

How Much Does Higher Education Enhance the Employability of Graduates?

Summary of Report to HEFCE

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Summary

Introduction

Substantial resources are being invested in efforts to develop HE students' employability skills while they are at university. Current strategies seem to rest on three assumptions:

- That there is a consensus about which employability skills should be developed;
- That employability skills can be effectively developed in HE;
- That once developed, employability skills can readily be transferred into employment.

Our review of the literature suggests that all these assumptions are contentious in different ways. The empirical evidence to date is mixed.

The principal aim of this study was to undertake a new empirical investigation of universities' efforts to enhance graduate employability and the extent to which they are successful. We provide new evidence on how higher education courses seek to improve the employability of their graduates and evaluate the impact of these efforts on graduates' experiences in finding their first employment and on measures of job performance and career progress in graduates' early years of employment.

The empirical research had four main components. The first consisted of visits to 34 departments in eight different universities in order to ascertain what changes have been made in recent years to employability skills teaching and learning. The second component was an analysis of First Destination survey data for all graduates in the year 2000 from the sample departments. The third was a telephone survey of recent graduates in the subjects being investigated and the fourth was a parallel survey of their immediate line managers.

The empirical methodology was designed to obtain a threefold 'fix' on the relationship between recent graduate recruits' work performance and their learning

experiences in higher education. One triangulation point was the universities' own perceptions of the opportunities for employment-relevant learning that they are offering their students. The second was information on graduates' first employment and their own early work experiences and their perceptions of the contributions to skills development that had been made by their higher education programmes. The third was to gather systematic opinions of more senior people with direct knowledge of the work performance of individual graduates.

The study had to be selective. Universities teach a wide range of subjects, and graduates enter a wide range of occupations. We focussed on graduates in five subject areas: biological sciences, business studies, computer science/studies, design studies and history. These subjects were selected in order to obtain a mix of long-standing vocational areas, more recently established vocational subjects and courses where First Destinations data point to a wide range of experiences of initial entry to employment. Data were gathered through:

- Research visits to a total of 34 departments in eight different universities;
- An analysis of First Destination survey data for all graduates in the year 2000 from the sample departments;
- Analysis of data from a new telephone survey of recent graduates in the subjects being investigated;
- A parallel survey of their immediate line managers.

Teaching Employability Skills in University Departments

Semi-structured interviews were held with 60 academic staff and ten careers staff in 34 departments in five subjects in eight universities comprising four pre-1992 and four post-1992 universities. The interviews sought respondents' views on definitions of employability; learning, teaching and assessment of employment related skills and knowledge; employer involvement with programmes of study; student work experience; and other employability initiatives.

There were marked differences between subject areas in definitions of employability and approaches to developing employability skills:

- In Biology all respondents acknowledged their responsibility for producing graduates who were employable both within the Biological Sciences field and outside it;
- In History most of the respondents argued that the skills required of a good historian are those required in a wide range of graduate employment, such as finding out new information, extracting it, analysing it and organising it into a coherent and convincing argument;
- In Business Studies there was a clear ‘Old’ (pre-1992) and ‘New’ (post-1992) University split. All the New Universities offered definitions that suggested both academic rigour and employment - related transferable skills are both important. However, none of the Old Universities Business departments referred to generic employability skills in their definitions;
- All Computing departments were aware of the ease with which their graduates were finding specialist employment (in 2001). However, in several cases it was reported that this led to resistance from students in engaging with both broader employability skills and the theoretical underpinnings of their own subject;
- All four departments in Design Studies stressed that most students began their degrees with the intention of working in their field after university and that the courses provided are explicitly vocationally orientated.

Teaching Employability Skills

The two most common approaches to skill development have been either to ‘embed’ skills within degree course or to offer students ‘parallel’ or ‘stand-alone’ courses. These two approaches are best viewed as representing two ends of a spectrum.

In biology, departments in both Old and New Universities claimed that subject specialisation and theoretical understanding was less important than skills and that employability skills training was a major feature of their courses. Most Biological Science departments have been quick off the mark in adapting courses to the

employability agenda. In contrast, the relative importance of employability skills compared to subject knowledge and theoretical understanding was very low in all six History departments visited.

Business Studies differs from the other subjects in the sample in that specialist subject knowledge and theoretical knowledge are intrinsically related to the type of employability that requires generic employability skills. There were more claims about embedding employability issues in the regular teaching and less evidence of a distinction between academic approaches to specialisms and the employability agenda than in other subjects.

In Computer Studies, specialist skills are so sought after by employers, that the main employability focus of their studies is on their specialism. However, they were all making efforts to introduce generic employability related modules to counteract excessive specialisation.

This contrasts with Design which also has very specific labour market links but is an area where employability skills are treated very seriously. This may be because many of their graduates enter a very competitive economic environment with many small enterprises in which graduates will be required to have a range of management and business skills as well as technical proficiency in design. Most of the employability skills in Design Studies courses are embedded.

Work Experience and Employer Involvement in Course

Provision of structured work experience during courses varies widely by subject. There was very little for students in History departments. In contrast, the provision and take up of work experience in both Old and New Universities for Business Studies was very high. The four Design departments also all reported considerable practical work experience as part of the courses. In Biology most of the old universities make little provision for work experience while in most of the new universities it is widespread. Computer Science departments reported that students were able to find course related part-time and summer paid work.

Employer involvement in course provision often overlaps with work experience and is widespread and often integral in Design Studies, low in Computer Studies and almost non-existent in History. In other subjects differences between institutions were reported but not on any clear Old-New university lines.

Overall, the picture that emerged was one of widespread concern with employability as an issue that must be addressed in the provision of undergraduate courses, but with wide differences between universities and between subjects about how it was most appropriate to provide employability-enhancing experiences. The spectrum ranges from History departments where it is felt that the knowledge and skills acquired in becoming a competent historian are useful in a wide range of occupations, to Design Studies where in some cases something approaching an apprenticeship model of learning is in operation.

Postgraduate Masters Courses

Masters level courses fall into two categories: those which build on existing subject knowledge and those which help graduates to diversify into new, often more vocational areas (conversion courses). Within Biological Sciences, the courses fall into the former group in that students are expected to already hold a degree in Biology or a closely related scientific area. In Business Studies all the departments in the sample offered a range of courses that were open to most graduates, almost irrespective of their first-degree subject: most students took Masters courses to improve their employment potential. The focus of Computer Science Masters courses was entirely specialist employment-related: most said that employer demand was derived from the IT skills shortage. History departments reported low demand for Masters courses, which were all academic or recreational in nature.

Employability Skills Development and Initial Graduate Employment Outcomes

Using First Destinations data for all available June 2000 graduates from the 34 departments we visited, we were able to explore the impact on initial graduate employment of three departmental-level measures of involvement in employability-skills development:

- Teaching, learning and assessment of employability skills;
- Student participation in work experience;
- Employer involvement in course design and delivery.

After controlling for gender, age, intellectual ability (proxied by A level scores), degree class, degree subject and a range of other potential influences, the probability of graduates being employed six months after graduation (as against being unemployed or economically inactive) was found to be positively and significantly associated with them having participated in a sandwich placement during their studies. Sandwich participation was also positively associated with employment in graduate-level occupations, that is, in either 'traditional graduate' or 'graduate track' occupations (rather than in non-graduate occupations). It is possible that this relationship partly reflects unobserved characteristics of students who choose to undertake sandwich courses, for example, a high level of motivation to gain employment-related skills and to develop contacts relevant to future employment.

The same analyses also found that employer involvement in course design and delivery was positively associated with the occupation-based measure of the quality of initial employment found by graduates. However, there was no evidence of a significant independent effect of the efforts devoted by university departments to the teaching, learning and assessment of employability skills.

Survey of Paired Graduates and Line Managers

Interviews were carried out with 192 pairs of graduates and their immediate line managers in 120 establishments between May and August 2001. In many respects the sample reflected the overall new graduate population but it had above average shares who had acquired A levels or equivalent before starting university and also had an above average share of graduates who had entered university with vocational qualifications such as those certified by BTEC or SCOTVEC. The main disparity with the wider population of university graduates in respect of entry qualifications was the smaller proportion in the sample who were classified to 'other qualifications'.

The sample was also biased towards graduates who studied full-time and those who attended New Universities. The proportions gaining First or Upper Second class honours degrees were above those for graduates as a whole but the proportion which had gone on to gain postgraduate qualifications was much the same as in the wider population.

Two in five of the sample graduates had undertaken some form of work experience with an employer as part of their course, a substantially higher proportion than in the wider population of recent graduates (partly due to the subjects we had focussed on). However, in terms of other kinds of work experience gained as a student, the sample was in line with wider trends in having very high proportions of graduates who had undertaken paid work while studying in both term-time and vacations.

Just over two-thirds of sample graduates had started work with their present employer within six months of graduating, whereas Labour Force Survey data suggest that less than a quarter of employed graduates in the 23-27 age group have been with their current employer since the age of 22. This bias towards graduates who had stayed on with their initial employer reflected the fact that we sought to identify employers via university Careers Service records.

Just under 80% of sample graduates worked in service industries. Biology and Business Studies graduates were more likely to work in manufacturing than graduates in the other three subject areas. Computing and Biology graduates were the most

likely to be in professional occupations (for example, scientists, programmers and software engineers). Just under half of Business Studies graduates and three-quarters of the few Design graduates were in associate professional occupations. Four-fifths of all graduates were classified to associate professional level or above. The remainder were in administrative, secretarial and other occupations less commonly associated with degree-holders. Business, Computing and History graduates were spread across small, medium-sized and large establishments. However, the majority of Biology and Design graduates were employed in workplaces with fewer than 100 people.

Line Managers' Recruitment Criteria

Nearly all line managers agreed that a degree was a good indicator of individual 'potential to carry on learning as the job progresses'. A similar high proportion agreed that 'attending university helps people to develop inter-personal and social skills' and over two thirds agreed either strongly or to some extent that 'a degree is the best indicator of mental ability'.

There was much more variation in responses to a question about the importance of graduates having studied a particular subject. Line managers of Computing, Design and Biology graduates were more likely to regard subject knowledge as important than line managers of graduates in Business studies and History. With the exception of jobs held by History graduates, line managers attached greater importance to subject knowledge than to the class of degree or A level grades.

Over two thirds of line managers regarded sandwich placements during university studies or 'other relevant work experience' as important criteria for filling the jobs held by graduates. Even in the case of jobs held by History graduates, six out of ten line managers preferred candidates who had relevant work experience.

Over half the line managers in the sample also said that 'work experience in any field' was very or quite important, suggesting that almost any type of employment could be expected to enhance the development of sought-after transferable skills. The importance attached to non-relevant work experience was less in the case of jobs held

by Computing and Design graduates than for jobs held by graduates in Biology, Business and History.

Graduate Work Experience Before and During Studies

About a third of graduates had worked full-time for more than three months even before entering university – however, only one in four of these graduates regarded this early work experience as directly relevant to their current jobs.

Four out of ten graduates in the sample had experience of work placements with an employer as part of their studies and three quarters of these graduates had undertaken placements of six months or more. Subject differences were important, with the proportions reporting work experience of this kind ranging from well over half in Computing, and nearly half in Business studies, to zero in History.

Extent of Under-Utilisation of Graduate Skills

About one in five graduates reported that their skills and knowledge were ‘too high’ for the jobs they were doing. Predictably, this problem was most common among graduates classified to administrative/secretarial and other occupations below associate professional level. However, even in professional occupations, nearly a fifth of the graduates apparently regarded their skills and knowledge as under-utilised.

However, nearly three quarters of the graduates regarded their skills and knowledge as ‘about right’ for the jobs they were doing. Roughly two thirds of all graduates considered that their current job made considerable use of *either* subject knowledge *or* other skills and (non-subject) knowledge developed at university, *or both* skills and knowledge.

The proportions of graduates reporting considerable use of subject knowledge in their current jobs ranged from over two-thirds in Design Studies and Computing down to one-fifth in History. It is interesting to note that graduates in History who were not using subject knowledge in their jobs were above average in acknowledging the use of other (generic or transferable) skills developed at university.

Graduate Perceptions of Skills and Knowledge Emphasised by University Departments

Nearly all graduates said that their courses had placed ‘very strong’ or ‘quite strong’ emphasis on subject knowledge and high academic standards: just under three-quarters thought their courses had placed strong emphasis on ‘skills you might use in a job such as communication or team-working’. Business Studies graduates reported the highest degree of emphasis in this latter area and also on gaining practical workplace experience and on ‘business awareness’. History ranked lowest on all these measures but there was also a relative absence of ‘studies related to real-life work situations’ and business awareness on Biology courses.

While two in five Business Studies graduates and a quarter of the Computing graduates said that during their courses they had done a lot of work ‘based on the real-life problems of a business or other organization’, only tiny proportions of Biology, Design and History graduates said they had done so.

In the case of ‘project work as part of a group or a team’, the equivalent proportions ranged from a quarter in History to three-fifths in Computing, two-thirds in Biology and nearly nine-tenths in Business studies. History departments also ranked lowest in the provision of other types of ‘key skills courses designed to improve, for example, communication, problem-solving or IT skills’. The proportion of Computing graduates who had spent a lot of time developing their oral presentation skills is low compared to the other four subjects.

The Acquisition and Use of Employability Skills

Factor analysis of graduate survey responses on different aspects of employability skills development during their university studies suggests that, on balance, New University departments are likely to be more explicitly focussed on employability skills teaching than are Old University departments. However, the degree of correlation was not overwhelming and, as was found in our interviews in university departments, there are many exceptions to the rule. Furthermore, differences between

Old and New Universities in this respect partly derive from the different mixes of subjects taught in each type of institution.

When asked about employability skill areas in which they had benefited from their university education, over four-fifths of all graduates said they had been helped ‘a lot’ in working without close supervision, and three-quarters had been helped a lot in information handling and processing. Other high-rating skill areas included problem-solving, written communication and team working.

In general the proportions of Business Studies, Biology and Design graduates giving credit to their university education for the development of employability skills were higher than was the case for Historians or Computing Studies graduates. This finding about computing courses is consistent with evidence from our visits to Computer Science departments where we heard of problems with some Computing students lacking interest in gaining the communication and inter-personal skills needed to complement their technical knowledge. Apart from weaknesses of this kind in specific subject areas, the main skills that had not been developed at university (according to graduates) were those required for professional network building and understanding clients’ business problems.

Comparison of Skills Developed at University with Skills Required in Employment

For many graduates across all five subject areas, the emphasis placed on different kinds of employability skill during their university courses was broadly in line with skill requirements (as they perceive them) in their current jobs. Two exceptions stand out. Firstly, presentation skills were not so widely used in graduates’ current jobs as might be thought from the emphasis placed on them in many university departments. Secondly, there were signs of job skill requirements not being met in those areas which graduates themselves recognised as not being well developed at university, namely, the skills and competences needed to build up contacts outside graduates’ current organisations and to suggest solutions to clients’ business problems. There were some subject-related differences with, for example, newly-qualified graduates in History and Biology much less likely to feel equipped with the level of skills required

in their present jobs to tackle clients' business problems than are those in Business, Computing and Design Studies.

Managers' evaluations of job skill requirements agreed with graduates in three areas of skill: ability to seek out new information; problem solving ability; and ability to work on one's own without supervision. In all other employability skill areas, the line managers' average ratings of job skill requirements exceeded those of graduates: numeracy, written communication skills, formal presentation skills, team-working skills, computing/IT skills and the ability to identify solutions to customers' business problems.

With the exception of jobs filled by History graduates, high levels of employability skills are often sought in conjunction with specialist subject knowledge and 'other practical and technical skills'. Computing and IT skills are naturally ranked highest for jobs held by Computer Studies graduates but are regarded as either very or quite important by large majorities of managers of graduates in all four other subject groups as well. That said, our later regression analysis of survey data suggested that for some graduates (especially in Biology and Business Studies) there is a mismatch between the IT skills acquired during their studies and the 'moderate' level of computing skills they are actually required to use in employment.

Managers' Assessments of Skills Lacked By Graduates

Just over a quarter of line managers said that graduates had 'all or most' of the necessary skills and knowledge when they started their current jobs, and nearly two thirds said they had 'some' of the required skills. This ratio applied to all subject areas except Design Studies where well over half the graduates were rated as having 'most' of the required skills.

Line managers who said that graduates had only some or none of the required skills and knowledge when they started their jobs were asked an open question about what *types* of skills were lacking. In general, the 'missing' skills are just as likely to be technical and/or employer-specific in nature as they are to be transferable employability skills. A large proportion of the initial skill deficiencies identified by

employers related to areas of skill and knowledge which are best acquired (or can only be acquired) *after* starting employment rather than beforehand, for example, product knowledge and the knowledge and skills needed for ‘working in this particular organisation’.

Employer-provided training

There was a wide diversity of views amongst line managers about the need for immediate graduate ‘work-readiness’. Some 18% ‘agreed strongly’ with a statement that: ‘We need graduates to have the skills and knowledge required to do the job as soon as they arrive’. Another 43% said they agreed with this statement ‘to some extent’ while a large minority (38%) ‘disagreed’.

Just under two-fifths of the managers of managers said graduates should be able to work without detailed supervision in three months or less, 43% said between 3-12 months and the remainder said 12 months or more. Employers of Biology, Computer Science and Business studies graduates expected them to need above-average lengths of time before they could work independently. This correlated to some extent with the occupations of graduates. Almost two-thirds of graduates in occupations below associate professional level were expected to work without detailed supervision within three months, considerably less time than that allowed to graduates in professional, associate professional and managerial occupations.

Nearly nine graduates in every ten reported that they had received formal training (defined as ‘organised or structured training’) since starting work with their current employer. Two-thirds had received formal on-the-job training in the past 12 months and three-fifths had received off-the-job training. In general, the *content* of this training provision suggested that, with the exception of IT skills development, efforts to improve generic employability skills came second to the time and resources devoted to technical, practical and job-specific skills training.

For example, only a third of graduates said they had received formal training in presentation/communication skills compared to nearly three-quarters who had received training geared to the specific demands of their department and just under

60% who reported technical/IT training of some kind. This order of priority was confirmed by line managers, about two-thirds of whom said graduates had been given training designed to develop specialist subject knowledge, computing/IT and other technical and practical skills.

Overall, our findings on the nature of skills ‘missing’ when graduates first started in their current jobs *combined with* the content of employer-provided training suggest that, in this sample at least, the gaps in graduates’ employability skills were not regarded as severe by many line managers. However, there is a strong likelihood that this sample of graduates is above average in terms of the matches between graduates’ and line managers’ expectations (mainly because of the relatively high proportion of sample graduates who were still working for their initial main employer). Hence, some caution needs to be attached to our findings for that reason alone. It should also be remembered that, by design, we focussed on a small selection of subject areas and therefore a number of our findings may or may not be applicable to the wider body of graduates.

Graduate Job Performance and Career Progress

One strength of our survey of paired graduates and line managers was that we were able to develop labour market performance measures that went beyond employment status six months after graduation. These new measures related to skills utilisation, initial skill levels, graduate performance in their jobs and indicators of graduate career progress.

Although student participation in sandwich placements was strongly associated with performance indicators defined in terms of employment status six months after graduation, this type of work experience had no statistically significant effect on any of the indicators relating to graduates’ performance at later stages in their working lives - for example, their salary levels after one to three years or the probability that, after a similar period of time, they will have had a significant increase in responsibilities accompanied by a pay increase.

In addition, most measures that related to skills development at university had no significant effects on performance after one to three years in employment. When their coefficients did achieve statistical significance, they turned out to be negative, for example, in equations modelling skills development at university and graduates' current salaries or the probability of graduate skills being well utilised in employment. This may reflect a degree of 'mismatch' for some graduates between certain skills acquired at university and the skills they are required to use in employment.

One measure of universities' involvement with employability skills – graduates' perceptions of the amount of *time* devoted to activities such as group or team projects, Key Skills courses or oral presentations – was significantly associated with graduate job performance as proxied by managers' expectations about their future careers and, to a lesser extent, with the probability of promotion accompanied by a pay increase. However, the strength of this finding is weakened by the lack of significant effects attributable to a similar measure based on graduates' own perceptions of the *emphasis* given by university teachers to employability skills.

Overall these results show that identification of the independent effects of employability skills formation in HE on graduates' labour market performance is highly sensitive to the choice and definition of the different measures involved and to model specifications. We now go on to consider some of the implications of our findings for further research on graduate employability.

Concluding Comments

The general picture that emerges is one of widespread concern with employability as an issue that must be addressed in the provision of undergraduate courses, but there are wide differences between universities and between subjects about how it is most appropriate to treat the issue.

The many and big differences between subjects seem to depend in large part on a combination of (a) the range of occupations that graduates enter and the state of the labour market for graduates with specialist knowledge in that area and (b) the levels

of prior educational achievement of students on the courses. The main characteristics of the five subjects in these respects may be crudely summarised as follows:

History

- High entry qualifications of course recruits;
- Graduates enter a wide range of occupations;
- Main concern of teachers is to train competent historians;
- Little attention to generic employability issues.

Biology

- Relatively modest entry qualifications of course recruits;
- Graduates enter a wide range of occupations;
- Relatively little attention on undergraduate courses with training biology related specialists;
- Considerable concern with generic employability in course provision.

Business studies

- Wide range of entry qualifications of course recruits;
- Graduates enter range of occupations but mostly within 'business/management';
- Several sub-disciplines have close links with particular professions;
- Close relationship between employability issues and content of many courses;
- High demand for Masters courses often from graduates converting from other subjects.

Design studies

- Modest academic qualifications at entry: other criteria for student selection;
- Graduates enter well defined range of occupations: many in small businesses;
- Specialist course content mainly concerned with professional and craft skills;
- Considerable emphasis on business related generic employability skills.

Computing

- Fairly high entry qualifications of course recruits;
- Extremely high demand for graduates in specialist occupations;

- Students concentrate almost exclusively on acquiring specialist skills;
- High demand for Masters courses often from graduates converting from other subjects.

Formal course related work experience is widespread in Business Studies and in many Biology departments although numbers undertaking this continue to fall due to financial constraints. Work experience is much less visible in other subjects for a variety of reasons. Historians (all in Old Universities) tend to consider it not helpful. In Computing it is generally considered more important for students to learn computer skills well. The Design Studies departments (all in New Universities) reported a very high level of work experience and close integral links through widespread use of part time staff with a foothold in the 'real world'. Most students in all subjects now gain some practical work experience in vacations and many also work during term time through financial necessity. Whilst this undoubtedly enables them to develop skills such as self and time management, it is no substitute for a carefully monitored and supervised work experience placement.

Universities and their graduates agreed on:

- The large amount of employment-related content that is now embedded in regular academic courses;
- Curricula which have evolved very considerably during the past ten years to take account of the employability agenda;
- Wide variety of different approaches to the employability agenda;
- Substantial differences between institutions;
- Very different approaches in different subject areas.

It is certainly the case that the extent to which any particular graduate has been exposed to employability skills training, and the precise form it takes, will vary considerably depending on the subject of his or her first degree and the institution where it was obtained.

Our findings with respect to the effects of participation in sandwich placements (and other forms of work experience during undergraduate studies) suggest that any

independent effects of employability skills development in HE may be strongest in the very early stages of graduate careers and then tend to diminish rapidly over time as graduates acquire more job- and occupation-specific skills and knowledge through on-the-job training and experience.

On the face of it, this carries the implication that labour market performance measures relevant to later stages in graduate careers may not be suitable for capturing the effects of different approaches to teaching in HE on graduate employability. It may be that, of necessity, performance measures relating to HEIs' success in delivering employability skills need to be confined to the first few months of graduates' careers (which is the time when First Destinations data are collected).

Clearly, it would be desirable to investigate these issues further through a much larger and more representative sample survey than it was possible to achieve with our chosen methodology of seeking to interview matched pairs of graduates and line managers. Such a survey could usefully be confined to managers alone in order to ascertain the extent of any gaps they perceive in the employability skills of newly-recruited graduates and the extent to which employers take responsibility for providing training to plug such gaps in skills. This would be a useful check on the findings for our own sample that 'missing' skills often concerned areas of skill and knowledge that are best acquired (or can only be acquired) *after* starting employment rather than beforehand.

Summary of Findings on Effects of Employability Skills Development on Labour Market Performance Indicators

Survey	No. of graduates in selected subjects	Typical period of time in labour market at time of survey	Labour market performance indicator	Effects of departmental-level measures of employability skills development <i>TLA = Teaching, learning and assessment of employability skills</i> <i>EI = Employer involvement in course design and delivery</i>	Effects of individual-level measures of employability skills (ES) development <i>Sandwich = participation in structured work experience as part of course</i> <i>ES time = graduate perceptions of time spent in degree course on ES-related activities</i> <i>ES emphasis = graduate perceptions of university teachers' emphasis on ES</i> <i>ES development = graduate perceptions of extent to which ES were developed by their university studies</i>
First Destinations, 2000	3589	6 months	In employment (as against being unemployed or economically inactive)	TLA – no significant effect EI – no significant effect	Sandwich – large, positive, significant effect
	3284	6 months	Employed in graduate-level occupation	TLA – no significant effect EI – moderately large, positive and significant effect	Sandwich – large, positive, significant effect
Paired Graduates & Line Managers, 2001	192	1-3 years	Graduates believe their skills and knowledge are well-utilised in current jobs		Sandwich – no significant effect ES time – no significant effect ES emphasis – no significant effect ES development – no significant effect except for IT skills which have large negative significant effect
	192	1-3 years	Managers believe graduates will be in much more senior position in three years time		Sandwich – no significant effect ES time – large positive significant effect ES emphasis – no significant effect ES development – no significant effect
	192	1-3 years	Graduates have had significant increases in responsibilities since started current jobs, accompanied by pay increase		Sandwich – no significant effect ES time – sometimes positive significant effect (depending on specification) ES emphasis – no significant effect ES development – no significant effect except for information processing/ written communication skills which sometimes have negative significant effect (depending on specification)
	192	1-3 years	Graduates' current annual gross salaries		Sandwich – no significant effect ES time – no significant effect ES emphasis – no significant effect ES development – no significant effect except for presentation and interpersonal skills and information processing / written communication skills which sometimes have small negative significant effects (depending on specification)