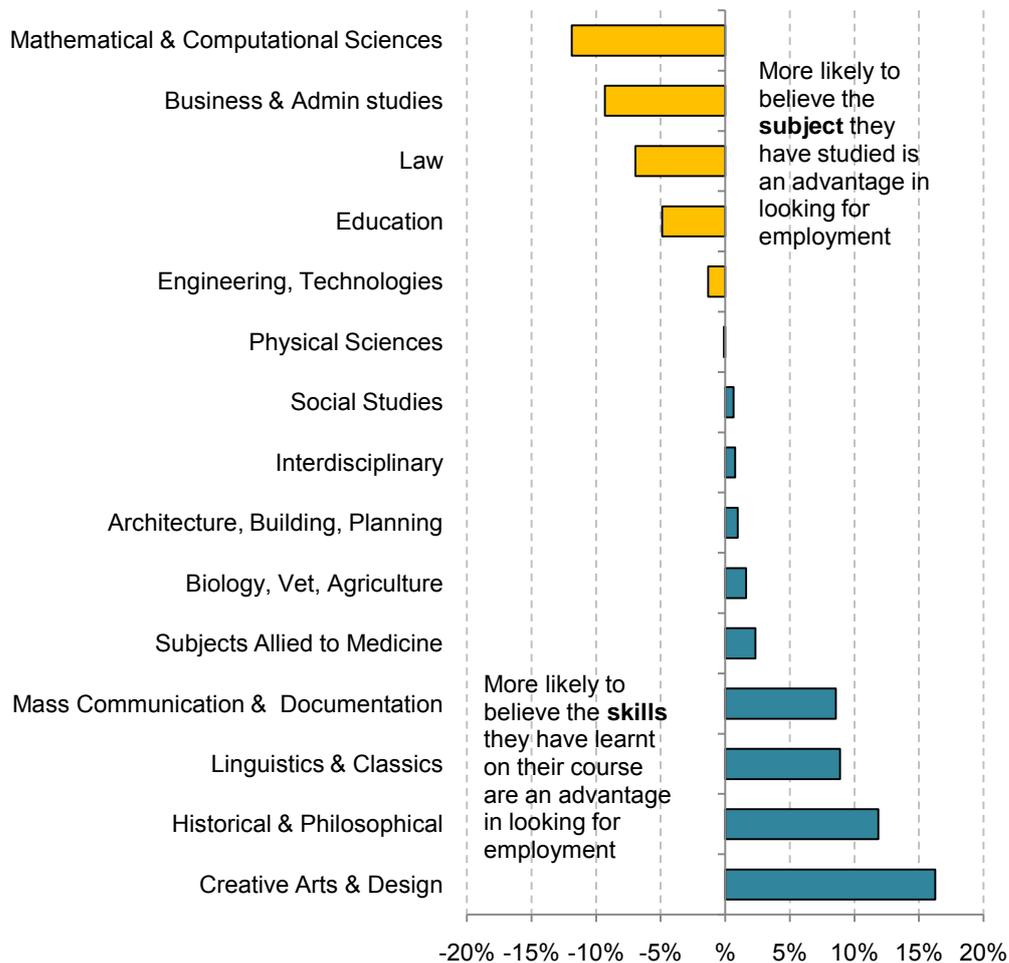
Students studying Mathematical and Computing Sciences and Business and Administration Studies are interesting cases because they are not particularly likely to strongly agree that the subject they studied would be an advantage, but they are among the most likely to agree to some extent that their subject would be advantageous. These are both subject groups comprised largely of numerate subjects but which are not vocational to the same degree as, for example, the subjects allied to Medicine. These students recognise that although their subject may not have enabled them to develop competences related to a *particular* occupational career track to the same degree as the more vocational subjects, it has provided them with generic skills and expertise that is likely to give them an advantage in seeking employment. This belief is well-founded, in view of the outcomes of previous

cohorts of graduates, and numeracy is consistently identified as being in short supply by graduate recruiters and employers; for example, the IOD survey (2007, p.3) found that 21 per cent of their graduate employees 'occasionally' or 'never' demonstrated numeracy skills. The mean score on the 1 to 7 scale for these students was 2.04 for students of Mathematical and Computing Sciences and 2.24 for students of Business and Administrative Studies, putting them 4th and 5th respectively on this measure, behind only the three most vocational subject groups – subjects allied to Medicine (1.79), Education (1.86) and Law (1.91).

Green and McIntosh (2002) make a clear distinction between skills and qualifications. They found that less than half of the people who were identified in the 2001 Skills Survey as over-qualified for their job in terms of formal qualifications also appeared to be 'over-skilled' (i.e. self-identified as not making much use of their skills or abilities in their present jobs) and the longitudinal studies of graduate career development in the early 21st century supported this finding in terms of graduate employment outcomes (Elias and Purcell 2004, Purcell *et al.* (2005). An examination of the responses of the Futuretrack cohort shows a similar distinction between beliefs about the market value and wider intrinsic value of educational qualifications, in terms of subject studied, skills development and expectation of employment. When comparing students' responses to whether they think that the subject they studied is an advantage in looking for employment and whether they think their skills they have learnt on their course have made them more employable shows there are some subjects where respondents were much more likely to agree that their subject itself was an advantage than that the skills they had learnt were an advantage, but conversely, there were also subjects where respondents were more likely to agree that the skills they had learnt on their course were an advantage than that the subject they had studied was itself an advantage, as Figure 12 shows.

The students who were more likely to believe that their *subject* was a greater advantage than the skills they had learned on their course were largely those studying numerate subjects (Mathematical and Computational Sciences, Business and Administrative Studies, Engineering and Technologies and Physical Sciences) and two of the most vocational subjects (Law and Education). Conversely, the subjects studied by respondents who were more likely to believe that the *skills* they had learned on their course were advantageous were primarily Arts subjects - reflecting their more frequent perception of their courses as non-vocational.

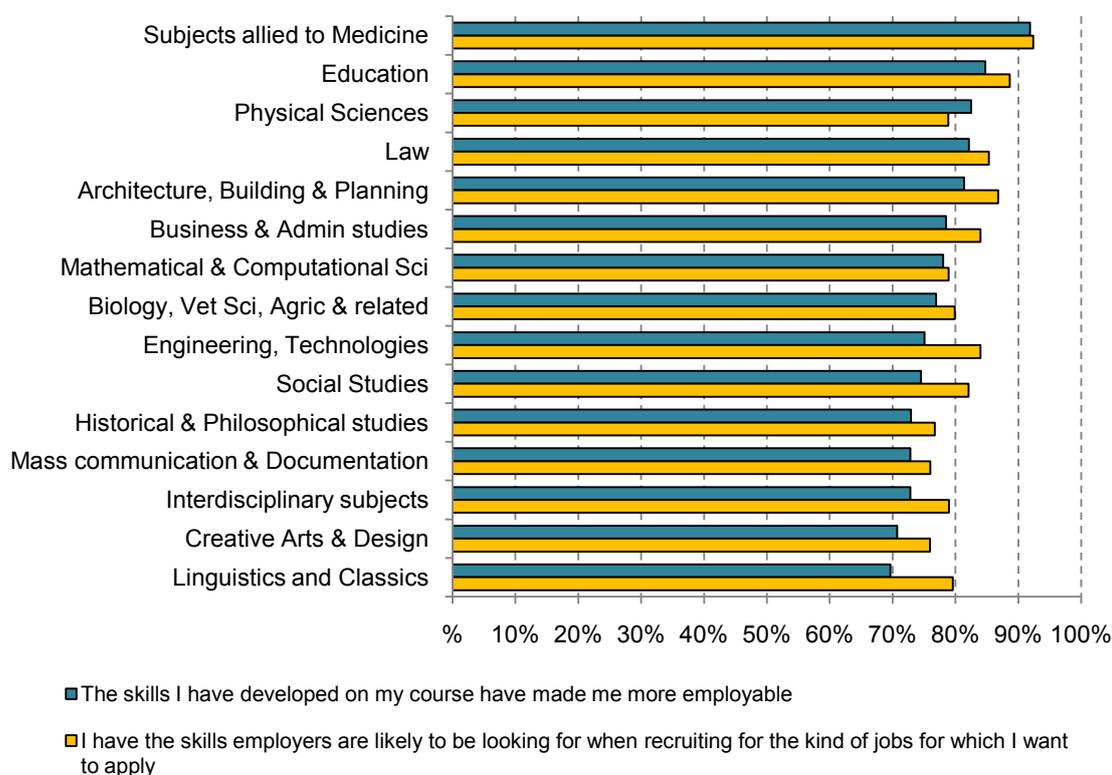
Figure 12 Difference between the proportion of students agreeing that the skills they had learned on their course were an advantage in looking for employment and the proportion agreeing that the subject they had studied was an advantage



Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

However, respondents studying Arts subjects were still less likely than most others to agree that the skills they had learnt on their course had made them more employable. Figure 13 shows the proportions of respondents studying each subject who agreed that the skills they had developed on their course had made them more employable and the proportion who agreed that they had all the skills employers are likely to be looking for when recruiting for the kind of jobs they wished to apply for. As the Figure shows, all four of the Arts subject groupings are among the five least likely to agree that the skills they have developed on their course have made them more employable, although they are as likely as students in other subjects to think they have all the skills employers are looking for when recruiting for the kinds of jobs they wanted.

Figure 13 Proportion of respondents in each subject group agreeing that the skills they had developed on their course had made them more employable and that they have all the skills employers are likely to be looking for when recruiting for the kinds of jobs they wished to apply

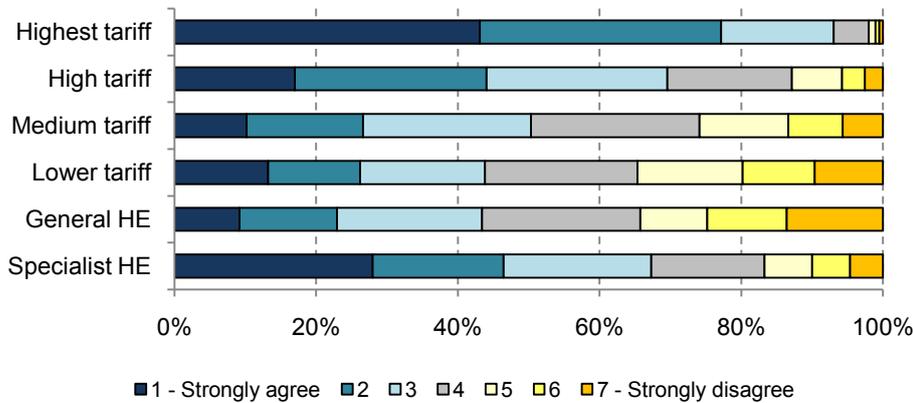


Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

Figure 13 also highlights the fact that although the skills students learn on their courses are important in making them employable, skills development can also occur outside the classroom. Respondents were more likely to believe that they had all the skills employers were looking for than they were to believe the skills they had developed on their course made them more employable.

Although Archer and Davison (2008:8) found that a good degree classification was considered more important by employers than the reputation of the university itself, nonetheless, 38 per cent of employers said that the reputation of the university was important (60 per cent said class of degree was important). It might be expected that students at the highest tariff universities would be the most likely to believe that the university they attended would be an advantage in looking for employment, and this is the case. Forty-three per cent strongly agreed that the university they attended was an advantage, and 93 per cent agreed to some extent (selected 1 to 3 on the seven point scale). However, the gap between the different types of HEI is more unexpected, in particular the gap between the highest and high tariff universities and the similarity between the medium and lower tariff HEIs and general HE colleges, as is shown in Figure 14.

Figure 14 'The university I attended is an advantage in looking for employment' by type of HEI



Source: Futuretrack 2006 combined dataset: UK based final year students (weighted).

While 43 per cent of students at highest tariff universities strongly agreed that the university they attended is an advantage in looking for employment, the figure for the high tariff universities is only 17 per cent. The high tariff group is almost wholly composed of Russell Group and other old universities, as is the highest tariff group, so this difference is somewhat surprising, as is the 13 per cent of students at high tariff universities who disagree with the statement, compared to only 2 per cent at the highest tariff universities.

Students at the lower tariff universities are more likely than those at medium tariff universities to strongly agree that the HEI they attended is an advantage in looking for employment, and the gap between the medium and lower tariff universities is not as great as either the gap between the highest and high tariff universities or the high and medium tariff universities. The high level of strong agreement among students at lower tariff universities is likely to have arisen due to the higher proportion of vocational courses at the lower tariff universities and the greater likelihood that students graduating from these universities are seeking to develop their careers locally or regionally rather than nationally or internationally – but the lower tariff group was found to be polarised, with more than one third of students disagreeing to some extent (choosing 5 to 7 on the seven point scale) that their university is an advantage in finding employment.

Summary

This paper engaged with the literature on 'employability', pointing out that a plethora of diverse phenomena has been gathered under this heading. These have ranged from basic literacy and numeracy skills, attitudinal and personality traits, social skills, evidence of potential to engage in further learning and adapt to new environments, through commercial awareness and general organisational skills, to the formally learned skills and knowledge that constitute competence in a specific occupation or

context. There is a tendency on the part of some advocates of work experience to assume that development of 'employability skills' is implicit in work experience.

Final year students who completed the questionnaire had been asked to evaluate their basic written and spoken communication skills, numeracy and computer literacy at all three stages of the survey so far, and to rate their self-confidence before embarking on their courses and as they approached graduation. They were also asked about the extent to which they had developed particular skills within the academic and employability skills spectrums cited by skills and 'employability' stakeholders within and beyond higher education.

An examination of the responses of the Futuretrack cohort members approaching the end of their undergraduate courses in 2009 showed that they were well able to distinguish between skills possessed and skills acquired in HE, both formally, as part of the curriculum, and informally, through the process of being a student. They generally also exhibited systematic understanding of distinctions between the market value and wider intrinsic value of different kinds of educational qualifications, in terms of subject studied, skills development and expectations of employment. Once again, the heterogeneity of the UK undergraduate system is illustrated by these findings.

Two significant areas of discrepancy emerge in the analyses:

- A discrepancy between the extent to which graduating students believed they possessed the key skills and competences included under the broad heading of 'employability skills' and the extent to which they believed that these had been developed on their courses; and
- A discrepancy between students' self-evaluations of their skills and employment-readiness and employers' reported opinions about the skills and employability of recently-qualified new graduates. This was particularly the case among students who had studied subjects that have not traditionally been associated with the development of employment appropriate skills and qualifications: for example, those who had studied Historical and Philosophical subjects⁵.

Students believed that they had developed their social and organisational skills as students, but that the experience of being a student – engaging in extra-curricular activities, doing paid and unpaid work unrelated to their courses, and simply being required to live more independently and meet a wider range of people and situations had all contributed to this. Throughout the stages of the Futuretrack survey, it has been clear that students from relatively disadvantaged educational and socio-economic backgrounds were less likely to have participated in these kinds of extra-curricular activities, were more likely to have stayed in their pre-HE family

⁵ As with other Futuretrack Stage 3.1 Thematic Working papers, we largely omitted consideration of those areas where the majority of undergraduates were completing four year courses, such as Language studies, because of the unrepresentative nature of 3rd year finalists in these disciplines, but they will be included in the Stage 3 composite analysis.

households and communities and attended HEIs where such activities were less central to the experience of being a student (Atfield and Purcell 2010).

We conclude with summaries of the detailed findings.

Students beliefs about the extent to which they personally possessed key skills

- On all the skill categories presented, the students rated their 'basic' skills on average more highly at each stage of the survey.
- The majority of final year students rated their skills as at least adequate in all areas and most were confident of their skills and knowledge.
- The skills most often rated as excellent or very good were those which applied across the disciplinary spectrum, whereas those somewhat more often reported to be merely adequate or not good were those less generally developed as an integral part of courses. For example, only 45.2 per cent rated their numerical skills as excellent or very good.
- On average, women tended to rate themselves lower than men on numeracy, self-confidence, leadership and computer literacy: areas traditionally associated with male gendered aptitudes.
- Students at higher tariff HEIs tended to rate their written communication and numeracy skills higher than those at less elite institutions, but to rate some of the organisational attributes, such as team working abilities and self-discipline, slightly lower on average.

Students' perceptions of skills developed on courses

- Between 80 and 90 per cent of students reported that their research skills, specialist knowledge, critical analysis, and ability to apply knowledge had been developed 'very much' or 'quite a lot' as part of their course;
- Between 70 and 80 per cent said the same of written communication, logical thinking, interpersonal skills, presentation skills and time-management; and in addition, this was the case for over 60 per cent of respondents as far as problem-solving skills, ability to work in a team and spoken communication were concerned.
- It is not surprising that other areas of skill and knowledge were less often developed on courses: computer literacy, the ability to use numerical data and enterprise skills are part of the syllabus of fewer courses – but these were developed to a high level on some courses.
- Significant differences were found in self-rating of skills, knowledge and competence according to subject studied, gender, age and type of HEI:
 - In the case of computer literacy, those who had studied Maths & Computing, Architecture, Building & Planning, Physical Sciences and Engineering & Technologies were more likely to have said they had been substantially developed;
 - In the case of the ability to use numerical data, those who had studied Physical Sciences, Maths & Computing and Engineering & Technologies

- were again so much more likely to have developed these skills substantially on their courses;
- Enterprise skills were studied by those in vocational courses which were also more likely than most to lead to self-employment and/or industry and commerce and the need to market their services or products: Business and Administration, Architecture, Building and Planning, Engineering and Technologies, Creative Arts and Design;
 - Conversely, 'employability skills' that are related to attitudinal or personality characteristics: self-reliance, perceived awareness of their own strengths and weaknesses, self-discipline and self-confidence, were all felt to have been developed on courses, but generally less likely to have been highly rated by students in terms of their evaluations of their core strengths and weaknesses.
- For selected subject comparisons, the percentages rating themselves as excellent or very good ranged widely, as follows:
 - written communication, from 84 per cent of students of Historical and Philosophical Studies to 61 per cent of Engineering and Technologies students;
 - ability to work in a team, percentages ranged from 80.5 per cent of Creative Arts and Design students to (somewhat surprisingly) 69 per cent of Engineering and Technologies students;
 - self-confidence and self-discipline, the ranges were narrower - in the first, from 63 per cent of Business and Administration students to 52 per cent of Historical and Philosophical students, and in the second from 56 per cent of Business and Administration students to 44 per cent of Physical Sciences students;
 - numerical skills, the range was from 70.7 per cent of Mathematics and Computing students rating themselves as excellent or very good to 35 per cent of Historical and Philosophical Studies students.
 - Students in Engineering and Technologies and Mathematical and Computer Sciences were the most likely to rate their skills development as below the mean on many of the skills. Whether this reflects a general tendency to be more self-critical or that their courses are more focused on developing specific knowledge of their field rather than the development of wider transferable skills is not clear.
 - Almost three quarters of final year students thought that the experience of being a student had made them more employable than they would otherwise have been, and more than 80 per cent agreed to a greater or lesser extent that the experience of being a student had enhanced their social and intellectual capabilities more broadly.

The main skills students considered employers seek in graduate recruits

Respondents were asked to name three skills or attributes that they considered to be the main skill or attributes sought by graduate employers.

- The categories identified by the respondents corresponds very closely to similar lists produced by employers groups and government agencies that have been

derived from research among employers to establish the key, or 'employability' skills they seek when recruiting graduates.

- The three 'skills' that were most commonly mentioned by students were a strong work ethic, communication skills (in which we include both spoken and written communication skills), and ability to work in a team; areas of skill identified by employers as lacking among recent graduates.
- Computer literacy, knowledge and analytic ability had relatively few mentions, but it is likely that these were considered to be essential skills scarcely requiring to be singled out – implicit in the 'graduate threshold' of a graduate job.
- Qualifications were rarely mentioned – although 'the essential 2.1' came up in comments and it is interesting that those most likely to nominate it as one of the things graduate employers look for were those anticipating getting lower second class honours.
- The skills and attributes least often mentioned were numeracy and enterprise skill, which indicates that the widespread belief among employer and policy HE stakeholders that graduates tend to lack, and undervalue, these competences is well-founded.
- However, they recognised that specific qualifications represent only a minimum for getting a graduate job, necessary but not sufficient on their own to guarantee access to employment, and the importance of demonstrated 'softer skills' to discriminate among similarly qualified job applicants.

The extent to which students believed they had the skills and qualities that graduate employers seek

- There were differences in the extent to which students considered that the subject they were studying, the skills they had developed and the HEI they had attended would be advantages or disadvantages in seeking employment.
 - Those who were studying vocational subjects were most likely to believe that the subject they had studied would be an advantage in looking for employment, i.e. the three groups most likely to *strongly agree* that their subject would be an advantage were those completing courses in Subjects allied to medicine, Law and Education.
 - Students studying the subjects that have developed numeracy skills were also among the most likely, on average, to consider their subject as an advantage. For example, students studying Mathematical and Computing Sciences and Business and Administration Studies were not so likely as those studying more vocational subjects to *strongly agree* that the subject they studied would be an advantage, but they were among the most likely to agree to some extent that their subject would be advantageous and least likely to regard it as disadvantageous.
 - Students at the highest tariff universities were most likely to believe that the university they attended would be an advantage in looking for employment (43 per cent *strongly agreed* that this was the case, and 93 per cent *agreed to some extent*). However, the gap between the different types of HEI is more unexpected, in particular the large gap between the highest and high

tariff universities and the similarity between the medium and lower tariff HEIs and general HE colleges.

- Students at the lower tariff universities were more likely than those at medium tariff universities to strongly agree that the HEI they attended would be an advantage in looking for employment. It is, however, important to note that the lower tariff group is very polarised, with more than one third of students disagreeing to some extent with the statement, 'The university I attend is an advantage in looking for employment'.
- As they approached the end of their undergraduate courses, over 80 per cent of respondents believed that they have the skills employers are likely to be looking for when recruiting for the kind of jobs they wanted to apply for. Only six per cent of respondents disagreed with the statement that they had the skills they thought employers would be looking for and ten per cent said the skills they had developed on their course had not made them more employable. But are their evaluations correct, and – for those who have the skills, are there jobs for them to apply for? It will depend both on the skills they can offer and the extent to which employers are recruiting new graduates. However well-equipped labour market entrants are, they are ultimately dependent on the demand for labour in the socio-economic and occupational contexts in which they seek employment, and the recession, allied to political priorities of the current government is likely to continue to present this cohort of graduates with considerable challenges.

References

- Adnett, N. and Slack, K. (2007), 'Are there economic incentives for non-traditional students to enter HE? The labour market as a barrier to widening participation', *Higher Education Quarterly*, Vol. 61, No. 1, pp. 23-36.
- Ainley, P. and Allen, M. (2010) *Lost Generation? New Strategies for Youth and Education*, London: Continuum.
- Ainley, P. and Corney, M. (1990) *Training for the future: the rise and fall of the Manpower Services Commission*, London: Cassell.
- Allen, J. and van der Velden, R. (2001) 'Educational mismatches versus skill mismatches: effects on wages, job satisfaction and on-the-job search', *Oxford Economic Papers*, 3 (2001), pp. 434-452.
- Archer, W. and Davison, J. (2008) *Graduate Employability: What do employers think and want?* London: Council for Industry and Higher Education (CIHE)
- Atfield, G. and Behle, H. (2010) *Widening access and equal opportunities: the higher education experience of non-traditional students*. Futuretrack Working Paper 6.
- Baron-Cohen, S. (2003) *The Essential Difference. Men, Women and the Extreme Male Brain*. London: Allen Lane.
- Behle, H. and Purcell, K. (2010) *The experience of UK undergraduate education: how higher education courses and study contexts studies impacted on students' assessments, evaluations and predictions of educational outcomes*. Futuretrack Working Paper 5.
- Belt V., Drake, P. and Chapman, K. (2010) *Employability Skills: A Research and Policy Briefing*, UK Commission for Employment and Skills.
- Blasko, Z. (2002) *Access to what: analysis of factors determining graduate employability*, a report to HEFCE by the Centre for Higher Education Research (CHERI), <http://www.hefce.ac.uk>
- Bourdieu, P. and Passeron, J-C. (1977) *Reproduction in Education, Society and Culture*, translated by R. Nice. London: Sage Publications Ltd.
- Brown, P. and Hesketh, A. (2004) *The Mismanagement of Talent – employability and jobs in the knowledge economy*, Oxford: Oxford University Press.
- Cable, V. (2010) 'Higher Education'. Speech given in his capacity as Secretary of State for Business and Skills, July 15th.
<http://www.bis.gov.uk/news/speeches/vince-cable-higher-education> (accessed 30.7.10).
- CBI and Universities UK (2009) *Future fit: preparing graduates for the world of work* <http://www.universitiesuk.ac.uk/Publications/Documents/FutureFit.PDF>
- CBI (2008) *Taking Stock*. CBI Education and Skills Survey 2008.
www.cbi.org.uk/pdf/skills_report0408.pdf
- CBI (1970) *Industry, Science and the Universities*. Report of a Working Party on Universities and Industrial Research to the Universities and Industry Joint Committee. London: Confederation of British Industry.
- CFE (2009) *Beyond Known Unknowns: a further exploration of the demand for higher level skills from businesses*
http://www.cfe.org.uk/uploaded/files/CFE_Beyond%20Known%20Unknowns.pdf
- Comte, A. (1854) *The Positive Philosophy* (translated and condensed by Harriet Martineau), New York: D. Appleton & Co.

- Department for Business, Innovation and Skills (2009). *Higher Ambitions: the future of universities in a knowledge economy*
- Department for Innovation, Universities and Skills (DIUS) (2008) *Higher education at work: High skills, high value*
http://www.dius.gov.uk/consultations/documents/Higher_Education_at_Work.pdf
- Elias, P. and Purcell, K. (2010) *The impact of paid and unpaid work and of student debt on the experience of higher education*. Futuretrack Working Paper 3.
- Green, F. and McIntosh, S. (2002) Is there a genuine underutilization of skills amongst the over-qualified?, SKOPE Research Paper No. 30, ESRC Centre on Skills, Knowledge and Organizational Performance, Oxford and Warwick Universities.
- HEFCE (2010) Employability statements, Circular letter number 12/2010,
http://www.hefce.ac.uk/pubs/circlets/2010/cl12_10/ (accessed 30.7.10)
- Hillage, J. and Pollard, E. (1998), *Employability: Developing a Framework for Policy Analysis* (London, Department for Education and Employment).
- Hinchcliffe, G. and Jolly, A. (2010) 'Investigating Graduate Identity' in *Graduate Labour Market Trends* Spring 2010. HECSU pp 8 -13
- Institute of Directors (2007) Institute of Directors skills briefing: graduates' employability skills
http://www.iod.com/intershoproot/eCS/Store/en/pdfs/policy_paper_graduates_employability_skills.pdf
- Maher, A. (2004) 'Oven-ready and self-basting? Taking stock of employability skills', *Link Newsletter* No. 11, pp. 7-9 and
www.hlst.ltsn.ac.uk/resources/publications.html
- Martin, R., Villeneuve-Smith, F., Marshall, L. and McKenzie, E. (2008) *Employability skills explored*. London: LSN. <http://www.norfolkunites.org.uk/media/pdf/ese.pdf>
- Mason, G., Williams, G. and Cranmer, S. (2006) *Employability Skills Initiatives in Higher Education: What Effects Do They Have On Graduate Labour Market Outcomes?* London: National Institute of Economic and Social Research.
http://www.niesr.ac.uk/pdf/061006_91251.pdf
- Purcell, K., Elias, P., Davies, R. and Wilton, N. (2005) *The Class of '99: a study of the early labour market experience of recent graduates*, Research Report 691, Department for Education and Skills, Sheffield.
- NCIHE (1997) *Higher Education in the Learning Society*, Report of the National Committee of Inquiry into Higher Education. London: HM Treasury.
- Sen, A.K. (1985). *Commodities and Capabilities*. Oxford University Press: Oxford.
- Stewart, J. and Knowles, V. (2000) 'Graduate recruitment and selection: implications for HE, graduates and small business recruiters', *Career Development International*, Vol. 5, No. 2, pp. 65-80.
- Tchibozo, G. (2007), 'Extra-curricular activity and the transition from higher education to work: a survey of graduates in the United Kingdom', *Higher Education Quarterly*, Vol. 61, No. 1, pp. 37-56.
- UK Commission for Employment and Skills (UKCES) (2009) *The Employability Challenge* <http://www.ukces.org.uk/tags/employability-challenge-full-report>