First Destinations of UK Computing Graduates

A report based on data from 33 universities

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CPHC

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EXECUTIVE SUMMARY

In 2004 the CPHC undertook a study of the first destinations of IT graduates in the UK. The aim was to identify the proportion of these graduates who are in jobs which are relevant to their studies and their distribution between IT-supply and IT-user organisations, as well as the range of courses of further study and 'non graduate' work which they enter. Data was obtained for 2002 graduates who left university in 2002.

Rates of employment, unemployment, entry into further study and training and unavailability for work were very similar to those reported in the HESA *First Destinations Survey.* However the proportion of graduates who appeared to be in 'IT work' was substantially higher than the proportion reported in some treatments of the HESA data as being employed as 'IT professionals'. It was proposed that some IT graduates working in IT-user organisations may be classified according to the sector to which their employer belongs. In addition, the CPHC study identified graduates in any kind of IT work rather than just IT professional roles.

Graduates were very evenly distributed between IT-supply and IT-user organisations. Those from pre-1992 universities were slightly more likely to work in IT-supply, and those from post-1992 universities were slightly more likely to work in IT-user companies. Around one-fifth were in 'non-graduate' work. The overwhelming majority of graduates who entered further study or training were on IT-related programmes of some sort. Graduates from these have high rates of IT employment.

A similar study was undertaken in 2005, relating to graduates who left higher education in 2003. Data was obtained for 3062 graduates from 33 UK universities. These institutions offered a reasonably representative sample of the UK higher education system. This data took the form of an employer name and job title *or* the title of a programme of study *or* a statement that the graduate was unemployed or unavailable for work or study, for each individual graduate. This data was compared with data from the HESA survey of 2003 graduates and the treatment of this in the Careers Service publication *What Do Graduates Do?*

It was noted that these graduates entered the IT labour market at a period when the industry as a whole and job prospects in particular were somewhat depressed, according to commentary from organisations such as e-skills UK. The situation has since improved. However, this context may mean that these graduates will show *lower* rates of employment in general, and IT employment in particular, than might be the case in subsequent years.

Destinations for these graduates are shown below. Both the employment and the unemployment rates are slightly lower in the CPHC study, in which more graduates are unavailable for work or in further study and training. However, overall the figures are broadly similar.

	CPHC study	HESA
Employed	67.4%	72%
Further study or training	14.3%	9.3%
Not available for work	7.5%	4.3%
Unemployed/seeking work	9.6%	12.1%

The CPHC study indicated that 61.1% of working graduates (41.2% of all graduates) were in IT-related work. *What Do Graduates Do?* suggests that around 37.5% of working graduates (27% of all graduates) are in IT-professional work. These roles include IT and e-commerce managers, database professionals, systems administrators, software engineers and developers, computer analysts and programmers, IT consultants, systems developers and networking professionals.

However, when *only* to the IT professional roles counted in *What Do Graduates Do?* are examined, the CPHC data indicates that 36.6% of working graduates are in these jobs. Therefore the discrepancy between the figures appears to arise because of the range of IT work which is included in the calculation. Other IT work found in the CPHC study included 'IT Support' (the largest category, accounting for 10.15% of working graduates), web development and web/multimedia design (around 6%), helpdesk (2.4%), IT teaching and training (1.4%) and research and development (1%).

As in 2004, graduates are evenly distributed between IT-supply and IT-user organisations, with graduates from pre-1992 universities being more likely to work in the former and graduates from post-1992 universities more likely to work in the latter. The most common type of IT-supply employers are providers of software development and solutions, computer applications and IT services (employing 14.9% of working graduates). Banks and financial organisations are the most common types of IT-user employer (employing 5.6% of working graduates), followed by non-HE educational organisations and engineering, aerospace and retail companies.

12.2% of all graduates are following IT-related courses of further study or training. 1.48% are following courses in other fields; the most common non-IT area is business and management.

8.3% of working graduates are in non-IT work at a graduate level. Management is the most common type of employment among this group (3.74% of working graduates). 28.75% of working graduates are in non-graduate non-IT work, with the most common destinations being administration (7.2% of working graduates) and retail (6.8% of working graduates).

When the HESA figures for a range of subject disciplines are examined, it appears that IT has one of the lowest rates of entry into non-graduate work of any subject. Around 22% enter the main types of non-graduate work, compared with between 30 and 40% of graduates in design, economics, physics, biology, business studies and a number of humanities disciplines.

Graduates from courses with a Business or Multimedia focus were somewhat more likely to obtain employment in these areas, although they were also distributed among the full range of different types of IT employment.

Research by the Institute for Employment Research suggests that information about the employment of graduates six months after they leave university (the point at which the data used in the CPHC study and the HESA survey is collected) may *not* provide a good indication of their final career destinations. A relatively high number will take non-graduate work as a 'stop gap' while they save money to pay student debts or fund travel or further study, or while they make a long-term career decision.

BACKGROUND: THE 2004 STUDY

Interest in the employment patterns of university graduates has risen in recent years. As a result, the findings of the HESA *Destinations of Leavers from Higher Education* survey have received substantial media coverage. Such media reports, of necessity, can offer only a brief account of a very large and complex data set. Many concentrate on 'headline' figures such as the unemployment rates for individual subjects and for the cohort as a whole. Subject comparisons may be broad or absent, and there may be little background information on survey methodology or dimensions of the data.

In 2004, CPHC committee members were concerned at the contradiction between their own impressions of their graduates' destinations and those described in the press. In particular, some newspaper reports quoted surprisingly low rates of entry into IT-related work. This could be taken to indicate that these graduates are unsuitable for IT jobs or unwilling to enter them, or that there is insufficient employment in IT to 'absorb' the number of graduates now leaving UK universities. In addition, a high rate of unemployment among IT graduates was often cited.

A small study was undertaken in order to obtain a more detailed picture of the destinations of IT graduates. This study addressed the following questions:

- How many IT graduates enter IT work at all levels, including IT professional roles and 'lower' or undefined IT roles?
- How many IT graduates enter IT roles in the IT user sector rather than the IT supply sector?
- How many IT graduates who enter further study or training choose courses which are IT-related, and which may later lead to a career in IT?
- How many IT graduates enter non-graduate work?

The first point is important because IT is such a key part of the modern business environment that a substantial number of IT professionals work for organisations whose core business is not IT. Financial institutions, the public sector (including the NHS), the retail sector and the entertainment industry are all major employers. Consequently, it is possible that some IT graduates who work in IT-user organisations may be classified according to the sector in which they work rather than their day-to-day activities. Changes in the methodology of the HESA survey may mean that this is less of a problem with the data for 2003 than may have been the case in previous years, but the issue still remains relevant.

In addition, some interpretations of the HESA data refer only to the number of IT graduates entering 'IT professional' work rather than 'IT related' work. In the analysis of the HESA data in *What Do Graduates Do?* (published by Graduate Prospects), graduates in the following roles are counted as 'IT professionals': computer systems and data processing managers, software engineers, computer analysts, computer programmers, computer and IT consultants, telecommunications professionals and network systems professionals.

Graduates whose IT occupations fall into the 'Other professional, associate professional and technical' and 'Other occupations' categories will be included in these categories rather than in the main one relating to IT.

However, ICT graduates may begin their professional lives in associate professional or technical jobs, and only later move into standard 'professional' roles as they gain experience and additional training, or as opportunities arise. Alternatively, graduates in 'associate professional and technical' jobs may develop their own roles to use their graduate skills and eventually move into a 'graduate track' career. Therefore it was important to identify the number of graduates entering IT work at *all* levels.

The types of courses undertaken by graduates entering further study or training are rarely analysed. This may also lead to an underestimation of the number of IT graduates who aim for a career in this field. In particular, some graduates may choose to hone the skills gained in a 'general' IT or computing degree by taking a postgraduate course in a specialist area, or to enhance their employability by adding a business qualification to their computing background, with the intention of returning to IT specialisation when they apply for work.

Finally, the unemployment rate for graduates cannot by itself be taken as an indicator of the employability of graduates, or of their employment in 'graduate level' work. Not all graduates take jobs which require a degree for appointment and/or degree-level skills to carry out the work. A discipline from which relatively few graduates take jobs of this latter type may have a higher unemployment rate than one where fairly small numbers of graduates enter relevant work while many take non-graduate work as a 'stopgap'. The number of computing graduates entering positions which appeared to fall into the category of 'non-graduate work' was also examined.

Data was obtained for 2002 computing graduates who left 25 UK universities in 2002. These universities provided a representative sample of the UK regions, and of the pre- and post-1992 sectors. For details of the analysis of this data please see the description below of the 2005 study, where a very similar methodology was used.

The 2004 study provided some useful findings:

- Overall rates of employment, unemployment, further study and unavailability for work or study were broadly similar to those found in the HESA survey.
- The proportion of graduates in this study who were in 'IT work' was substantially higher than the proportion of graduates whom the HESA survey identified as being in 'IT professional occupations'.
- Graduates in IT work were evenly distributed between IT-supply and IT-user organisations.
- The overwhelming majority of graduates who were in further study or training were on IT-related programmes.
- Around one fifth of working graduates appeared to be in 'non-graduate' work.
- Graduates from post-1992 institutions are slightly more likely to work in an IT-user than an IT-supply organisation. Graduates from pre-1992 institutions are slightly more likely to work in an IT-supply than an IT-user organisation.
- No significant differences emerged between the employment rates for universities in different regions.

SECTION ONE: BACKGROUND TO THE 2005 STUDY

1:1 Aims

The findings of the 2004 study appeared to confirm that some of the 'headline' figures for the employment of IT graduates might not provide a full picture of their destinations. The 2005 study attempts to address the same questions in relation to the figures for graduates who left university in 2003, and in addition to identify:

- The types of IT job held by IT graduates six months after graduation
- The types of IT-user and IT-supply organisation for which IT graduates are working six months after graduation
- Possible differences between the destinations of graduates from 'standard' IT/computing degrees, business focussed degrees, and multimedia degrees
- The type of further study courses undertaken by IT graduates (whether or not IT-related)
- The types of non-IT work undertaken by IT graduates
- Gender differences in graduate destinations.

It was possible to obtain information on all but the last of these. Because of the way the data is collected and stored in individual institutions, in most cases it was not possible to indicate whether an individual graduate was male or female. Providing data in this form would have entailed a fairly substantial additional effort for many careers services, and might have resulted in a poorer response to the survey overall. Where this information was available, it was almost always attached to data which had already been classified into groups by occupation, and which could not therefore be compared to the outcomes of the survey as a whole. In any case, very few respondents were able to provide even this.

1:2 Labour market context

The figures for graduates who left university in 2003 should be read as an indicator of graduate employment in the labour market *at that time*, and not of the employment prospects of IT graduates in general (see 3.1 below). In fact, the third and fourth quarters of 2003 seem to have been a particularly difficult time for those seeking IT work, and their prospects have since improved considerably. Some of the graduates in the 2005 survey may have benefited from the upturn in the employment market noted in the *e-skills Bulletin* for Quarter 1 of 2004 (henceforth Q1:04). However, the majority of those who attempted to go directly into IT work would have done so during the somewhat depressed period in mid- to late 2003.

The *e-skills Bulletin* for Quarter 4 of 2003 (henceforth Q4:03) paints a sombre picture of the IT industry, including the labour market. Following some improvement during 2002 (which itself will have affected the outcomes of the 2004 study), there is evidence of a slump in 2003: 'many indicators… show a worsening market for the ICT sector overall' (e-skills Q4:03, 1). Gartner statistics show a small rate of growth, but this is at best 'unexciting', and overall the IT services trade balance is 'gloomy' while the sector as a whole shows falling profitability (e-skills Q4:03, 3).

The labour market statistics for this period confirm this depressing outlook, and readers would be unlikely to predict the improvements which are, in fact, chronicled in later issues of the *e-skills Bulletin*. Instead, the ICT industry as a whole appears to be shedding jobs: 'the number of people made redundant from the ICT industry sectors increased significantly between the second and third quarters of 2003' (e-skills Q4:03, 5). There is a slight fall (of around 1000 people) in the numbers of ICT staff made redundant, but this is very small indeed.

Overall, the rates of unemployment among people who would usually be in ICT employment rose by 0.5%, and there was a fall in the number of people employed in any role in the ICT *sector* (e-skills Q4:03, 5). The overall number of people in ICT work showed a very small *rise*, but the majority of this was attributable to a rise in the number of consultants employed (e-skills Q4:03, 6), the area least likely to affect new graduates. In addition, the demand for the 'top ten technical skills' among permanent staff also fell (e-skills Q4:03, 8).

When asked to forecast their hiring policies for the next six months, only 6% of employers in one survey believed that they would increase the number of ICT staff recruited. This represented drop in confidence from when a similar question was posed a year earlier (e-skills Q4:03, 11). In fact, this prediction turned out to be wrong and to underestimate the upturn which in fact took place. However, it provides an indication of the climate at the point when the graduates in the 2005 study were applying for work.

The *e-skills Bulletin* does not offer specific information relating to the entry of recent graduates into the IT labour market. The overall employment trends described above probably do not offer an exact parallel to the prospects for new graduate entrants. Even during a period of recovery, it is likely that established professionals will enjoy the benefits of this earlier than those who are making their first steps in the field.

1:3 Methodology

A letter was sent to the Careers Service of every UK university, explaining the purpose of the survey and requesting data for that institution. Careers services were asked to submit a list of job titles and employer names *or* courses of further study for all 2003 graduates in ICT subjects who responded to the HESA *Destinations of Leavers from Higher Education* survey. In addition, they were asked to indicate the number of graduates in these disciplines who stated that they were unemployed, or unavailable for work or study.

This graduate employment was then classified by job title and 'relevance' to IT education. Employers were categorised according to whether they were primarily users or suppliers of IT products and services. Courses of further study were also classified. The classifications made in relation to the same data by the individual careers services were *not* received, and do not play any part in this survey.

The results of the HESA survey were also examined. The main source for these was *What Do Graduates Do?*, a publication produced by Graduate Prospects (the official graduate careers service for the UK). This work is reported in Section Three.

1:4 Data

Data was received from the careers services of 33 UK Universities. In total, data for 3062 graduates from first degree courses was analysed.

The number of graduates for whom data was obtained from each university varied very greatly. The smallest cohort was 7 (which almost certainly represents a misunderstanding on the part of the careers service in question about the data which was required), and the largest was 413. The average number was 93. However, the variation between institutions is so large as to make this latter figure more or less meaningless. 12 institutions offered data for 50 students or fewer, 12 offered data for between 51 and 100 students, and 6 offered data for between 101 and 200 students. Only 3 institutions offered information for over 200 students.

16 of the institutions surveyed were post-1992 universities (henceforth 'new' universities), and 17 were pre-1992 institutions (henceforth 'old' universities). The average number of students for whom data was returned from the former was 121, and the average for the latter was 67. However, the variation in each case is still extremely large. A total of 1133 students from old universities and 1929 students from new universities were included in the study.

The regional distribution of these universities is shown in Table 1.

Region	Number of universities	Number of students	'Old' universities	'New' universities
London & South East	8	738	3	5
Midlands	5	921	3	2
Northern England	6	747	2	4
South West England	5	361	2	3
Scotland	8	234	6	2
Wales[1]	1	61	1	0

Table 1: Regional distribution of universities in the study

When these figures are considered as a proportion of the institutions in each region, the level of response is reasonably similar for all regions with the exception of the Midlands, where it is somewhat low, and for Wales and Northern Ireland from which figures were obtained for only one institution.

[1] Because only one return was received from a Welsh university, this institution has been excluded from all regional analyses.

All of the universities supplied figures for students graduating from at least one course with a title that indicated a ‘central’ programme of study in computer science or computing (henceforth CS). Where IT was named as a course title without an additional term indicating that this was a business-focussed degree, the students from this course were included in the ‘CS’ group. However, very few institutions appear to offer courses whose titles refer only to ‘IT’.

12 universities supplied figures for students taking courses whose titles indicated a Business focus (henceforth ‘BC’), and 7 returned figures for students whose programme title indicated a Multimedia focus (henceforth ‘MM’). Courses of both these latter types are far more common in new than in old universities.

These represented the main types of course title. Titles such as ‘Computer Software Engineering’ were relatively rare, and have been grouped under CS. Games degrees, of which there were very few, were grouped with MM, as were courses in animation and graphics.

The number of students in each category is shown in Table 2.

Type of course	**Total number of students**	**Number of students in old universities**	**Number of students in new universities**
CS	2132	1101	1121
BC	677	81	596
MM	253	212	41

Table 2:Distribution of students by type of course and university type

It should be noted that these figures reflect the pattern of response to the survey and *cannot* be taken as representing the composition of the student body for IT in the UK.

SECTION TWO: FINDINGS OF THE 2005 STUDY

2:1 Main activities of graduates

Table 3 shows the distribution of the 2003 graduates in the study between the main categories of graduate activity which are used in the HESA survey. For comparison, HESA figures for all UK Computer Science and IT graduates are presented.

Because this is the first year in which participants in the HESA survey were asked whether they were working *and* studying, there may be some discrepancies between the formats in which data was provided by the various Careers Services who responded to the CPHC study. While some certainly did provide data on the employment of graduates who were both working and studying, it was not always clear that this had been sent. The HESA figures for 'employment' in the tables which follow, unless otherwise stated, include both graduates whose sole activity is paid work and also those who are working and studying.

2003 graduates	**Graduates in the CPHC study**	**HESA figures for all UK Computer Science/IT graduates**
Employed	67.4%	72%
Further study or training	14.3%	9.3%
Not available for work	7.5	4.3%
Unemployed/seeking work	9.6%	12.1%

Table 3: Destinations of 2003 graduates, by main activity

Table 4 shows, for comparison, the equivalent figures from the 2004 study.

2002 graduates	**Graduates in the CPHC study**	**HESA figures for all UK Computer Science/IT graduates**
Employed	69.1 %	66.4
Further study or training	13.7 %	11.9 %
Not available for work	4.8 %	5.1 %
Unemployed/seeking work	12.3 %	16.8 %

Table 4: Destinations of 2002 graduates with known outcomes

Overall some differences do emerge, but in no case are these so large as to indicate that the CPHC study cannot be regarded as at least reasonably representative. The employment rate among graduates in the CPHC study is 2.5% lower than for those in the whole UK, although the percentage in employment is almost 4.6% lower. The discrepancy arises because the percentage of students either undertaking further study or training is substantially higher (5%), and the percentage who stated that they are unavailable for work or study is also higher (3.2%)[2].

In 2004, the CPHC study showed a *higher* rate of employment for these institutions than for the whole of the UK, and a very slightly lower rate of unavailability. However, the unemployment rate was again lower and the percentage entering further study or training was also higher.

Both surveys suggest that the unemployment rate is lower for IT graduates in 2003 than it was in 2002, as might have been predicted from the depression in the labour market. Charts 1 and 2 show the trends as they emerge in each set of data.

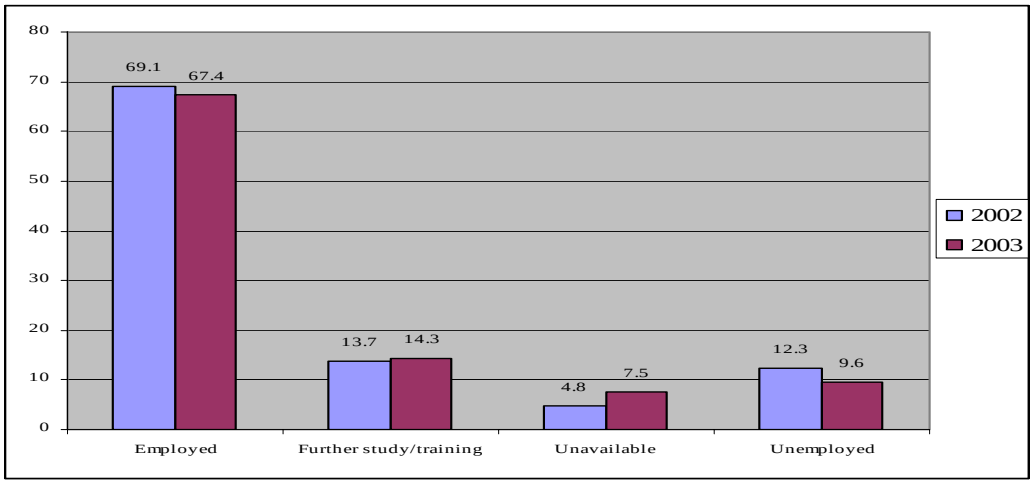

Chart 1:Main activities of 2002 and 2003 IT graduates in the CPHC studies

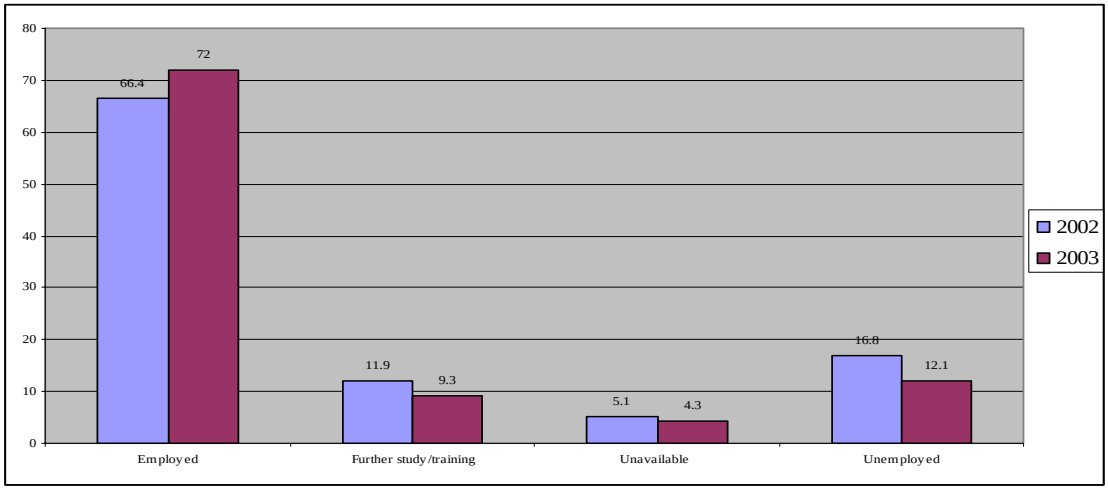

Chart 2:Main activities of all UK IT graduates, 2002 and 2003 (HESA figures)

[2] It is possible that this is actually a misleading affect caused by the confusion over students who are in further study or training.

2:2 IT employment

Job title usually provided indicated whether or not a student had entered IT employment. Where there was room for doubt, I assumed that the individual was *not* in ICT work (e.g. a 'manager' was counted as non-ICT, although an 'ICT manager' might have classified him/herself as a 'manager'). Doubtful cases were in fact rare.

Where the job title appeared to indicate non-graduate employment (e.g. 'customer services') despite the employer being listed as an ICT-supply organisation (e.g. 'Compaq'), I counted the student as being in 'non-graduate', even though s/he may be using ICT skills or 'lying in wait' for an ICT-related position within the organisation. The exception to this was where the individual appeared to be involved in computer or IT sales. Again, very few graduates fell into this latter category.

Some job titles in administration (e.g. 'clerk') may indicate occupations requiring IT *user* skills, but these were also counted as 'non-graduate work'. The figures given here for the number of graduates in ICT-related work may therefore be conservative.

The list of 'IT professional' roles used in *What Do Graduates Do?* (see p.2 above) will undoubtedly 'capture' a great many of the IT-related jobs entered by computing graduates. However, some relevant work will not be included. Most importantly, graduates working in IT roles at a 'sub professional' level may not be counted. This is quite proper, as the figure produced relates only to 'professional' roles. A separate category, for miscellaneous 'associate professional and technical' work, is also included in *What do Graduates Do?*. Various IT 'support' jobs may fall into this. Part of the difficulty here is in the broad application of the term 'support', which may refer to anything from reasonably simple user support to highly technical roles in which IT supports other business activities. Graduates who enter helpdesk or technician posts are also unlikely to be counted among the 'IT professionals'.

In addition, some 'new' roles in web technologies, multimedia and e-business may not be captured in the list used for *What Do Graduates Do?*. Again, this does not suggest that the list is itself flawed in any way. Very few fields will accrue new job titles, or whole new areas of work, at the rate found in IT (for example, there are many new degree programmes in Media Studies but relatively few new types of job).

A number of computing graduates work in technical occupations within the health service, local government and education, or in the ICT departments of financial institutions. It is possible that some are listed as working in these sectors in the HESA analysis, while others will have been classified as 'managers'. IT teachers and trainers roles, or those who work in research and development, may have been counted under those headings. The numbers in these latter cases are small, probably because the standard route into these sorts of work is via a postgraduate degree or qualification.

In the analysis which follows I have attempted to group IT job titles into broad categories, based on the information made available by the careers services who responded to the survey.

Table 5 shows the proportion of graduates in the 2005 study who are in IT work. For purposes of comparison, Table 6 shows the equivalent figures from the 2004 study.

	Graduates in the CPHC study	HESA figures for all UK Computer Science/IT graduates
% of all graduates in ICT-related work /employed as ICT professionals	41.2%	27%
Working graduates in ICT-related work/employed as ICT professionals	61.1%	37.5%

Table 5: IT employment of IT graduates, 2005 study

	Graduates in the CPHC study	HESA figures for all UK Computer Science/IT graduates
% of all graduates in ICT-related work/employed as ICT professionals	50.7 %	27.8 %
Working graduates in ICT-related work/employed as ICT professionals	73.4 %	42.2 %

Table 6: IT employment of IT graduates, 2004 study

Both the CPHC study and the HESA survey show a fall in the proportion of working graduates who are in IT work, which is unsurprising given the overview of the IT job market which emerges from e-skills Q4:03. It is likely that an analysis of the destinations of 2004 graduates will show an improvement in the rate at which they enter IT-related work.

Once again, the CPHC study suggests a much higher rate of 'relevant' employment than the HESA figures. This suggests that some IT professional occupations may be classified under other categories in the HESA survey, and that certain sub-professional and/or new IT occupations may be excluded from the figures.

2:3 IT work

IT jobs were grouped into 22 different categories. One surprising aspect of this phase of the work was the relative ease with which this classification could be carried out, and the absence of a category 'other IT'. This may reflect the fact that the data received had already undergone a process of categorisation within the careers services who supplied it. It is possible that some misclassifications were made at either of these stages. In particular, the category 'IT support' may appear somewhat larger than it would have been had a narrow technical definition been applied. This category may, to some extent, have functioned as an 'other IT' heading.

Table 7 shows the distribution of graduates between types of IT job.

	Number	% of all graduates	% of working graduates	% of graduates in IT work
IT support staff	209	6.84	10.15	16.61
IT/computer managers	132	4.32	6.41	10.49
Analysts	113	3.70	5.49	8.98
Software engineers	111	3.63	5.39	8.82
Programmers	110	3.60	5.34	8.74
Software development staff	70	2.29	3.40	5.56
Consultants	67	2.19	3.25	5.33
Web development staff	67	2.19	3.25	5.33
Designers - multimedia/web	56	1.83	2.72	4.45
Helpdesk staff	49	1.60	2.38	3.90
Database staff	41	1.34	1.99	3.26
Systems developers	40	1.31	1.94	3.18
Technicians	32	1.05	1.55	2.54
Networking staff	29	0.95	1.41	2.31
IT teachers and tutors	28	0.92	1.36	2.23
Computer/software testers	27	0.88	1.31	2.15
Computer engineers	24	0.79	1.17	1.91
Computer sales staff	18	0.59	0.87	1.43
Research & development (commercial)	10	0.33	0.49	0.79
Research (academic)	10	0.33	0.49	0.79
Systems administrators	10	0.33	0.49	0.79
e-commerce managers	7	0.23	0.34	0.56

Table 7: IT jobs held by IT graduates, 2005 CPHC survey

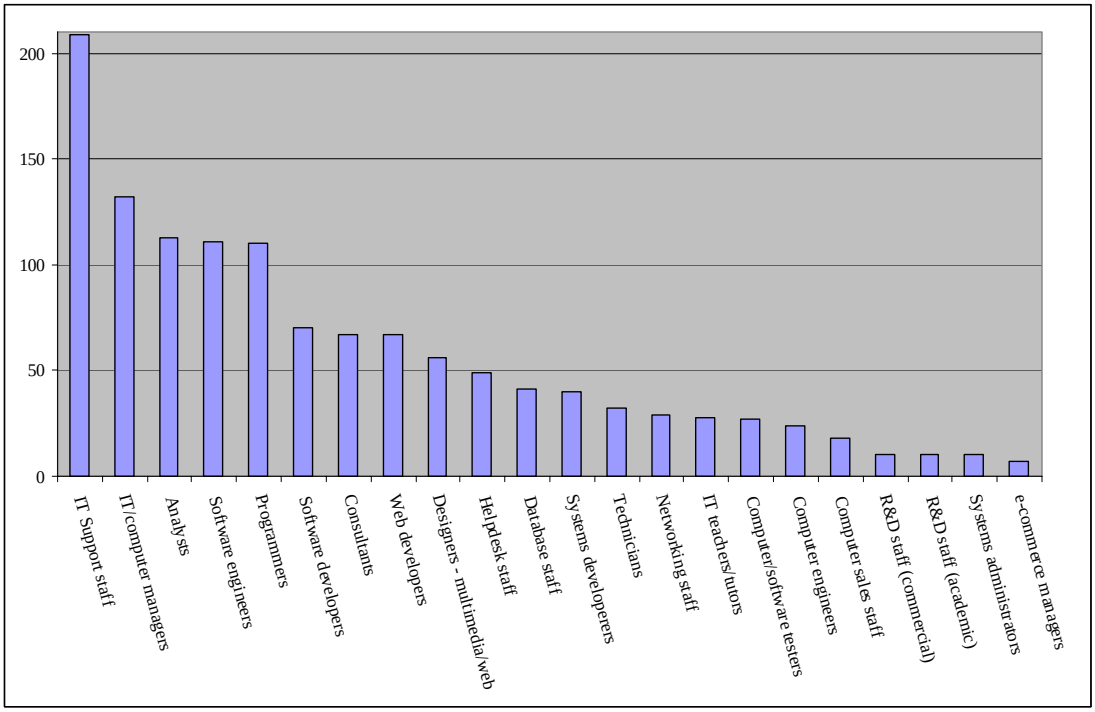

Chart 3: IT jobs held by IT graduates, 2005 CPHC survey

A comparison between the list of job titles used here and the one in *What do Graduates Do?* goes some way towards explaining the discrepancy between the CPHC and HESA figures. Table 8 suggests a 'mapping' between the categories used in each case.

HESA Category	**Categories used in the CPHC study**
Computer systems & data processing managers	IT/computer managers Database staff Systems administrators e-commerce managers
Software engineers	Software engineers Software developers Computer engineers
Computer analysts & programmers	Computer analysts Computer programmers
Computer & IT consultants	Consultants
Network systems professionals	Systems developers Networking staff

Table 8: IT professional staff categories in the HESA and CPHC surveys

These are the categories which, according to *What Do Graduates Do?*, account for 37.5% of working IT graduates. If the CPHC study figures for *only* those graduates in the jobs listed in the right-hand column above are examined, these occupations account for just 36.6% of IT graduates, a very similar figure. This comparison suggests that, while the HESA figures provide an accurate picture of the number of IT graduates entering certain types of IT work (i.e. IT professional work), they do not indicate the total number entering relevant employment of all kinds.

The largest category excluded from the above figures is 'IT support'. Some roles in this group may appear to be sub-professional (possibly they are classified by HESA as 'other associate professional and technical' employment). Alternatively, where graduates provide IT support to sectors other than IT supply (e.g. in the public sector or in a financial or retail organisation), they may be counted under those headings.

Almost 6% of working graduates are in web development and design roles, and 2.4% are in helpdesk work. Many of the latter graduates were employed by universities. It is possible that some of these were employed by the institutions at which they were also undertaking further study which will eventually lead to an unambiguously 'professional' role in IT.

The high number of IT managers suggests that other predictions of a rise in demand for professionals of this type (e.g. e-skills/Gartner 2004) are confirmed by trends in the employment of new graduates. However, this figure may actually be somewhat inflated because it covers a range of different kinds of management activity, and activity in different sectors. If an aggregated figure for all graduates in some type of 'technical' role (e.g. analysts, programmers, software developers, networking staff etc) is considered, the proportion of graduates in 'technical' occupations is still considerably larger. Given that many of the IT support roles probably utilise primarily 'technical' skills, this still appears to be a major area of employment for IT graduates.

2:4 IT user and IT supply work

Table 9 shows the distribution of graduates in IT employment between IT-supply and IT-user organisations. Where a graduate appears to be self-employed, they are counted as working in an IT-supply environment. Table 10 provides the equivalent figures from the 2004 survey for purposes of comparison.

	IT work in an IT-supply organisation	**IT work in an IT-user organisation**
% of all graduates	20.4%	20.75%
% of graduates in IT work	49.6%	50.4%
% of all working graduates	30.35	30.8%

Table 9: Distribution of IT work between IT-user and IT-supply organisations: graduates in the 2005 CPHC study

	IT work in an IT-supply organisation	**IT work in an IT-user organisation**
% of all graduates	24.9 %	25.8 %
% of graduates in IT work	49.0 %	51.0 %
% of all working graduates	36.0 %	37.4 %

Table 10: Distribution of IT work between IT-user and IT-supply organisations: graduates in the 2004 CPHC study

In both years, almost equal numbers of graduates appear to work for organisations of teach type. A consistently slightly higher number appear to work for IT-user organisations, but the figures are very close indeed.

2:5 Types of employer – IT-supply

Table 11 shows the distribution of IT graduates working for IT supply organisations by core business of employer. In this case, it was not always possible to identify the main activity of a company, and so the category 'unknown' is the third largest in this list. It is possible that some of these organisations have been wrongly classified as IT-supply organisations, although every effort was taken to avoid this.

The IT and computing departments of educational institutions, and their computer support teams, have been classified as part of an IT-user organisation and figures for graduates in their employment will be presented in the next section. Dedicated e-learning organisations, however, are counted as IT-supply employers.

	Number	% of all graduates	% of working graduates	% of IT jobs	% of IT supply employers
Software development & solutions	116	3.80	5.63	9.22	18.59
Computer applications	109	3.57	5.29	8.66	17.47
IT services	82	2.68	3.98	6.52	13.14
Telecoms	47	1.54	2.28	3.74	7.53
Web design	38	1.24	1.85	3.02	6.09
Computer/electronics manufacture	29	0.95	1.41	2.31	4.65
Consultancy	26	0.85	1.26	2.07	4.17
Electronics	26	0.85	1.26	2.07	4.17
Games	17	0.56	0.83	1.35	2.72
e-learning	14	0.46	0.68	1.11	2.24
e-business organisation	12	0.39	0.58	0.95	1.92
Multimedia	11	0.36	0.53	0.87	1.76
Research organisation	9	0.29	0.44	0.72	1.44
Internet service providers	6	0.20	0.29	0.48	0.96
Unknown IT supply	82	2.68	3.98	6.52	13.14

Table 11: Distribution of graduates in IT employment between types of IT-supply organisation

The majority of IT employers of IT graduates are providers of software and/or applications, or of IT services. Telecoms accounts for 7.53%, a figure which seems rather low. However, had graduates in electronic engineering or similar disciplines been included in the survey, this figure might be higher. Web design, games and multimedia organisations employ just over 10% of graduates, but manufacturing employment is surprisingly rare.

2:6 Types of employer – IT-user

Table 12 shows the distribution of IT graduates working for IT user organisations by core business of employer. Once again, it was not always possible to classify an employer, and so a high proportion of graduates appear in the category 'unknown'.

	Number	% of all grads	% of working grads	% of IT jobs	% of IT user employers
Bank/financial organisation	115	3.76	5.59	9.14	18.14
Educational organisation (not HE)	57	1.87	2.77	4.53	8.99
Engineering, aerospace & defence	56	1.83	2.72	4.45	8.83
Retail	50	1.64	2.43	3.97	7.89
Local authority	50	1.64	2.43	3.97	7.89
University	46	1.51	2.23	3.66	7.26
Public sector, government & charity	39	1.28	1.89	3.10	6.15
NHS	27	0.88	1.31	2.15	4.26
Service industries	21	0.69	1.02	1.67	3.31
Media	19	0.62	0.92	1.51	3.00
Transport	16	0.52	0.78	1.27	2.52
Pharmaceuticals	16	0.52	0.78	1.27	2.52
Entertainment & leisure	12	0.39	0.58	0.95	1.89
Personnel	11	0.36	0.53	0.87	1.74
Construction	10	0.33	0.49	0.79	1.58
Legal profession	3	0.10	0.15	0.24	0.47
Library	2	0.07	0.10	0.16	0.32
Business consultancy	1	0.03	0.05	0.08	0.16
Unknown	83	2.72	4.03	6.60	13.09

Table 12: Distribution of graduates in IT employment between types of IT-user organisation

By far the most common type of employer is a bank or financial institution; almost 10% of IT graduates who are in IT work are employed by businesses of this type. IT support for engineering businesses also accounts for a high number, and the expansion of e-business may account for the appearance of 'retail' near the top of this list. Perhaps surprising is the high proportion of IT graduates employed in the public sector. Schools and colleges, local authorities, universities, the NHS and other public sector and government organisations together employ just over 10% of working IT graduates. Otherwise, IT graduates provide support for a wide range of different types of business activity.

2:7 Further study and training

The 2004 study found that the vast majority of IT graduates who undertook further study or training followed programmes in some area of IT. 84% of graduates in further study or training (11.5% of all graduates) were on courses of this type.

A very similar situation was found in the 2005 study. 85.3% of graduates in further study or training (12.2% of all graduates) were following programmes in IT-related areas. In other words, these graduates appear to be building on the skills gained in their first degrees, and are almost certainly doing so in order to enhance or specialise their employability in IT.

Table 13 shows the distribution of IT graduates on IT-related postgraduate courses.

	Number	% of graduates in study/training	% of all graduates
Computing - general/unspecified	222	50.92	7.26
Multimedia	44	10.09	1.44
Professional qualifications	30	6.88	0.98
PGCE	22	5.05	0.72
Information management	21	4.82	0.69
Systems design/development	8	1.83	0.26
e-commerce	8	1.83	0.26
Electronics	7	1.61	0.23
Internet technologies	4	0.92	0.13
Bioinformatics	2	0.46	0.07
Artificial intelligence	2	0.46	0.07
History of computing	1	0.23	0.03
HCI	1	0.23	0.03

Table 13: IT graduates on IT-related postgraduate courses

Unfortunately only a broad indication of the area of study was available for just over half of these graduates. It is not possible to tell whether they are in fact following a ‘general’ course or research programme, or a specialism within this.

Where a particular field of study is specified, the most popular subject appears to be multimedia computing of some type. Almost 7% of students embark on training leading to a professional certification, and just over 5% are training to teach IT. Information management courses are also relatively popular, perhaps reflecting the demand for employees who combine management and technical skills.

Table 14 shows the distribution of IT graduates between non-IT courses of postgraduate study. Graduates whose course title is ‘unknown’ may, in fact, be studying IT.

	Number	% of graduates in study/training	% of all graduates
Business/management	29	6.65	0.95
Languages	6	1.38	0.20
Humanities	4	0.92	0.13
Engineering	3	0.69	0.10
Accountancy	2	0.46	0.07
Mathematics	1	0.23	0.03
Unknown	19	4.36	0.62

Table 14: IT graduates on non-IT postgraduate courses

It appears that some IT graduates view the combination of IT and business qualifications as a good one in today's labour market. Business and Management are by far the most popular non-IT fields of study. It is possible that language skills are also viewed as a 'good combination' with computing abilities; unfortunately it was not possible to determine *which* languages these students were studying.

The 2004 study included a section on the destinations of masters students in computing, which indicated that they were very likely to enter IT employment. Therefore, it is possible that a high proportion of graduates who are taking these courses within a year of their first degrees will eventually become IT professionals.

2:8 Graduate work outside IT

5.6% of all IT graduates (8.3% of working IT graduates) are in employment which appears to require a degree and/or degree-level skills, but which is not obviously IT-related. Table 15 shows the distribution of IT graduates between jobs of this type.

	Number	% of working graduates	% of all graduates	% of non-IT jobs
Managers	77	3.74	2.52	10.10
Financial asministrators	21	1.02	0.69	2.76
Social carers	19	0.92	0.62	2.49
Accountants	15	0.73	0.49	1.97
Technologists, surveyors etc.	11	0.53	0.36	1.44
Arts workers	10	0.49	0.33	1.31
Business analysts	6	0.29	0.20	0.79
English as a foreign language teachers	4	0.19	0.13	0.52
Journalists	3	0.15	0.10	0.39
Librarians	3	0.15	0.10	0.39
Designers (inc. graphic design)	1	0.05	0.03	0.13

Table 15: Distribution of IT graduates between non-IT graduate jobs

Some of the graduates classified as ‘managers’ may actually be IT managers, who should have appeared in the figures in 2:3 above. Similarly, some of the financial administrators may be responsible for administering IT systems within their employers’ organisations, rather than working in general administration.

Inevitably, a small number of graduates from any discipline will undergo a complete change of mind about their preferred direction after completing their degree. The HESA figures indicate that this happens in all subject areas; for example, 0.4% of Fine Art graduates enter engineering professional roles.

2:9 Non-graduate work

Table 16 shows the type of non-IT, non-graduate work undertaken by graduates in the survey. 19.4% of all graduates (28.75% of working graduates) have jobs whose titles indicate that they almost certainly do not require a degree or degree level skills. These figures, in isolation, seem alarmingly high, but in fact the proportion of IT graduates who enter this sort of work is comparatively low (see 3:3:9 below for comparisons with other subject disciplines).

	Number	% of working graduates	% of all graduates	% of non-IT jobs
Administration	149	7.2	4.9	19.6
Retail	140	6.8	4.6	18.4
Financial customer services	90	4.4	2.9	11.8
Other customer services	62	3.0	2.0	8.1
Bar and waiting staff	50	2.4	1.6	6.6
Manual	37	1.8	1.2	4.9
Call centre operatives	17	0.8	0.6	2.2
Leisure	16	0.8	0.5	2.1
Charity/voluntary work	12	0.6	0.4	1.6
Real estate	8	0.4	0.3	1.0
Police/armed forces	8	0.4	0.3	1.0
Caring	3	0.1	0.1	0.4

Table 16: Distribution of IT graduates between non-IT non-graduate jobs

Most IT graduates in non-graduate work enter administrative roles of various types. These, and some of the financial customer services occupations, may later lead to a graduate-track and/or IT role in the same organisation. Graduates in this type of work may need a high level of IT-user skills on a day-to-day basis.

As noted below (3:3:9), relatively small numbers of IT graduates enter retail and hospitality posts. These jobs may be treated as temporary work, used to ‘fill in’ time while saving to pay off student debts or fund further study or travel. Other jobs which are likely to be temporary and/or to offer ‘time out’ after will include some of the charitable and voluntary work, and a number of the leisure jobs (several snowboard instructors, for example, are unlikely to see this as a long-term career option).

2:10 Differences between types of course

As noted above, many careers services provided data for graduates from different types of course. Courses were grouped into three broad categories, 'central' computing science (CS), business-focussed (BC) and multimedia (MM). This data was examined to see whether differences emerged between the destinations of graduates from different types of computing course.

Table 17 and Chart 4 show the main activities of graduates from each type of course.

	All	CS	BC	MM
Employed	67.4	65.5	72.5	69.4
Further study/training	14.3	15.6	9.2	17.1
Unemployed	9.6	10.3	9.2	4.4
Unavailable	7.5	7.6	6.6	9.1

Table 17: Main activities of graduates from different types of computing course

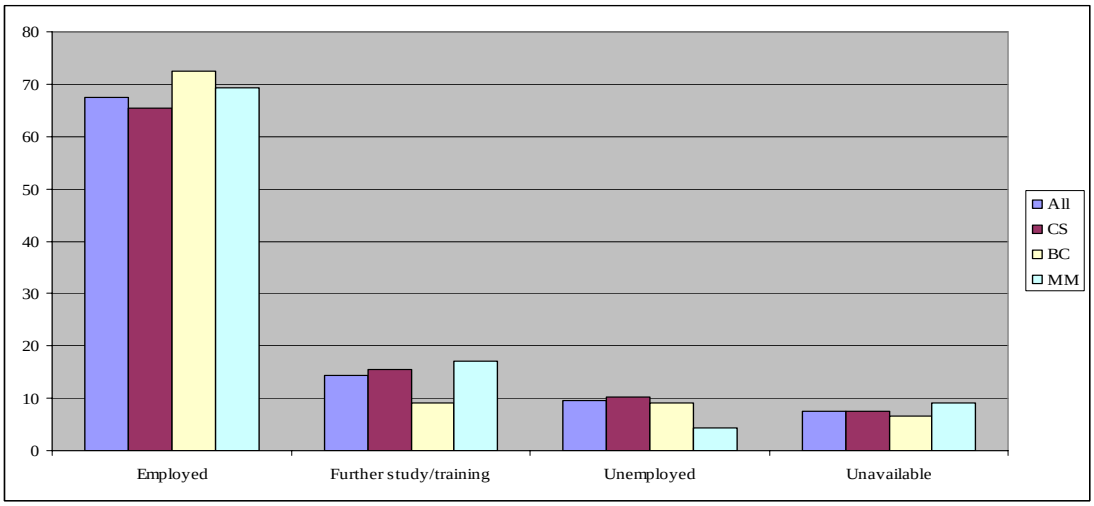

Chart 4: Main activities of graduates from different types of computing course

Employment rates are reasonably similar, with the highest rate among BC graduates and the lowest among those with CS qualifications. BC graduates are also the least likely to undertake further study or training or to state that they are unavailable for work or study. The most likely group to enter further study are MM graduates, who also have the lowest unemployment rate.

However, when the type of work which these graduates have entered is examined, considerably sharper differences appear. Table 18 and Chart 5 show the percentage of *working* graduates in various types of work.

	All	CS	BC	MM
IT-related work	61.1	64.7	53.6	53.7
Non-IT graduate work	8.3	7.3	10.8	8.6
Non-graduate work	28.8	26.4	32.2	37.7
Type of work unknown	1.9	1.6	3.5	0

Table 18: Percentage of graduates from each course type in different kinds of work

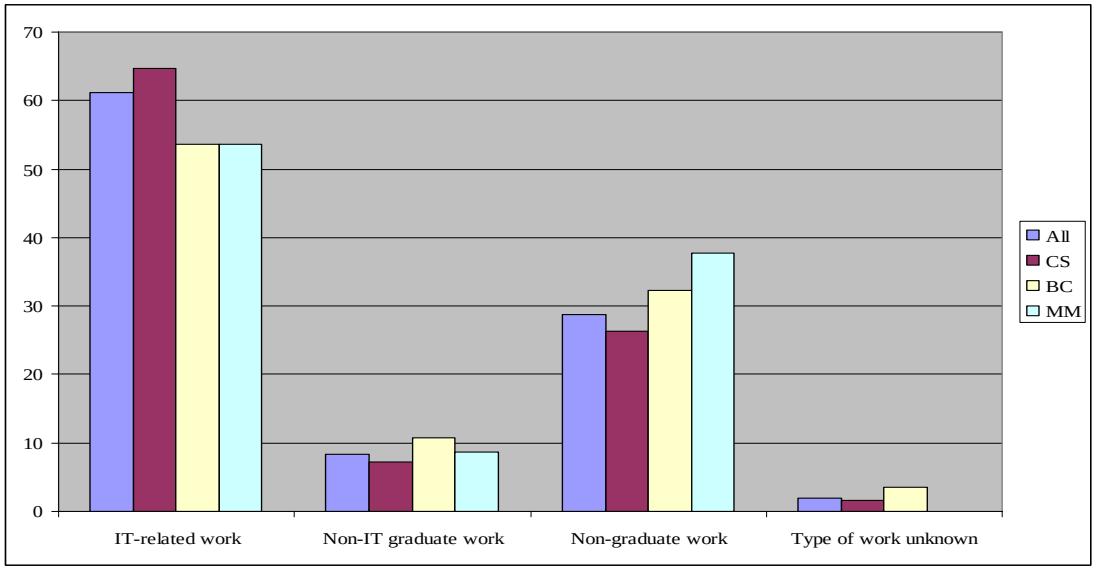

Chart 5: Percentage of graduates from each course type in different kinds of work

CS graduates have the highest unemployment rate, but the they are the *most* likely to enter IT-related work in preference to other graduate or non-graduate routes. It may be that these graduates are the group least willing to get a 'stop gap' job rather than the 'specialist' career-track work which relates to their university studies. They have the lowest rates of both non-IT graduate work and non-graduate work. If they are compared with graduates from other disciplines (see 3:3:9 below), they can be said to behave like graduates from other theoretical courses with a vocational slant, such as Design or Engineering.

BC graduates have a lower rate of entry into IT-related work. However, they have the highest rate of entry into non-IT graduate work. This may be because the business side of their studies means that they are interested in a wider range of possible jobs than are those graduates who have specialised in more technical skills. BC graduates are slightly *more* likely than CS graduates to enter non-graduate work.

Non-graduate work is most common among MM graduates. This group show similar rates of non-IT graduate work to CS graduates, and similar rates of IT-related work to BC graduates. Their patterns of employment are more similar to those of humanities graduates; however, as with the latter group, it must be remembered that these figures relate only to the first six months after graduation (see 3:1 below).

Table 19 shows the proportion of graduates from each type of course who work for IT-supply and IT-user organisations.

	All	CS	BC	MM
IT-supply	30.3	32.6	24.4	28.6
IT-user	30.8	32.1	29.1	25.1

Table 19: Proportion of working graduates who are employed by IT-supply and IT-user organisations, for different types of course

CS graduates are evenly divided between organisations of each type. No very great difference emerges for the other types of course. MM graduates perhaps appear slightly more likely to work for IT-supply organisations because of their tendency to work for small, specialist companies in areas such as games or web design, while the more general business skills of BC graduates may lead to their slightly higher rate of employment in IT-user organisations.

Some substantial differences emerge between the types of IT work entered by graduates from each type of course. Table 20 shows the percentage of graduates from each area who enter the occupations identified in this study, while Charts 6 – 8 show the distribution of graduates between jobs for each type of course.

	All	CS	BC	MM
IT Support staff	10.2	10.1	11.4	7.4
IT/computer managers	6.4	15.8	9.4	2.9
Analysts	5.5	5.4	7.3	1.1
Software engineers	5.4	7.1	1.2	3.4
Programmers	5.3	6.8	2.6	1.1
Software developers	3.4	4.4	1.6	0.6
Consultants	3.3	4.0	2.2	0.0
Web developers	3.3	3.6	2.0	4.0
Designers - multimedia/web	2.7	1.7	1.0	15.4
Helpdesk staff	2.4	2.3	2.9	1.7
Database staff	2.0	1.7	3.5	0.6
Systems developers	1.9	2.3	1.4	0.6
Technicians	1.6	1.6	1.6	1.1
Networking staff	1.4	1.7	0.6	1.7
IT teachers/tutors	1.4	1.6	0.6	1.7
Computer/software testers	1.3	0.8	1.8	4.0
Computer engineers	1.2	1.7	0.2	0.0
Computer sales staff	0.9	0.5	0.8	4.0
R&D staff (commercial)	0.5	0.7	0.0	0.0
R&D staff (academic)	0.5	0.6	0.0	1.1
Systems administrators	0.5	0.5	0.6	0.0
e-commerce managers	0.3	0.2	0.8	0.0

Table 20: Percentage of working graduates entering different IT roles from each type of course

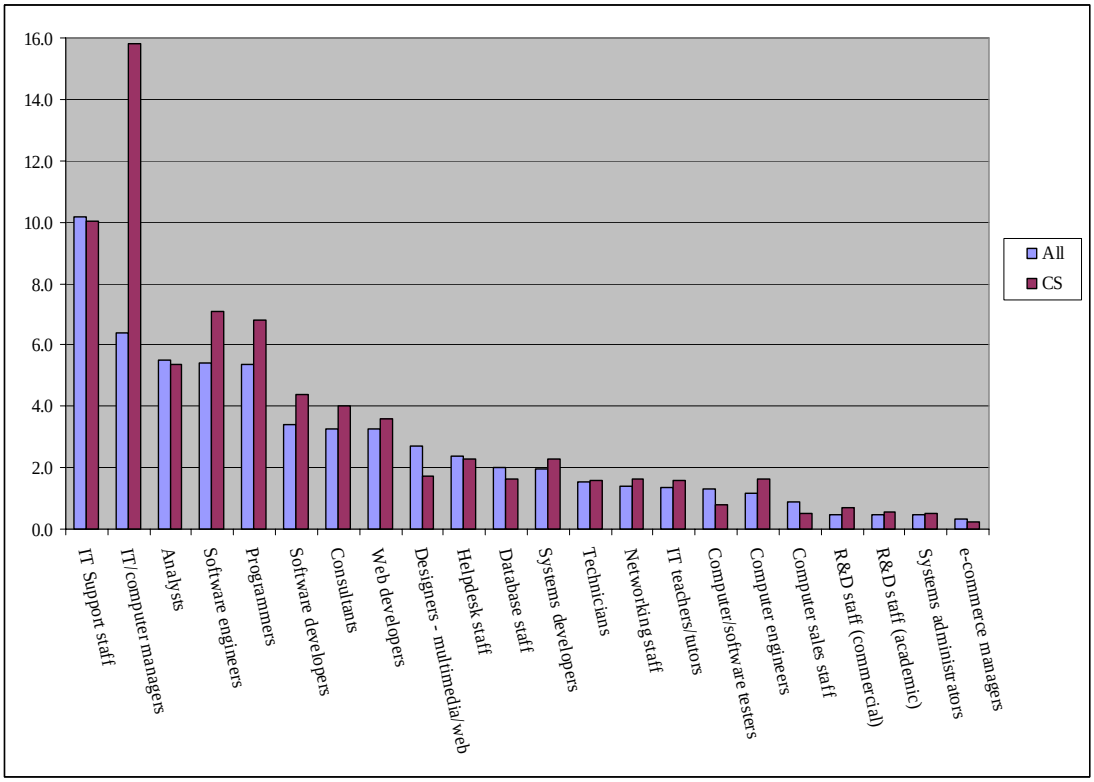

Chart 6: Percentage of working CS graduates entering different types of IT work

The most striking feature of the figures for CS graduates is their considerably higher than average rate of entry into IT management roles. They also show slightly higher than average rates of entry into the 'technical' areas such as programming, software engineering, computer engineering, web development and systems development.

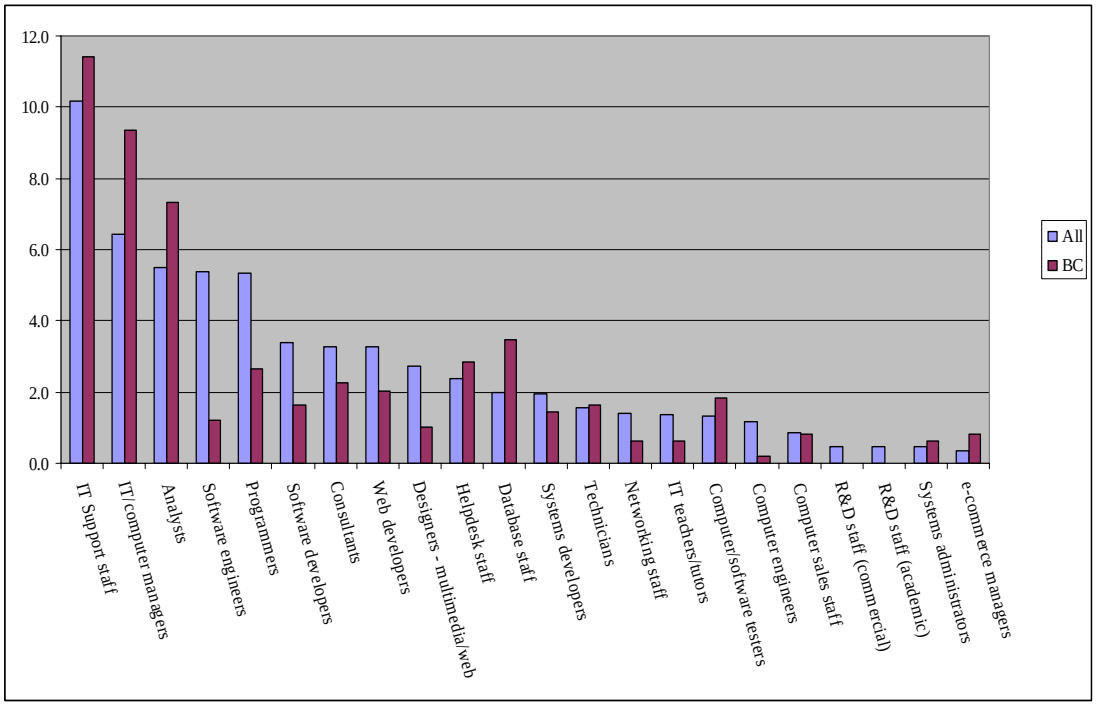

Chart 7: Percentage of working BC graduates entering different types of IT work

BC graduates show a slightly higher rate of entry into IT support and management roles, and are also more likely than average to work as 'computer analysts'. This may reflect some confusion over the use of the term 'analysis' in reporting job titles, as it may have been applied both to technical analysts and to business analysts. This group are also slightly more likely to work in database and 'testing' roles, perhaps reflecting the relevance of a knowledge of business applications to these types of work. A slightly higher than average proportion work in system administration and e-commerce; again, this suggests that they are keen to use both of their skill-sets.

BC graduates are less likely than average to work in 'technical' roles such as software and computer engineering, programming, software development, IT consulting, web development and networking. Research and development is chosen by very few of these graduates.

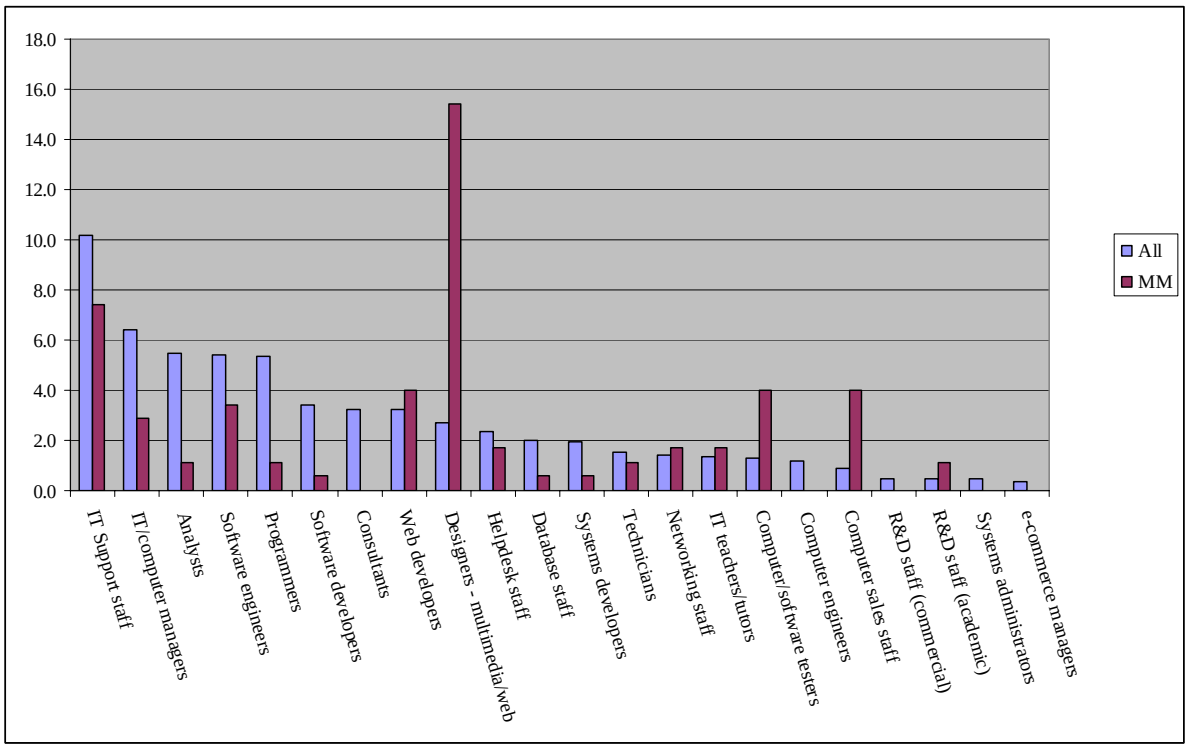

Chart 8: Percentage of working MM graduates entering different types of IT work

MM graduates, not surprisingly, are slightly more likely than average to work in multimedia or web design, and considerably more likely to work in web development. A high proportion also enter roles in software testing, and most of the small number of graduates who enter computer sales also graduate from MM courses.

A relatively small proportion of MM graduates enter technical roles, and IT support is also less popular among this group.

Table 21 and Chart 9 show the distribution of IT graduates working in IT-supply organisations between different types of organisation.

	All	CS	BC	MM
Software development & solutions	18.6	19.8	20.0	4.0
Computer applications	17.5	18.5	16.7	10.0
Unknown ICT supply	13.1	14.8	6.7	14.0
IT services	13.1	11.9	19.2	10.0
Telecoms	7.5	6.8	11.7	4.0
Web design	6.1	5.7	2.5	18.0
Computer/electronics manufacture	4.6	3.5	6.7	10.0
Consultancy	4.2	4.2	4.2	4.0
Electronics	4.2	4.2	5.0	2.0
Games	2.7	2.6	0.8	8.0
e-learning	2.2	1.5	1.7	10.0
e-business organisation	1.9	2.0	0.8	4.0
Multimedia	1.8	1.8	1.7	2.0
Research organisation	1.4	1.8	0.8	0.0
ISP	1.0	0.9	1.7	0.0

Table 21: Distribution of graduates from each type of course between different types of IT-supply organisation

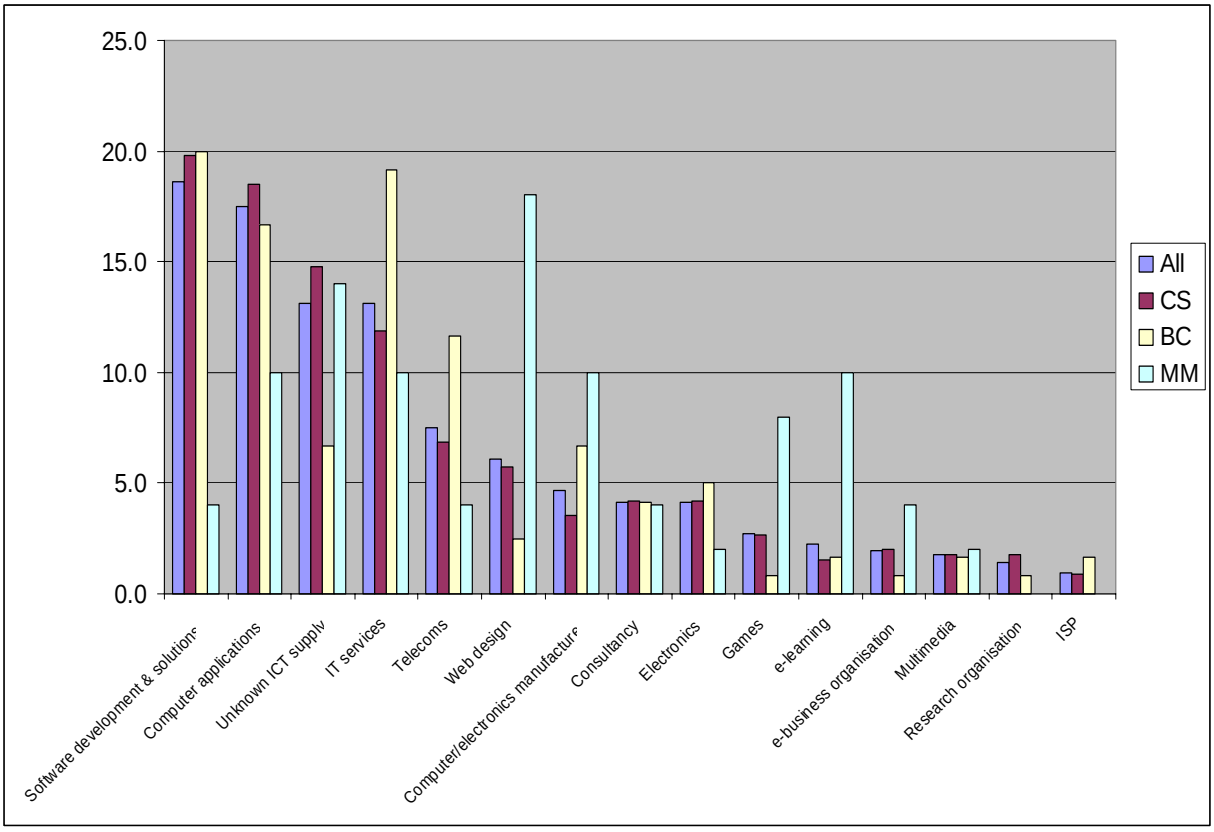

Chart 9: Distribution of graduates from each type of course between different types of IT-supply organisation

In most cases distribution is reasonably even. IT services organisations and – perhaps surprisingly – telecoms companies are rather more likely than average to employ BC graduates, while considerably fewer than average numbers of MM graduates work for software development and computer applications providers. MM graduates work in large numbers for web design, games and e-learning organisations.

Table 22 and Chart 10 show the distribution of graduates from each type of course between different IT-user organisations.

	All	CS	BC	MM
Bank/financial organisation	18.1	18.8	19.6	6.8
Unknown	13.1	12.8	9.8	27.3
Other educational organisation	9.0	8.9	7.7	13.6
Engineering, aerospace & defence	8.8	10.3	6.3	2.3
Local authority	7.9	6.9	12.6	2.3
Retail	7.9	7.4	9.8	6.8
University	7.3	7.8	3.5	13.6
Public sector, government & charity	6.2	7.2	3.5	4.5
NHS	4.3	4.7	2.8	4.5
Service industries	3.3	3.6	3.5	0.0
Media	3.0	2.5	2.8	9.1
Transport	2.5	2.0	4.2	2.3
Pharmaceuticals	2.5	2.0	4.2	2.3
Entertainment & leisure	1.9	2.2	1.4	0.0
Personnel	1.7	1.1	3.5	2.3
Construction	1.6	1.1	2.8	2.3
Legal profession	0.5	0.0	2.1	0.0
Library	0.3	0.4	0.0	0.0
Business consultancy	0.2	0.2	0.0	0.0

Table 22: Distribution of graduates from each type of course between different types of IT-user organisation

Few of the variations here will come as a great surprise. BC graduates are slightly more likely than average to work for local authorities or retail organisations. MM graduates show a slightly more specialised pattern than graduates from the other types of course. Far fewer work for banks and financial organisations, engineering, aerospace and defence companies, and local authorities. Unsurprisingly, they are more likely than average to work in the media. Their high levels of employment in universities and other educational institutions may be related to their comparatively high levels of entry into further study and training; it is possible that these are students who are combining work and study, and who have obtained employment at the institutions where they are following their postgraduate courses.

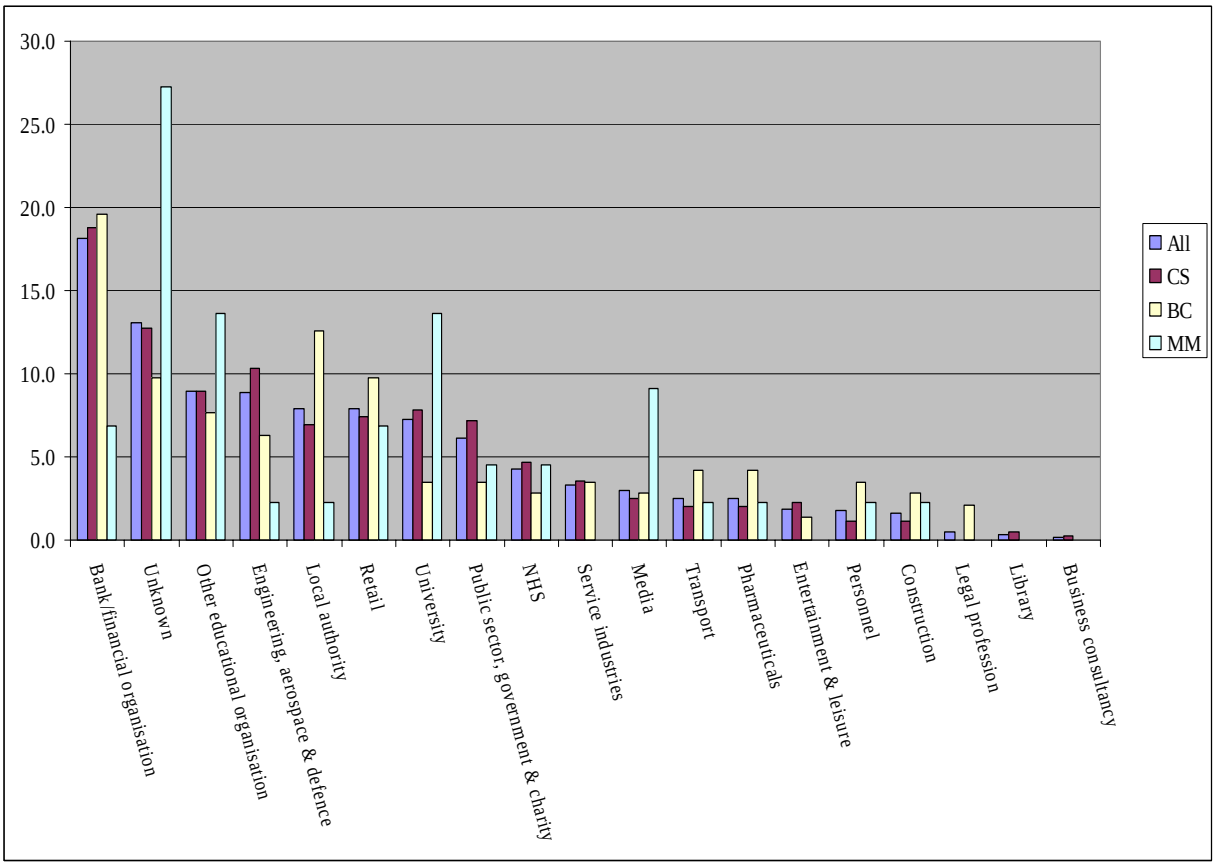

Chart 10: Distribution of graduates from each type of course between different types of IT-user organisation

Table 23 and Chart 11 show percentage of working of graduates who are in non-IT graduate work between different types of job, for courses of each type.

	All	CS	BC	MM
Management	3.7	2.9	6.5	2.3
Financial administration	1.0	1.4	0.4	0.0
Social care	0.9	0.9	1.0	1.1
Accountancy	0.7	0.8	0.6	0.6
Technology, surveying etc	0.5	0.3	1.2	0.6
Arts organisation	0.5	0.2	0.2	3.4
Business analyst	0.3	0.4	0.2	0.0
English as a foreign language teaching	0.2	0.2	0.2	0.0
Journalism	0.1	0.1	0.2	0.0
Librarian	0.1	0.1	0.2	0.0
Design (inc. graphic design)	0.0	0.0	0.0	0.6

Table 23: Percentage of working graduates from each type of course who are in graduate non-IT work.

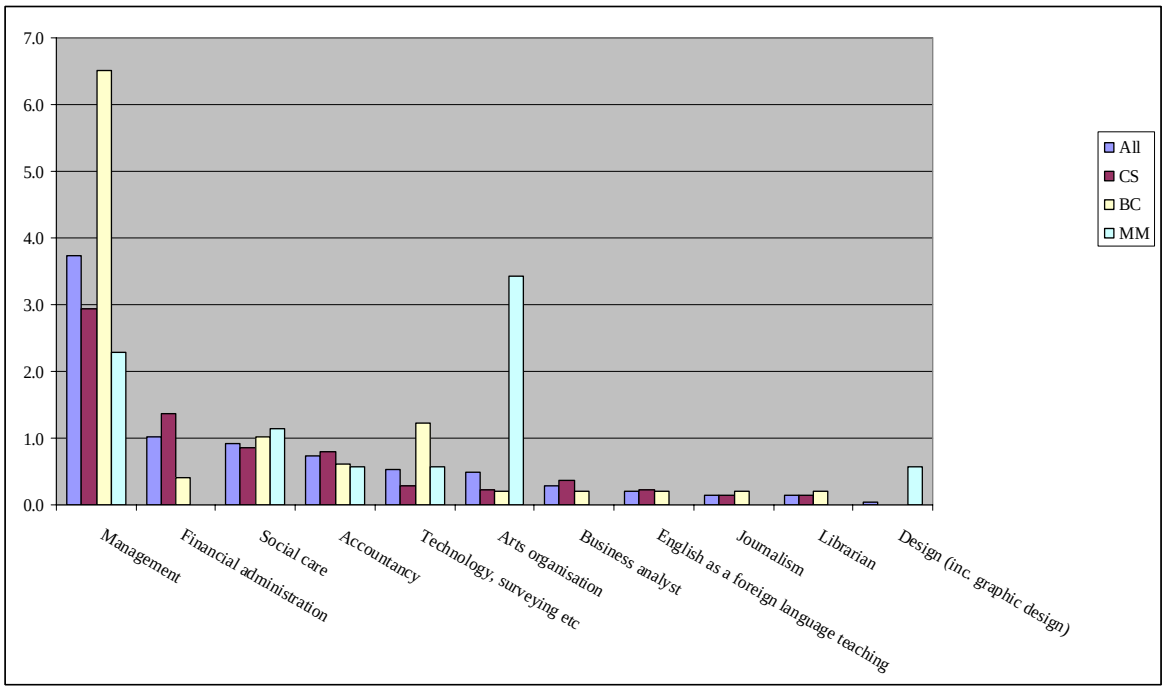

Chart 11: Percentage of working graduates from each type of course who are in graduate non-IT work

Distribution between different types of graduate non-IT work is similar for all course types. However, it does appear that where graduates combine a second interest with IT, they may choose to work in a field related to that rather than to computing. Thus a higher than average proportion of BC graduates enter [apparently] non-IT management roles, while a much higher than average proportion of MM graduates work in the arts.

Table 24 and Chart 12 show percentage of working of graduates who are in non-graduate, non-IT work between different types of job, for courses of each type.

	All	CS	BC	MM
Administration	7.24	5.74	11.81	6.29
Retail	6.80	5.96	8.15	9.71
Financial customer services	4.37	4.45	3.67	5.71
Other customer services	3.01	3.37	2.44	1.71
Bar and waiting staff	2.43	2.30	1.83	5.14
Manual	1.80	1.94	1.02	2.86
Call centre operatives	0.83	0.79	0.41	2.29
Leisure	0.78	0.86	0.81	0.00
Charity/voluntary work	0.58	0.43	0.81	1.14
Real estate	0.39	0.29	0.00	2.29
Police/armed forces	0.39	0.29	0.81	0.00
Caring	0.15	0.00	0.41	0.57

Table 24: Percentage of working graduates from each type of course who are in non-graduate non-IT work.

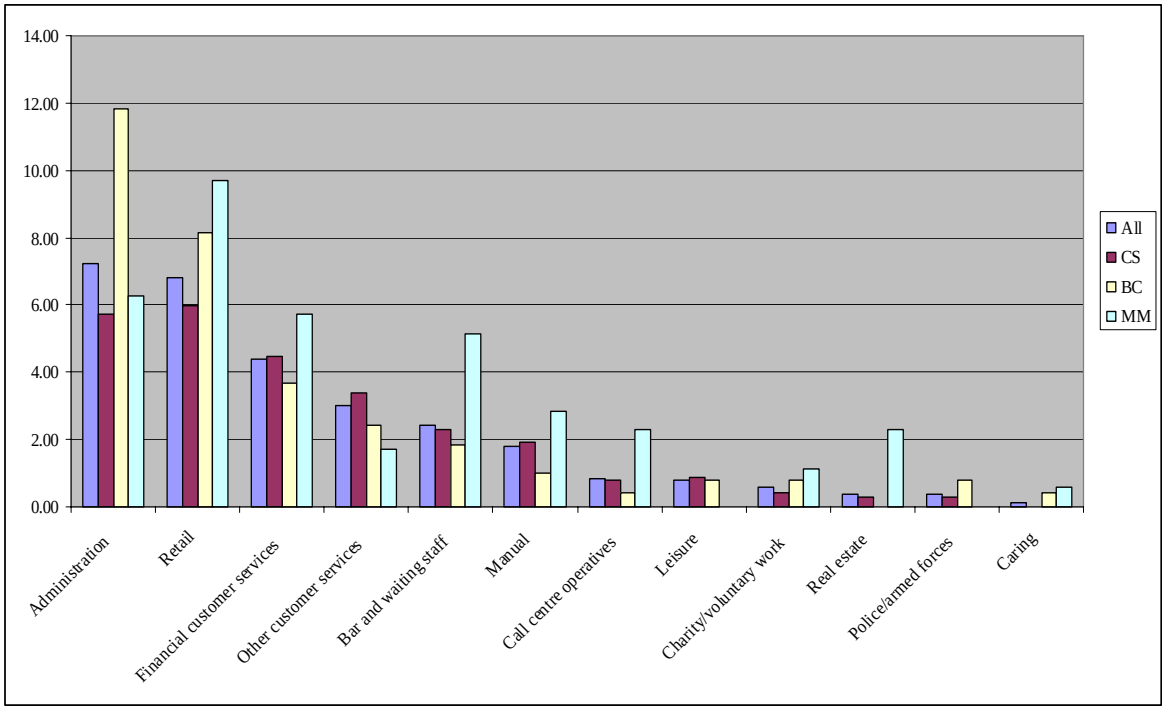

Chart 12: Percentage of working graduates from each type of course who are in non-graduate non-IT work

Once again, BC graduates are more likely than average to enter administrative roles. Their business skills may also be related to their higher than average levels of entry into retail work. Multimedia graduates are more likely than other graduates to work in retail or catering jobs.

2:11 Differences between types of institution

Some of the differences between types of university will be attributable to the combination of different types of course taught at each. BC courses are considerably more common at 'new' than 'old' universities, and only one 'old' university provided figures for a MM course. Therefore in the following discussion, figures for *all* courses in each type of institution will be provided alongside figures for CS courses in each type of institution.

Table 25 and Chart 13 show the main activities of graduates from each type of course.

	old	new	old CS	new CS
Employed	69.2	66.0	69.6	61.9
Further study or training	14.5	14.4	15.7	15.3
Unemployed	10.1	9.3	9.3	11.2
Unavailable	6.0	8.4	5.1	9.7

Table 25: Main activities of graduates from old and new universities

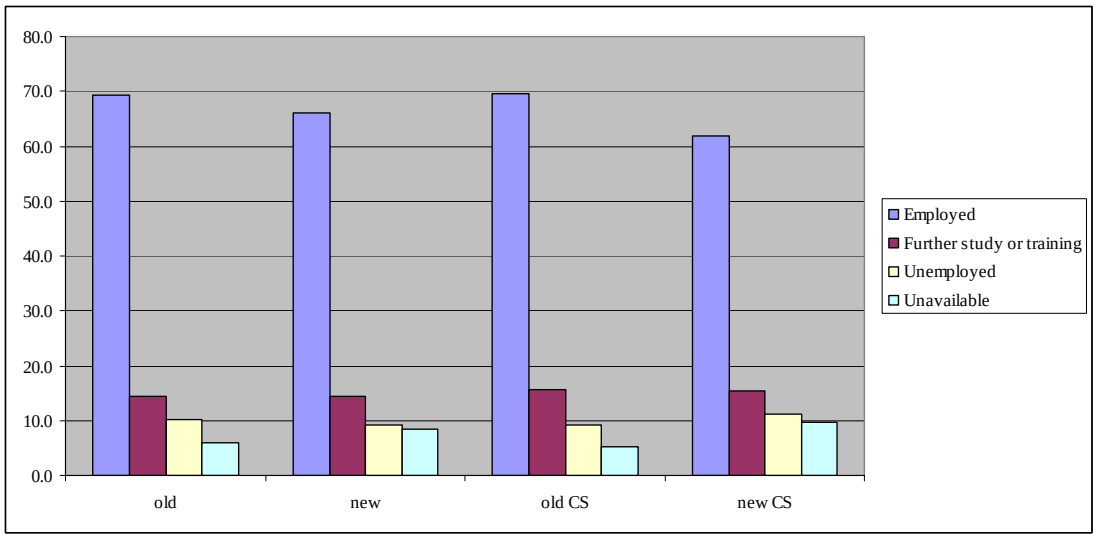

Chart 13: Main activities of graduates from old and new universities

The unemployment rate, and the rate of entry into further study or training, are very similar for all graduates; graduates from old universities appear slightly more likely to enter employment. Graduates from new universities are very slightly more likely to enter further study or training, and more likely to state that they are unavailable for work or study. Overall, however, the differences are negligible.

Table 26 and Chart 14 show the percentage of *working* graduates from different universities who enter different types of work.

	old	new	old CS	new CS
IT-related work	66.3	58.1	67.8	61.1
graduate non-IT work	9.1	7.5	8.4	6.2
non-graduate work	24.2	31.5	23.6	29.8
unknown work	0.4	2.9	0.3	2.9

Table 26: Percentage of working graduates from each type of university in different kinds of work

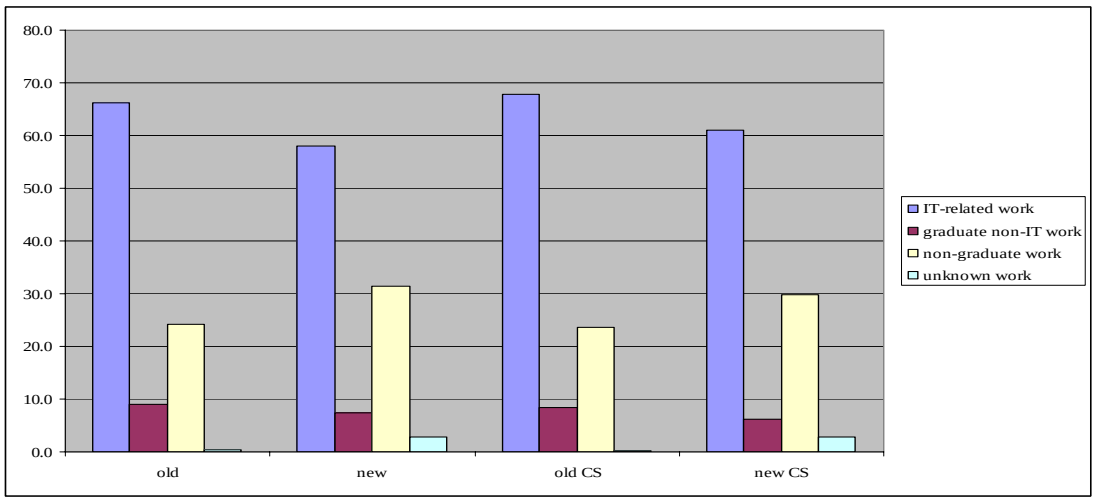

Chart 14: Percentage of working graduates from each type of university in different kinds of work

Overall, working graduates from old universities are more likely to be employed in IT-related positions. The figure for CS graduates only from new universities is slightly higher than for all new university graduates, but it is still lower than the figure for CS graduates from old universities. New university graduates are also more likely to be in non-graduate work.

These figures should not be taken as an indication that graduates from new universities are necessarily any less 'suitable' for IT work or for graduate-level work. The differences may be attributable to a difference in the socio-economic profile of graduates from new universities. It is possible that graduates with family backgrounds in lower income brackets are more likely to take a non-graduate job immediately after graduation in order to support themselves, pay off student debt or save towards graduate study, and/or that graduate from backgrounds of this type prefer to have a job of *any* sort while seeking graduate-track work rather than to remain unemployed.

Table 27 shows the proportion of graduates from each type of university who work for IT-supply and IT-user organisations.

	old	new	old CS	new CS
IT-supply organisation	35.7	27.1	36.5	28.4
IT-user organisation	30.6	31.0	31.3	32.7

Table 27: Proportion of working graduates who are employed by IT-supply and IT-user organisations, for different types of university

In an almost identical result to the one which emerged in last year's survey, it appears that graduates from old universities are around 5% more likely to work in IT-supply organisations, and graduates from new universities are around 5% more likely to work in IT-user organisations.

This difference could reflect specific placement and recruitment arrangements at the institutions surveyed, and it would be unwise to assume that it applies to the UK university sector as a whole. However, it is also possible that it results from an historical difference between curricula taught in the pre- and post-1992 sectors. The more mathematical and logarithmic focus of some 'old' universities may mean that a greater number of graduates are drawn to work in systems and programming, which is more likely to be done in ICT-supply firms. Programmes in 'new' universities often include a higher level of applied and business-focussed subjects, even in their CS courses, which may incline more of their graduates towards work in ICT-user companies.

Table 28 shows the distribution between different types of job of graduates from each type of university who are in IT work. Despite the contrast between types of institution which emerges when the figures are analysed by *sector*, no parallel difference emerges on the basis of the analysis by *role*. Only one significant pattern emerged, which is the relatively small proportion of CS graduates from new universities who enter IT or computer management roles.

	old	new	old CS	new CS
IT Support staff	16.35	15.72	16.90	15.33
Analysts	9.04	8.60	8.80	8.02
Software engineers	14.23	15.51	4.89	5.90
IT/computer managers	21.92	19.71	24.30	10.85
R&D staff (commercial)	1.15	1.26	0.56	0.94
R&D staff (academic)	0.96	1.05	0.56	0.71
Helpdesk staff	3.85	3.56	3.91	3.54
Software developers	6.92	7.34	4.89	6.13
Consultants	6.73	7.34	4.47	4.95
IT teachers/tutors	0.96	1.05	3.21	4.01
Programmers	10.96	11.74	7.26	9.20
Technicians	1.73	1.68	3.35	3.30
Networking staff	0.96	1.05	3.07	4.25
Web developers	5.00	4.82	6.01	6.37
Computer engineers	1.92	2.10	1.96	3.07
Systems administrators	0.58	0.63	0.98	0.94
Systems developers	2.69	2.94	3.63	4.25
Database staff	1.92	1.89	3.91	3.30
Computer/software testers	1.35	1.05	1.96	1.42
Designers - multimedia/web	3.65	2.94	5.73	2.36
e-commerce managers	0.19	0.00	0.84	0.71
Computer sales staff	0.96	0.84	1.82	0.71

Table 28: Percentage of working graduates entering different IT roles from each type of university

When the type of organisation for which graduates from each group of universities was analysed, no significant differences emerged. Distribution of graduates between different kinds of non-IT graduate work and non-IT non-graduate work was also very similar for both types of institution.

2:12 Differences between regions

As in last year's survey, no significant differences emerged between UK regions.

SECTION THREE: HESA FIGURES FOR IT AND OTHER DISCIPLINES

3:1 Data

This analysis is based on the HESA statistics for the employment of students who graduated with first degrees from UK universities in 2003, as presented in the Careers Service publication *What Do Graduates Do?* (Prospects 2005a). In this publication, figures are available for broad subjects groups and selected 'core' subjects.

This data is collected six months after graduation. It is, of course, difficult to track individual careers over a longer timescale. One reason why the HESA survey is undertaken so early in order to ensure a reasonably high return (around 80%). However, the activities of graduates at this stage may not indicate their final career paths with great accuracy. A proportion of graduates who will eventually spend most of their working lives in 'graduate' employment 'tend to occupy [non-graduate jobs] in the first few years after graduation' (Elias and Purcell 2003, p.16).

With increasing interest in graduate numbers and the economic returns to university education, a number of media reports quote that the HESA figures as an indication that graduates often find it difficult to obtain 'appropriate' work, or that they are inadequately prepared for graduate-level jobs by their degree courses. As noted above, first destinations offer at best an approximate picture of long-term careers.

Elias and Purcell examined the careers of graduates who left university in 1995 for seven years after their graduation, and compared this group with cohorts entering the workforce since 1975. Patterns of employment shortly after graduation appear to be very different from those which emerge later on. For the 1995 group:

> immediately after graduation… 43 per cent of those in employment were in non-graduate jobs, whereas by December 2002, this had fallen to 11 per cent. This indicates that initial graduate under-employment is not a reliable indicator of longer-term labour market outcomes… Graduate career paths evolve slowly, and some graduates take 5 years or longer to settle into their careers – for some it involves further study, for others the process of assimilation into the labour market involves false starts or a rethink about early career choices
>
> (Purcell and Elias 2004, 15)

Therefore, caution should be exercised in treating the figures quoted here as indicating anything other than the *first* destinations of those leaving higher education.

In addition, graduate career prospects do not seem to have become significantly worse in recent years. Elias and Purcell found that '… there is no evidence that higher proportions of graduates than in previous cohorts appeared to remain in [non-graduate] jobs beyond the first few years after graduation' (Purcell et al 2004, 6)[3].

[3] A colleague who attended a recent presentation by these researchers informs me that they are now of the opinion that 21st century graduates *will* find it more difficult to obtain employment at an appropriate level. However, I have been unable to find a published reference for this.

Recent trends, however, may render these first destinations even more ‘preliminary’ than they have been in previous years. There is some evidence that many current and recent graduates choose to leave career planning later than was the norm a decade or so ago. Graduate Prospects have identified a growing:

> … trend for students to leave job hunting until after graduation, focusing instead on academic achievement… demonstrated by a survey of final year students undertaken by Graduate Prospects at careers fairs in summer 2004. Well over half (58 per cent) of graduates were still “just getting a feel” for the job market as their degrees came to an end
>
> Prospects 2005b

Similarly, Purcell and Elias identified an:

> … increasingly popular practice of taking time to travel or obtain further qualifications, often interspersed by periods of short-term, easily obtainable employment to fund these activities and allow time to research their longer-term career options
>
> (Purcell and Elias 2004, 8)

A survey carried out for Graduate Prospects by Mori in 2003 found that more than ten per cent planned to take ‘time out’ to travel rather than find a permanent job right away’ (Prospects 2003).

In addition, accepting a ‘non-graduate job’ may be part of a long-term career strategy:

> graduates from some degrees take longer than others to decide on their long-term futures, often taking more administrative positions while they consider their options; others use such positions as footholds into companies for which they would like to work
>
> Prospects 2005b

According to the director of the service, ‘… the idea that all graduates should sail from university into high-paid graduate jobs within weeks of graduation is a myth and always has been’ (Prospects 2005b). Until recently, levels of graduate employment did not receive coverage in the general-interest media. While it is certainly true that with higher levels of participation in higher education, patterns of graduate employment will change, it is important that an accurate picture of both earlier trends and longer-term graduate careers is used to balance any possible ‘scare stories’.

3:2 Comparisons

In this chapter, graduates in Computer Science and Information Technology (aggregated in the Prospects report as IT) are compared with graduates from the following subjects:

- Biology
- Chemistry
- Physics
- Business/Management Studies
- Accounting
- Marketing
- Civil Engineering
- Mechanical Engineering
- Design
- Economics
- Law
- Psychology
- Sociology
- Modern Languages
- Drama
- Media Studies
- English
- History
- Fine Art

Data for subject groups will be compared with the data for all graduates who participated in the survey, some of whom studied subjects other than those listed above.

81.6% of all graduates returned the survey, and rates of return were remarkably similar for all of the subjects surveyed. The highest response came from Physics graduates (85.9%), and the lowest from Fine Art graduates (77.7%). 81.1% of IT graduates returned the survey.

While return rates were fairly uniform, the number of graduates in each subject varied enormously. 198,730 graduates from all subjects submitted returns. Of the subjects compared here, the largest return came from Business and Management Studies graduates (17,170) and the second largest was from IT graduates (12,205). Many of the subjects with which IT is frequently compared account for very small numbers of students, e.g. Biology (3,425), Chemistry (2,240), Physics (1,685), Civil Engineering and (1,195), Mechanical Engineering (2,165). The number of returns in each subject and the level of survey response in each subject is shown in Table 29.

	Number of returns	Percentage submitting returns		Number of returns	Percentage submitting returns
ICT	12,205	81.1	Economics	3,645	82.5
Biology	3,425	84.9	Law	8,220	82.6
Chemistry	2,240	84.1	Psychology	6,725	83.0
Physics	1,685	85.9	Sociology	4,705	80.7
Business	17,170	81.6	Mod Langs	7,325	83.4
Accounting	2,885	83.9	Drama	3,050	78.3
Marketing	2,425	79.6	Media Std	3,215	79.7
Civil Eng	1,195	84.3	English	7,800	83.1
Mech Eng	2,165	84.3	History	7,005	83.3
Design	8,370	80.2	Fine Art	2,645	77.7

Table 29: Number of returns & rates of return for different subject groups, HESA 2003

Analysis

3:3:1 Employment, unemployment and further study

Chart 15 shows the activities of the majority of graduates returning the survey. It is clear from this that there are substantial differences between the rates of entry to employment and further study for the disciplines examined here[4].

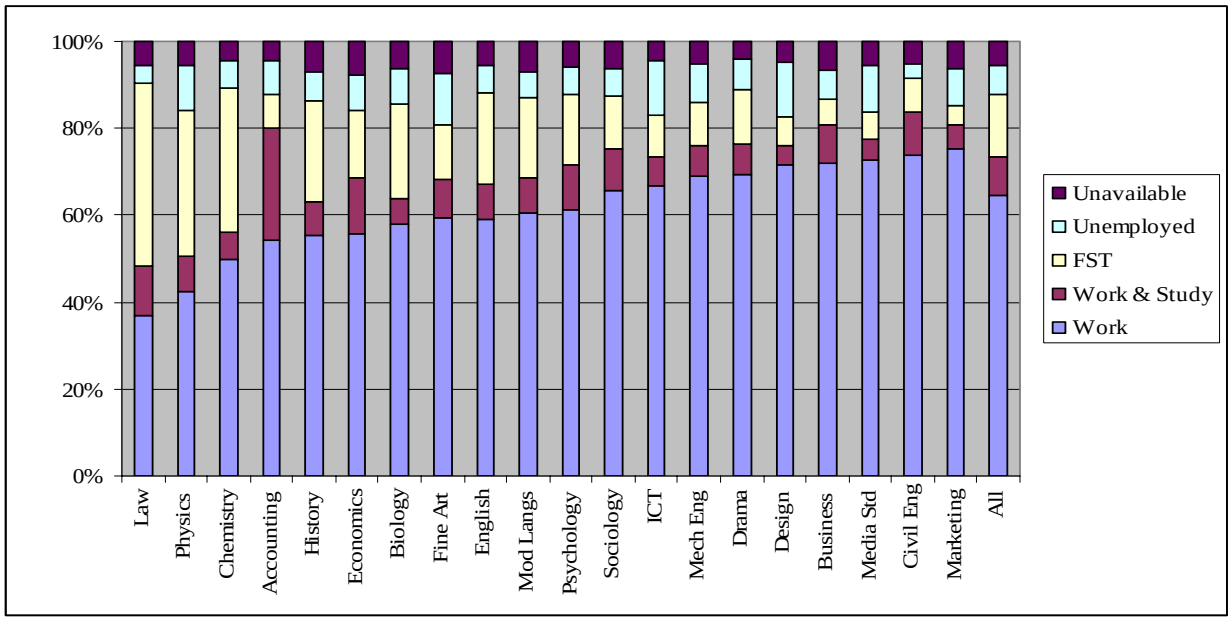

Chart 15: Percentage of graduates engaged in various activities

[4] 'FST' in this diagram = 'further study or training'.

Chart 16 shows the percentage of graduates who are in employment of any type. The average employment rate for all graduates is 63%, and the rate for IT graduates is just slightly higher, at 64.7%. Subjects with similar rates include Mechanical Engineering (67.5%) and Drama (67.6%). All of the subjects with employment rates above the average are vocational disciplines (Media Studies is often regarded as a route into a job in broadcasting or print journalism, and this subject group includes a number of vocational training courses). However, non-vocational disciplines in the humanities and social sciences do not have substantially lower rates; Sociology, Psychology, Modern Languages, English and Fine Art all have rates between 55 and 60%. The lowest rates are found in the physical sciences and in vocational disciplines such as Law and Accounting, where the standard route to a job in a related profession involves several years of further study.

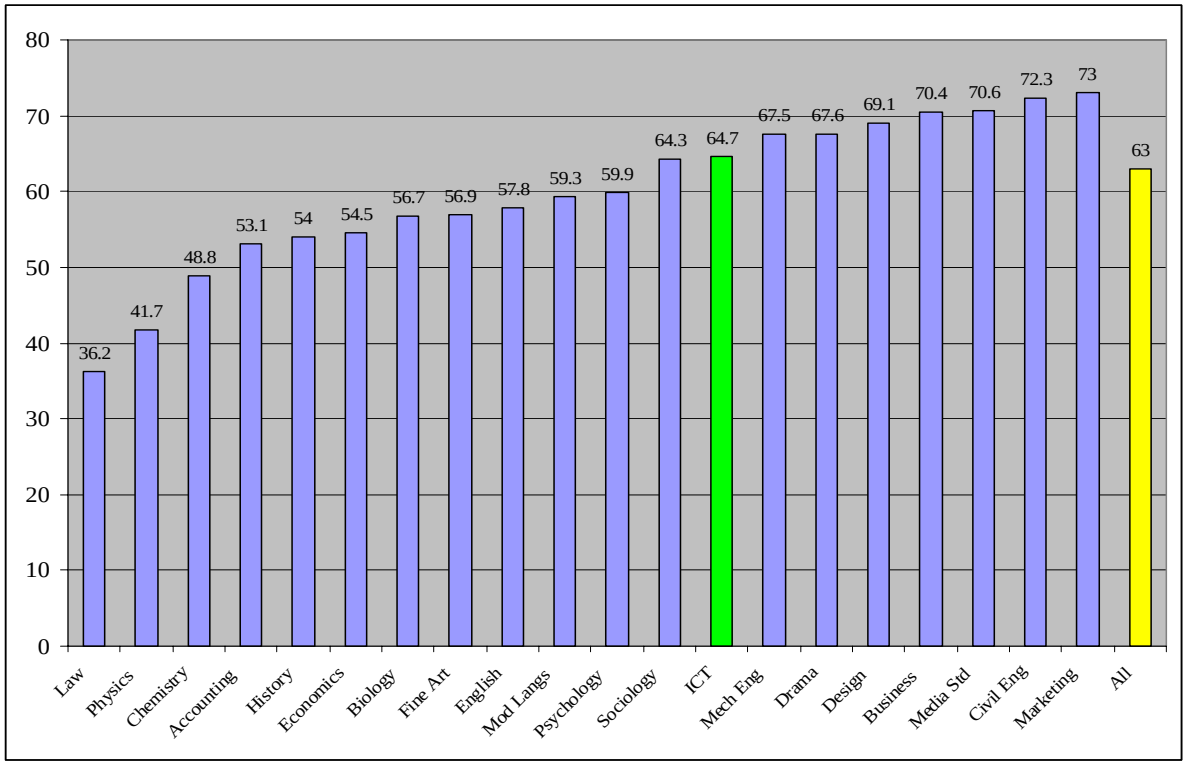

Chart 16: Percentage of graduates in employment

The employment rates alone, therefore, are not particularly helpful without some indication of what else graduates may be doing. Chart 17 shows the percentage of students who are in further study or training of any sort.

This appears to be an important destination for graduates from the subjects with relatively low levels of employment; more Law graduates, for example, enter further study than employment because this is essential to practice as a solicitor or barrister. The physical sciences, where a higher degree is more or less required to obtain employment which is related to one's subject of study, also have very high rates of entry to further study, with almost one third of students taking this route.

High rates are also found among graduates in History, Biology, Chemistry, English, Modern Languages and Psychology. In the case of Biology (and possibly also Psychology) this may once again reflect a standard route into relevant employment, with Biologists studying for higher degrees and Psychologists undertaking clinical training in large numbers.

Further study is also popular in the Humanities, with only Media Studies having a rate below 10%. One factor here may be the relatively large numbers who undertake teaching qualifications as postgraduates. This accounts for 7.1% of English graduates, 5.4% of Historians and 5.2% of Modern Linguists, an equal or higher proportion than the *total* entry to graduate study for Marketing or Business Studies.

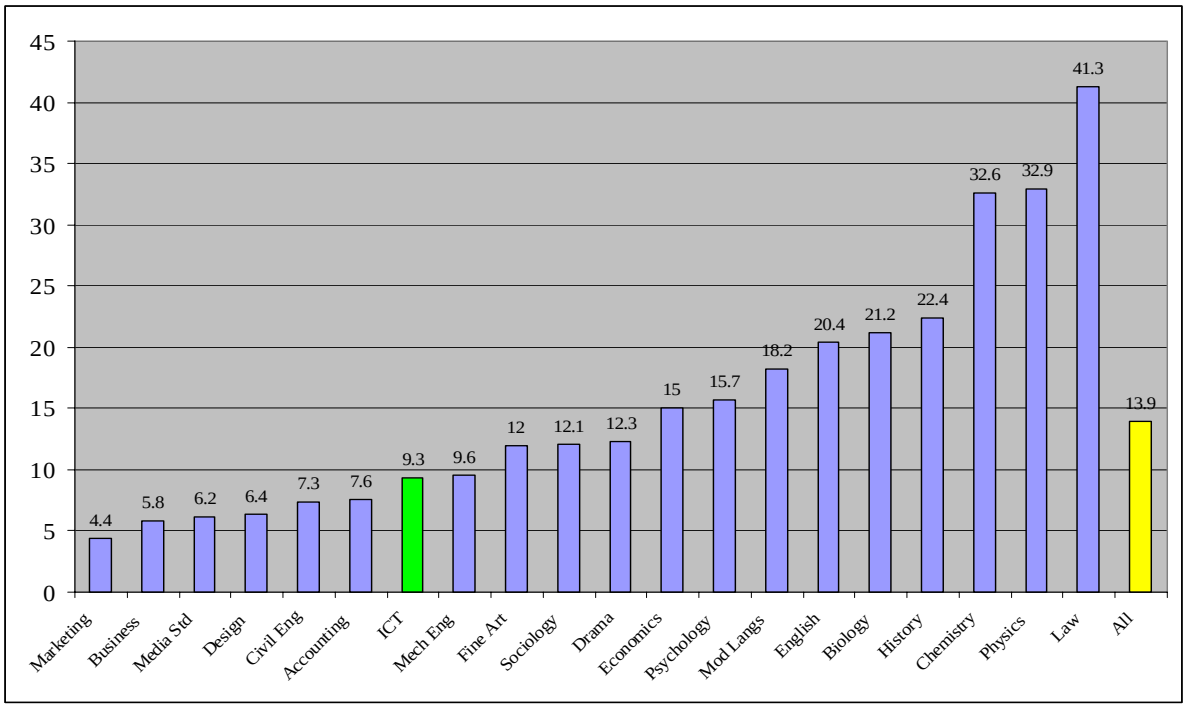

Chart 17:Percentage of graduates in further study or training

An increasingly popular route on graduation is to combine work and study. The percentage of graduates doing so in each discipline is shown in Chart 18.

For Accountancy graduates, the combination of work and study represents an established stage in building a career, which accounts for their very high numbers (around one quarter) in this category. This may also apply to certain routes into legal careers, and possible to some economists who choose to study Accountancy at postgraduate level. Once again, very small numbers of Design, Media Studies and Marketing graduates appear in this category, perhaps reflecting the low levels of further study which are already observed for these groups. Biology and Chemistry, where many postgraduate degree structures are intensively lab-based and difficult to combine with a part-time job, also show small percentages.

These figures are problematic because the nature of the ‘study’ and ‘work’ involved is not specified. These students could be in full-time work with a training element, or in Master’s or doctoral programmes while holding a part-time job (in which latter case their daily circumstances may be very similar to those of undergraduates).

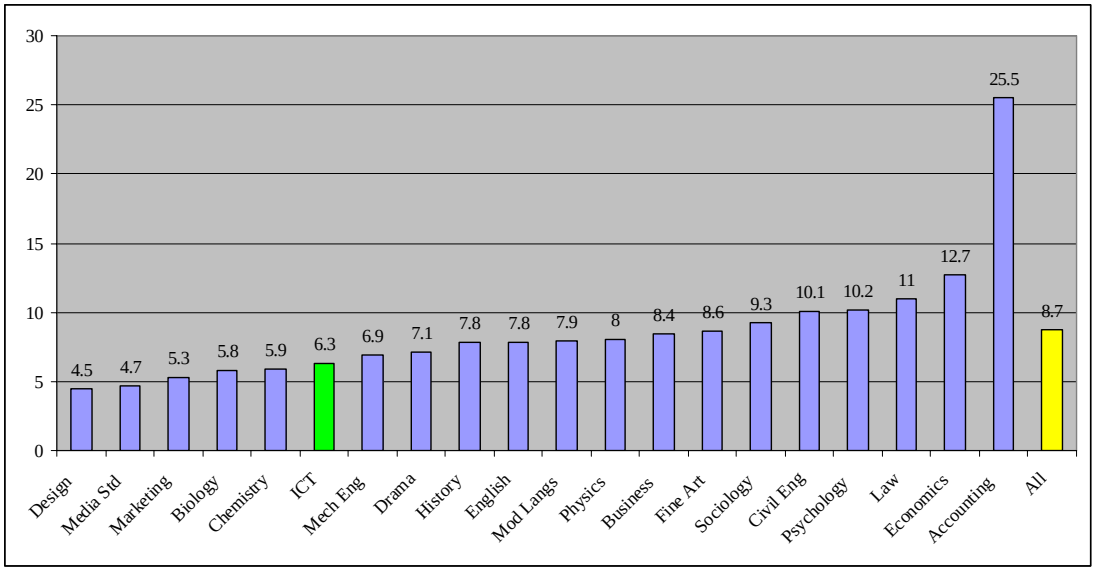

Chart 18: Percentage of graduates working and studying

While employment and further study represent the most 'mainstream' first destinations for graduates, a number indicate that they are neither working, studying, nor currently seeking work at the time of the survey. Reasons for 'unavailability' for work or study include travelling (a relatively small number will be doing this six months after graduation), a decision to take 'time out' to concentrate on family commitments, illness and personal projects (e.g. setting up one's own business). Chart 19 shows the percentage of graduates who are unavailable for work or study.

A relatively small proportion of all students – the average is just over 5% - fall into this category, and IT has one of the smallest percentages of graduates who are unavailable. It is difficult to explain the differences between subjects here, and indeed the gap between the highest and lowest proportions is less than 4%.

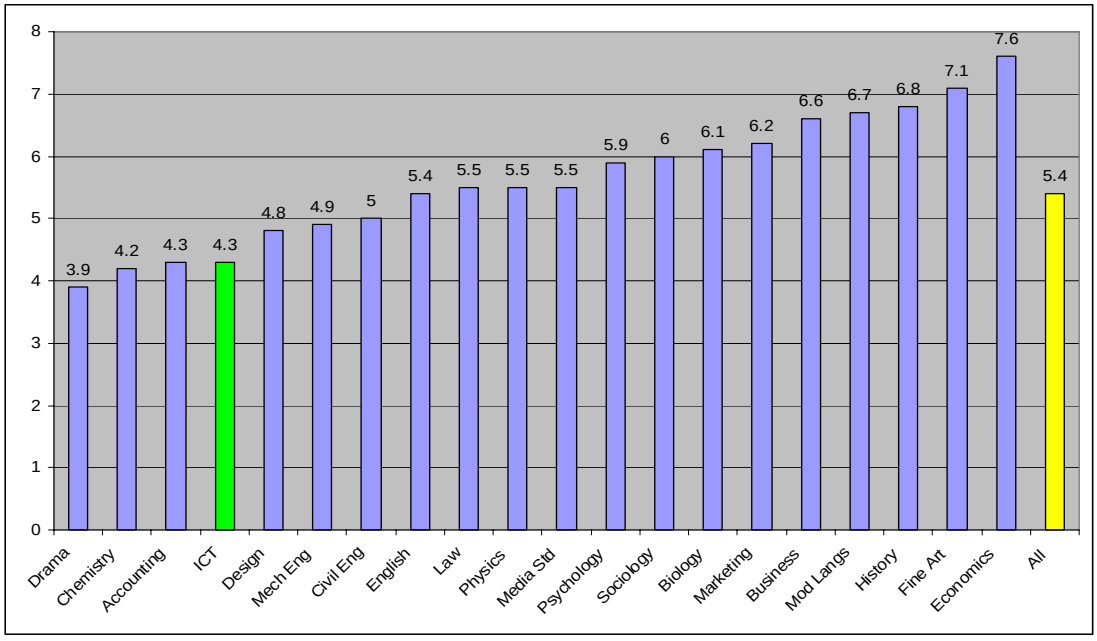

Chart 19: Percentage of graduates unavailable for work or study

Chart 20 shows the unemployment rates for graduates from different subject groups. The average unemployment rate is 6.6%, but variations between subjects are large. IT has the highest rate of unemployment among the subjects compared, at 12.1%. The lowest rates are found in disciplines with well-publicised recruitment problems (Civil Engineering, 3.5%) or clear vocational tracks including further study (Law, 3.8%). The majority of subjects have rates between 6% and 8%, with higher rates in Mechanical Engineering, Physics, Media Studies, Fine Art and Design.

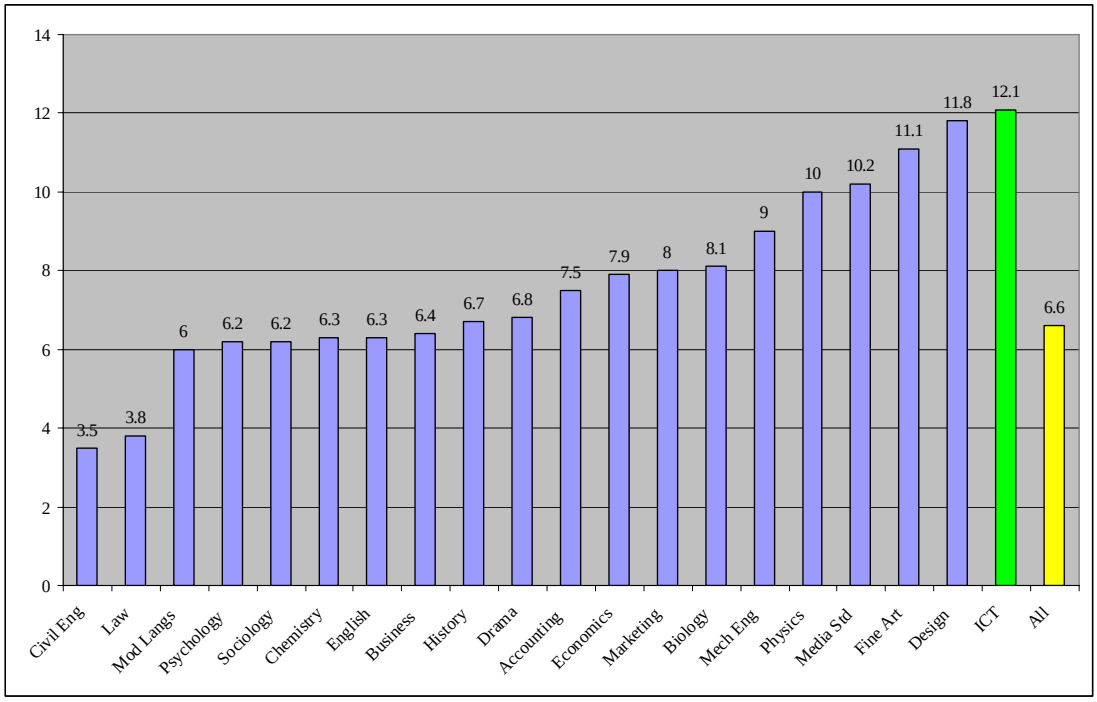

Chart 20: Percentage of graduates who are believed to be unemployed

This statistic, if taken in isolation, is potentially damaging to the reputation of IT courses, and possibly also of the other subjects with rates which are significantly above the average. It might be argued that their graduates emerge from university unfitted for work, or that certain fields of employment do not provide sufficient numbers of jobs for this new, highly qualified workforce.

However, this argument rests on the assumption that the long-term career potential of graduates can be observed from their activities within a year of leaving their courses, which – on the basis of the studies quoted above – does not seem to be the case. It is impossible to project the activities of 2003 graduates seven years from graduation, and there is substantial evidence that the HESA survey should only be regarded as an indicator of *first* destinations.

3:3:2 Types of employment

Note: in this section, unless stated otherwise, the percentages shown represent only the proportion of graduates classified as *working* or *working and studying* who are in each type of employment, and not the proportion of *all* graduates.

The outcomes of the Survey of the Destinations of Leavers from Higher Education which are made publicly available by HESA do not include a separate category for IT professionals. Therefore, in this document I have used the analysis of these statistics which is offered by Graduate Prospects in *What Do Graduates Do?* Here, the initial occupational classifications are as follows:

A Marketing, sales and advertising occupations
B Commercial, industrial and public sector managers
C Scientific research, analysis and development occupations
D Engineering professionals
E Health professionals
F Teaching professionals
G Business and finance professionals
H Information technology professionals
I Nursing and health associate professionals
J Business and financial associate professionals
K Media, PR, literary, design and sports professionals
L Other professional, associate professional and technical occupations
M Numerical clerks and cashiers
N Other clerical and secretarial occupations
O Retail assistants, catering, waiting and bar staff
P Health and childcare related occupations
Q Armed forces and public protection service occupations
R Other occupations
S Unknown occupations

For some of these categories, it is likely that most if not all jobs covered will be 'graduate' occupations of some sort, i.e. a degree and/or the skills gained in a higher education programme will be necessary in order to obtain and/or do the work involved. This would probably be the case for categories B, C, D, E, F, G and H. For other categories, certain occupations would also require a degree and/or graduate-level skills, while others might be used by recent graduates in relevant disciplines as 'stepping stones' to unambiguously 'graduate' jobs. Categories A, I, J, K, L and possibly also P would fall under this heading.

Many jobs in categories M, N and O can probably be classified as 'non-graduate' work. There will be some exceptions; for example, a number of these positions might be undertaken by graduates who will later be 'fast tracked' to management or other professional roles within the same organisation. However the majority are unlikely to require graduate skills or to require their applicants to hold a degree[5].

[5] Category Q has been omitted from the calculations here. Certain occupations in this group (e.g. police constable, private soldier and private security work) definitely do not require a degree, while others (senior police positions) do, and still others (e.g. army officers and certain professional roles within the army) attract high numbers of graduates. The total number of graduates entering category Q

The majority of IT jobs, it can be assumed, will be categorised as 'Information Technology Professionals' (group H). However, as discussed in last year's CPHC survey, a number of issues mean that IT work is particularly vulnerable to misclassification and why certain IT roles may be placed in other groups.

One of these arises because of the high number of IT professionals employed by IT-user organisations. The form used in the HESA survey now asks respondents to provide information about the nature of the employer's core business, their job title and the main duties in this post. However, this was not always the case in previous surveys, and it is possible that some IT professionals were classified according to the *employer's* sector, rather than their own activities. In addition, many institutions use a telephone survey to collect data for HESA. This is of necessity briefer than the paper questionnaire, simply because this provides a much higher rate of return. The provision of briefer answers may lead to a higher level of misclassification.

Certain IT roles may have titles which are misleading, or which could reasonably fall into one of [at least] two different categories. A case in point is the 'IT manager', whose duties might place him/her in either category H or category B, even though IT skills are necessary for his/her day-to-day work. Similarly an IT graduate who takes up a teaching or training role might be classified under F, while the many IT graduates who work for banks and other financial institutions may describe specialist roles which require a strong background in IT but place them in categories G or J. IT graduates who work in games programming, e-business, web design and other multimedia fields may appear in category K or even category A.

An additional possibility was that the 'novelty' of some IT job titles (or the potential ambiguity of certain titles) might lead to a high proportion of graduates being placed in the 'other occupations' or 'unknown occupations' groups. However, a comparison of the figures does not indicate that this has happened to any great extent. The proportion of survey respondents whose occupation is said to be 'unknown' is low overall (0.2%), and only very slightly higher for IT (0.3%). Only three subjects (Economics – 0.6%, History – 0.5% and Mechanical engineering – 0.4%) have higher rates, and overall this effect can safely be regarded as negligible.

Chart 21 shows the percentage of graduates from each subject group whose occupation is classified as 'other'. While a very large variation between subject groups does appear, the percentage of IT graduates in this category is actually very close to the average for all subjects. A clear pattern of 'subject types' does not emerge from this graph; small numbers are found in both highly vocational areas such as Civil Engineering and Accounting, and Humanities subjects such as English. The physical sciences do not fall into a simple group, and nor do the social sciences. A trend towards high numbers in 'creative' areas (Design, Media Studies and Fine Art) may be present, but whatever the reason for this, IT does not seem to be affected.

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occupations is relatively low, at 1.2% of all those surveyed. Category P has not been discussed except in the case of Biology graduates.

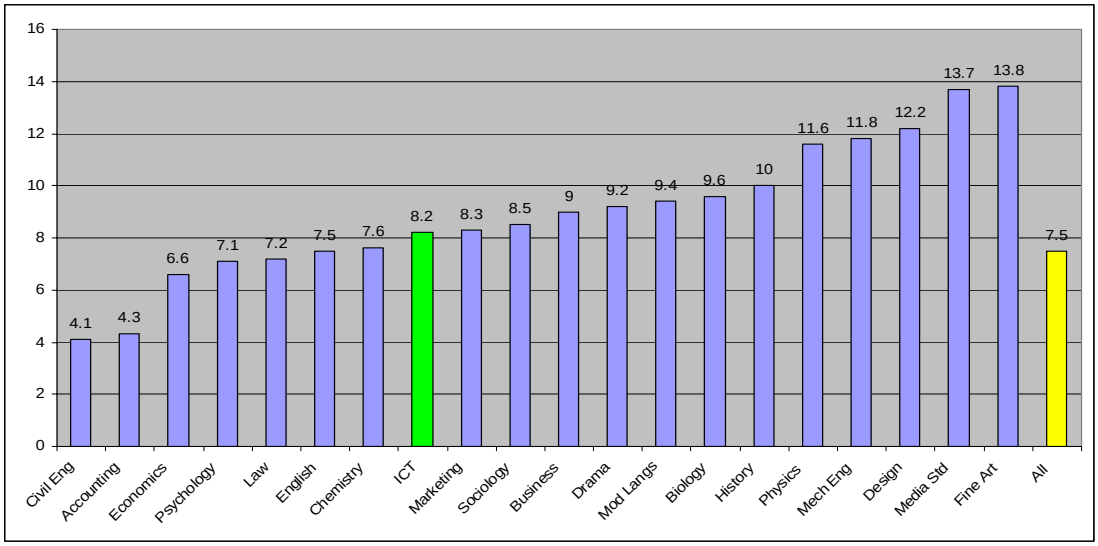

Chart 21: Percentage of graduates whose occupation is classified as 'other'

3:3:3 'Relevant' employment – subject discipline comparisons

It is, of course, impossible to determine from the classifications above whether a particular occupation is 'relevant' to a graduate's degree subject. The difficulties in classifying jobs in the IT field have been discussed, and it is highly likely that similar problems will operate for other disciplines. However, a rough idea of the extent of 'relevant' employment can be determined for several of the subject areas examined here. Chart 22 shows the outcomes of this analysis.

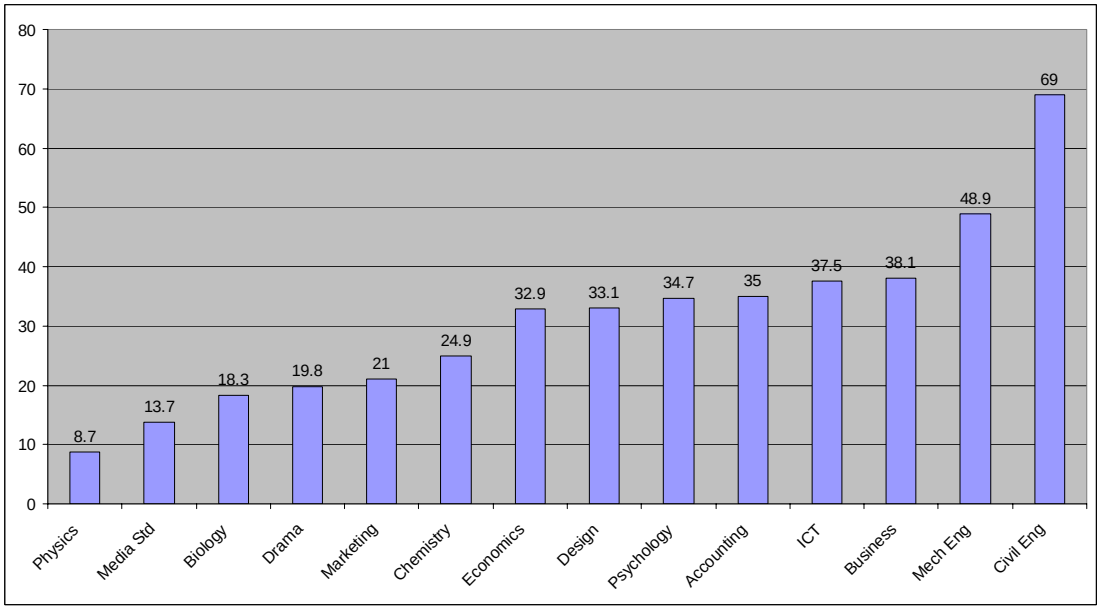

Chart 22: Percentage of working graduates probably entering relevant employment, selected subjects only

'Relevant employment' categories have been defined as follows:

Information Technology: H, 'Information Technology professionals'.
Physics: C, 'Scientific research, analysis and development occupations', E, 'Health professionals', I, 'Nursing and health associate professionals' and P, 'Health and childcare related occupations'.
Chemistry: C, 'Scientific research, analysis and development occupations', E, 'Health professionals', I, 'Nursing and health associate professionals' and P, 'Health and childcare related occupations'.
Biology: C, 'Scientific research, analysis and development occupations', E, 'Health professionals', I, 'Nursing and health associate professionals' and P, 'Health and childcare related occupations'
Mechanical engineering: D, 'engineering professionals'
Civil engineering: D, 'engineering professionals'
Business Studies: B, 'Commercial, industrial and public sector managers', G, 'Business and finance professionals' and J, 'Business and finance associate professionals'.
Marketing: A, 'Marketing, sales and advertising professionals'.
Accounting: G, 'Business and finance professionals' and J, 'Business and finance associate professionals'. The employment patterns of Accounting graduates may well illustrate the trend of taking a 'non graduate' job as an initial 'stepping stone' to a graduate-track career; 30.7% are in work which falls into the apparently non-graduate category M, 'Numerical clerks and cashiers'.
Media studies: K, 'Media, PR, literary, design and sports professionals'
Design: K, 'Media, PR, literary, design and sports professionals'
Drama: K, 'Media, PR, literary, design and sports professionals'
Psychology: E, 'Health professionals', I, 'Nursing and health associate professionals', P, 'Health and childcare related occupations', and psychological occupations under L, 'Other professional and associate professional and technical occupations'.
Economics: G, 'Business and finance professionals' and J, 'Business and finance associate professionals'. This will produce an artificially low figure, as economists are employed in many other fields, such as the civil service, management, and research.

These analyses are somewhat crude. Their main limitation is the exclusion of graduates engaged in further study or training. Study, or a combination of work and study, accounts for around one-fifth of Drama and Fine Art graduates, around a quarter of Psychology, Modern Languages, Biology, Economics and English graduates, around a third of History and Accounting graduates, and more than forty per cent of those with first degrees in Chemistry and Physics. The figure is so high for Law (over 50%) that this subject has been excluded from this section. In many cases the courses of further study will be relevant to the student's first degree, and will lead to a career in a similar area (Prospects 2004). Therefore subjects with a relatively high rate of entry to graduate study will tend to 'suffer' disproportionately if the HESA figures are treated as if they were a clear indicator of *final* rather than *first* destinations.

The Humanities subjects are not included because it is difficult to determine whether employment is 'relevant' or not. The high numbers of graduates entering category B roles may not be working with literary or historical texts on a day-to-day basis, but many of the skills gained in a humanities degree will be highly valued in managerial and other graduate employment (the strong employability of 'traditional' history graduates is discussed in Mason et al 2003).

Finally, the percentages for different subjects relate to very different *numbers* of graduates, and to degree programmes of different ranges of diversity. The 69% of Civil Engineering graduates who are in 'relevant' employment accounts for just over 600 people, while the 37.5% of IT graduates represents almost 3,000.

Given all of these caveats, it is perhaps not surprising that few disciplines show a particularly high rate of 'relevant' employment. Engineering subjects are the exception, with just under half of working Mechanical Engineering graduates and 69% of working Civil Engineering graduates being classified as 'engineering professionals'. Skills shortages in the UK's engineering industries have received considerable attention in the press, and influences in this area have been considerably more stable than those which have affected IT (e.g. the Millennium 'bug', the dot.com boom etc). It appears that large numbers of engineering graduates do obtain relevant employment. Even so, only half of all mechanical engineering graduates in the survey are listed in this category. Engineers, incidentally, show almost identical rates of entry to further study and/or work and study to those of IT graduates.

IT shows a fairly similar rate of employment to that of other subjects in which there is a balance of theoretical and vocational learning, and where these courses may lead to a very wide range of different employment. Business and Management Studies has a very slightly higher rate (38.1%), and Design a slightly lower one (33.1%). Substantially lower rates are found in the physical and biological sciences (although note the comments above), and also in subjects such as Drama and Media Studies.

3:3:4 Management, business and finance – subject comparisons

Students from many different disciplines enter jobs which could loosely be described as 'management' roles. These include civil servants, entrants to graduate trainee schemes in large companies, and specialists in fields such as publishing or leisure. Graduate trainee schemes in particular may absorb students with degrees in a range of disciplines into financial or business areas, and certain financial professions, such as accountancy, may recruit from a wide range of degree subjects (particularly from Oxbridge and other 'high prestige' universities).

Chart 23 shows the percentage of working graduates from different subject areas whose occupations fall into category B, 'Commercial, industrial and public sector managers', category G, 'Business and finance professionals' and category J, 'Business and finance associate professionals'.

Not surprisingly, the highest rate of entry to these roles is found among graduates in Business and Management Studies. Marketing graduates also enter this type of employment in large numbers. However, it also absorbs many graduates from other subjects; around a fifth of Modern Linguists (who may well work in bilingual environments), Lawyers, Historians, Physicists and Sociologists are also in this type of work. IT is not far behind, with 17.4% of graduates gaining category B work (a very similar figure to the percentage of working graduates in the CPHC study who are employed as 'Computer/IT managers', see 2:3).

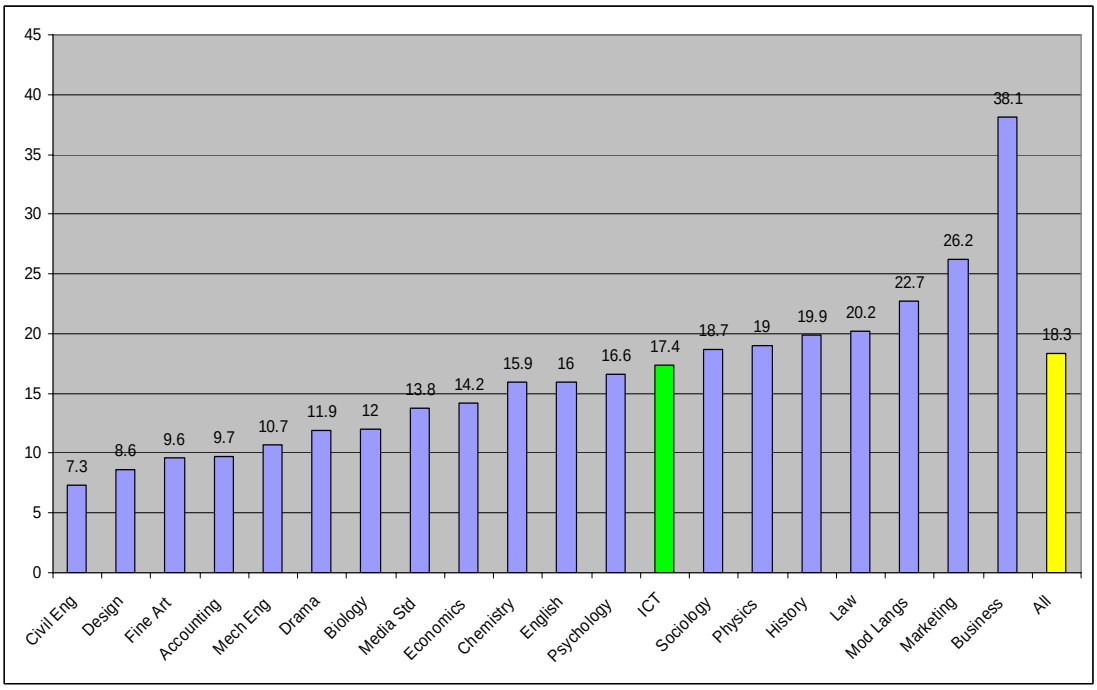

Chart 23: Percentage of working graduates entering management, business and finance roles

3:3:5 Media and Marketing occupations – subject comparisons

It was suggested above that certain IT graduates, especially those working in e-business, multimedia, games and similar areas, might be classified has having occupations of this type. Chart 24 shows the percentage of working graduates employed in category A ('Marketing, sales and advertising professions') and category K ('Media, PR, literary, design and sports professional') occupations.

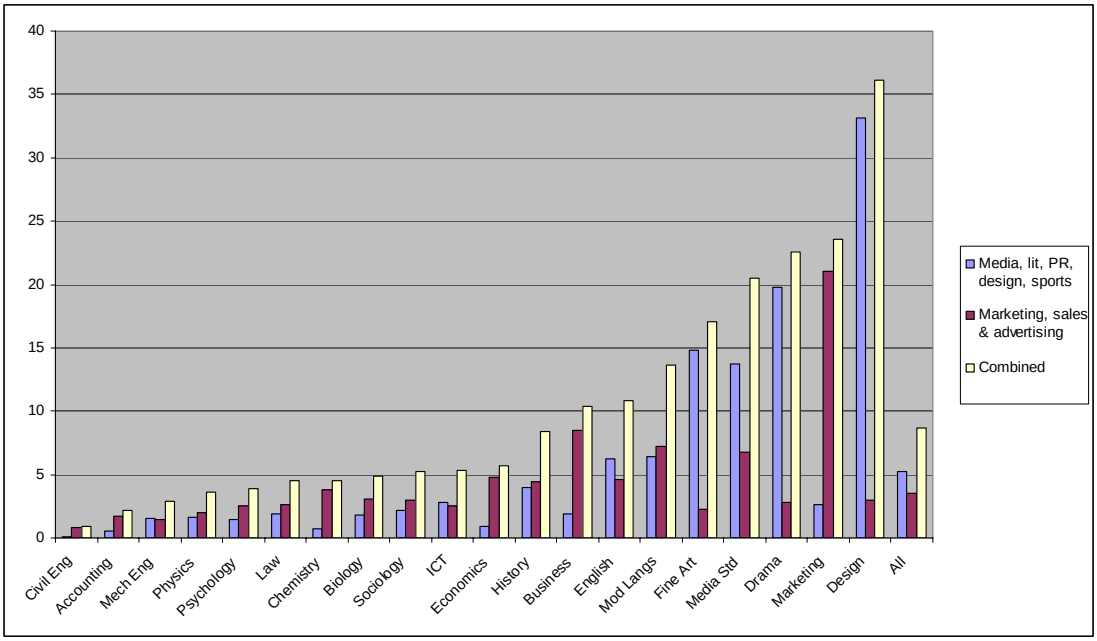

Chart 24: Percentage of working graduates entering media, literary, PR, design, sports, marketing, sales and advertising professional roles

On the basis of this evidence, IT graduate occupations do not appear to be classified under these headings at a particularly high rate, with just over 5% of all IT graduates entering work in one of these categories. This is very similar to the rates for the physical, biological and social sciences. Slightly higher rates are found for Business and Humanities graduates, but the highest levels are among students with specialist degrees in these areas. Modern Languages may have a slightly higher rate because of the inclusion of some translation and international marketing roles in this group.

3:3:6 Engineering – subject comparisons

Another possibility is that job titles such as 'computer engineer' and 'software engineer' may lead to the classification of some IT professionals in category D, 'Engineering professionals'. Chart 25 shows the percentage of working graduates from different disciplines who are in employment of this type. Because the figures are so much higher for Civil and Mechanical Engineering, the figures for these graduates have been excluded from this chart.

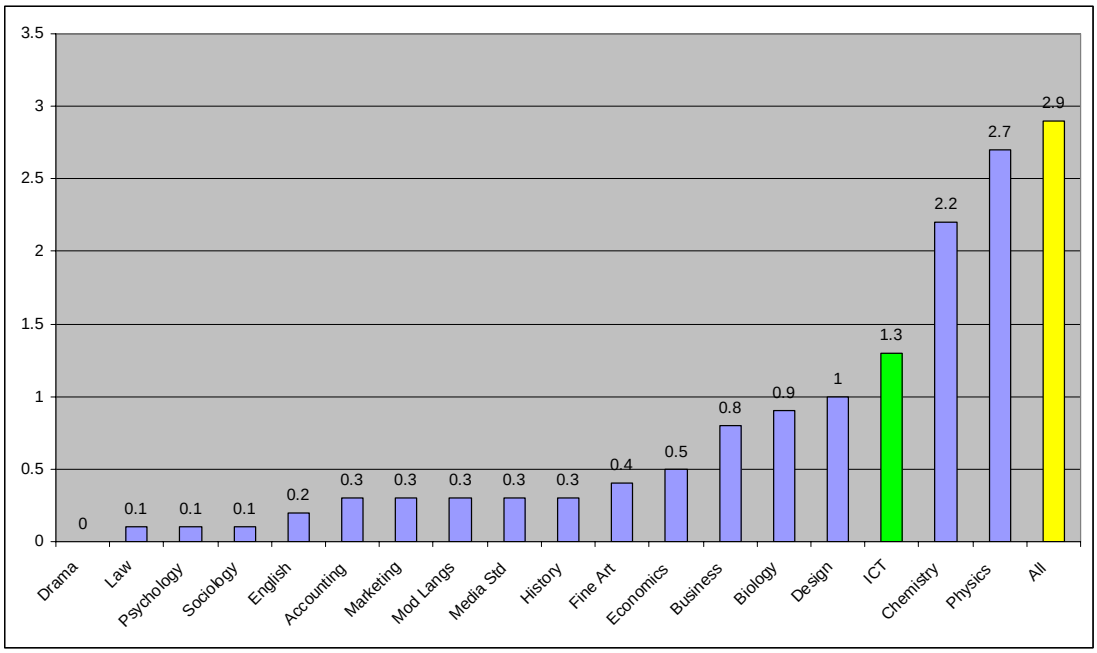

Chart 25: Percentage of working graduates entering engineering professional roles

Although IT does show a higher rate of entry to these professions than Business, Humanities, Media and Social Sciences disciplines, the difference is very small. On the basis of this evidence, it seems unlikely that the figures are distorted to any extent by difficulties with classification in this area.

3:3:7 Unclassified occupations – subject comparisons

For certain disciplines, the 'unclassified' categories L, 'Other professional, associate professional and technical occupations' and R, 'Other occupations' may account for a great many graduates. Lawyers and legal professionals, many psychologists, scientific technicians, social researchers and social workers all come under these headings.

Chart 26 shows the percentage of working graduates who are classified thus.

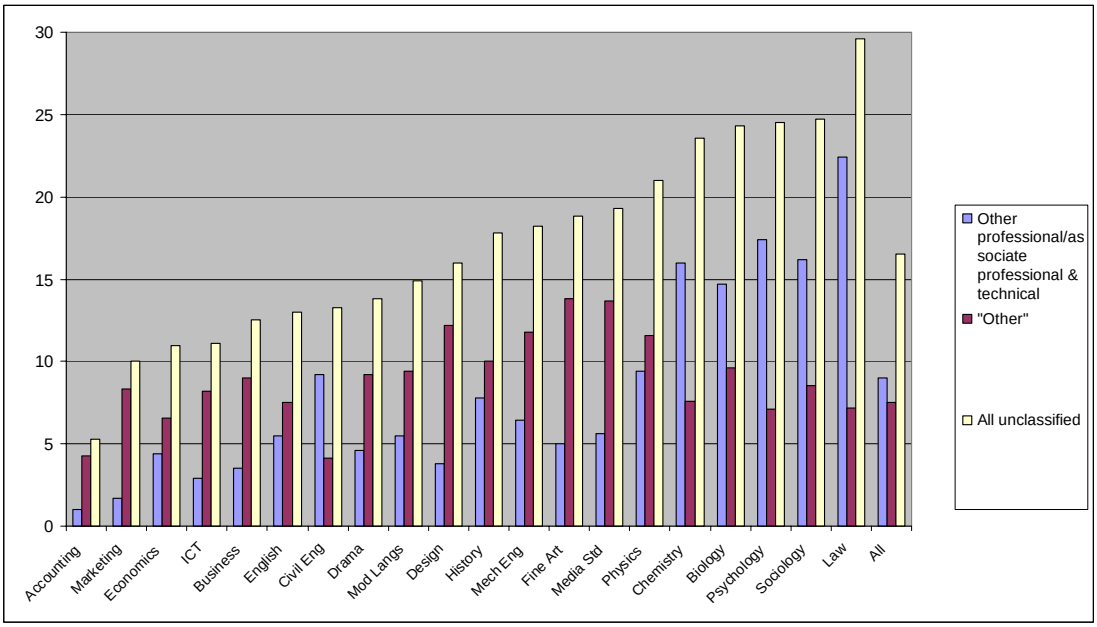

Chart 26: Percentage of working graduates entering unclassified occupations

Not surprisingly, the highest levels of employment in these areas are found in subjects where at least some major types of 'relevant' work fall into the groups just listed. Many of these graduates, in particular those from Biology, Chemistry and Physics degrees, will in fact be in jobs which are relevant to their first degree subjects, as will a great many of the Sociologists (this subject was excluded from Figure 8).

However, IT shows a very low level of employment in occupations of this type compared with many other disciplines and also compared to disciplines which have similar or higher rates of 'relevant' work, such as Business, Economics, Design and the two Engineering fields.

3:3:8 IT employment of graduates from other disciplines

It is often argued that employers prefer to recruit graduates with degrees in subjects other than IT or computing to IT roles. Chart 27 presents the number of graduates from each of the disciplines examined whose employment falls into category H, 'Information technology professionals'. Because the figure for IT graduates is so much higher than any other (37.5%), these graduates have been excluded from the chart for ease of reading.

The most striking feature of this chart is the tiny proportion of graduates from other disciplines who enter IT employment. Business and 'numerate' disciplines such as Physics, Chemistry and Mechanical Engineering show slightly higher rates, but the trend of recruiting Humanities graduates because of their 'superior' communication skills and training them in IT does not seem to be strong (it is possible, however, that graduates in this position may fall into the 'Further study and training' category and thus be excluded from the study).

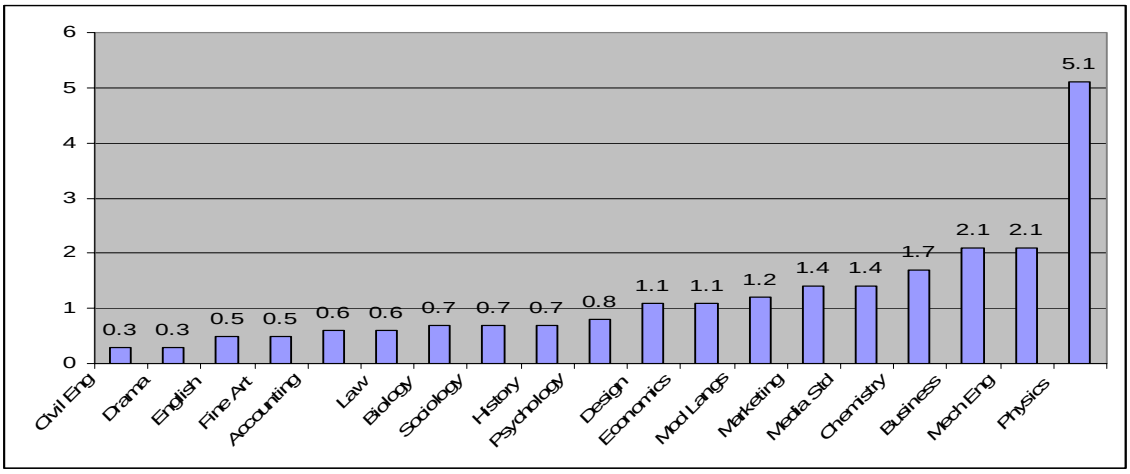

Chart 27: Percentage of working graduates entering IT professional roles

When the actual *numbers* of graduates involved are considered, the contrast between IT graduates and other disciplines is even starker. All of the figures in the following discussion represent recalculations from the data offered in *What Do Graduates Do?* and are therefore very approximate, but a reasonable degree of accuracy can be assumed. Table 30 shows the *approximate* number of graduates from each of the subjects examined who are in IT work.

Civil Eng	3
Drama	6
Fine Art	8
Accounting	9
Biology	14
Law	18
Chemistry	19
Sociology	21
Economics	22
English	23

Marketing	25
History	26
Mech Eng	31
Media Std	32
Psychology	32
Physics	36
Mod Langs	52
Design	64
Business	254
ICT	2961

Table 30: Approximate number of graduates from each subject discipline who enter IT professional roles

A total of around 4630 graduates submitted returns stating that they IT employment, and about 64% of these come from courses in IT. Therefore it appears that IT courses do provide a large number of IT professionals who enter employment within six months of completing their first degree. Just under two thirds may seem to be a rather low figure.

However, when category H employment was compared with two other areas, Management and Engineering, IT actually appears to perform relatively well. Using a similar rough calculation to that which underlies Table 2, it appears that about 55% of those entering Engineering Professional roles within six months of graduation are Engineering graduates, and that the percentage of those entering Management and Business professional roles directly from degrees in this field may be under 30%.

3:3:9 'Non-graduate work' – subject comparisons

In their analysis of the types of work undertaken by graduates, Elias and Purcell identify four types of 'graduate work' which utilise the skills and knowledge of degree holders from the current UK higher education system. Their system of classification is as follows:

SOC(HE) Category	Description	Examples
1: Traditional graduate occupations	Established professions for which, historically, the normal route has been via an undergraduate degree programme.	Solicitors Medical practitioners HE/secondary education teachers Biological scientists/ biochemists
2: Modern graduate occupations	Newer professions, particularly in management, IT and creative vocational areas, which graduates have been entering since expansion in the 1960s.	Directors, Chief Executives (major organisations) Software professionals, computer programmers Primary and nursery school teachers Authors/writers/journalists
3: New graduate occupations	Areas of employment, many in new or expanding occupations, where the route into the professional area has recently changed such that it is now via an undergraduate degree programme	Marketing & sales managers Physiotherapists, occupational therapists Management accountants Welfare, housing and probation officers Countryside/park rangers
4: Niche graduate occupations	Occupations where the majority of incumbents are not graduates, but within which there are stable or growing specialist *niches* which require higher education skills and knowledge	Leisure and sports managers Hotel and accommodation managers Nurses, midwives Retail managers

Elias and Purcell 2004, 6 – 7

Jobs with none of these relationships to higher education are classified as 'non-graduate jobs'[6]. As before, it has not been possible to achieve a detailed mapping of the categories offered in *What Do Graduates Do?* onto the system developed by Elias and Purcell. At least some of the 'non graduate' occupations in their list (Elias and Purcell 2004, 20 – 28) would fall into categories which also contain many subject-related and/or clearly 'graduate' jobs.

However, three categories can be assumed to include mainly non-graduate work. These are M, 'Numerical clerks and cashiers' ('accounts & wages clerks, book-keepers, & other financial clerks; counter clerks & cashiers; and debt, rent & other cash collectors accounts & wages clerks, book-keepers, & other financial clerks; counter clerks & cashiers; and debt, rent & other cash collectors), N, 'other clerical and secretarial occupations ('administrative & clerical officers & assistants in civil service & local government; filing & records clerks; other clerks; stores & despatch clerks & storekeepers; secretaries, personal assistants, typists, word processor operators; receptionists, telephonists & related occupations; and other clerical & secretarial occupations') and O, ('retail assistants, catering, waiting and bar staff')[7].

Chart 28 shows the percentage of graduates from each subject area who are employed in work in the above three categories.

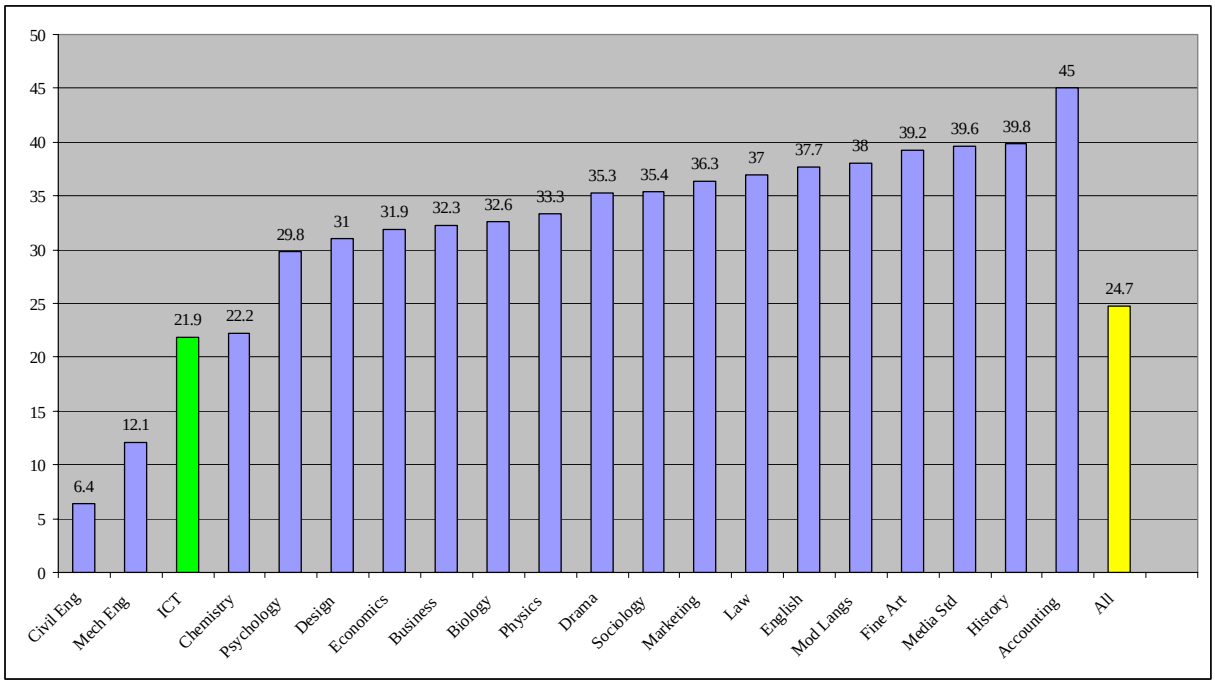

Chart 28: Percentage of graduates from each discipline in 'non graduate' work

[6] Certain IT roles fall into this group, for example 'IT operations technicians' and electronic technicians; see detailed discussion of the CPHC survey methodology, below.

[7] A handful of subject disciplines could be in some danger of serious misrepresentation. Accountancy graduates enter category M work in very large numbers, possibly while training for graduate-track employment, and a number of Law graduates may enter paralegal or legal-clerical work while saving money towards their further studies. A disproportionate number of Modern Languages graduates may enter jobs with titles which place them in category N but which in fact require a degree because they are bilingual or multi-lingual in nature. Many media organisations have an official or unofficial policy of initially employing people in non-professional roles, with the understanding that this is the only way to gain access to the highly competitive professional positions.

As suggested by the research quoted above, a fairly high proportion of graduates from all disciplines are in non-graduate work six months after graduation. However, the subject distinctions are sharply marked here, and IT graduates are among the least likely to be in employment of this kind. Only Engineering graduates show lower rates of non-graduate employment. IT also performs well compared to the average for all subjects (around 25%). Interestingly, the percentage of graduates in the CPHC survey who appear to be in retail, hospitality or clerical work is almost identical to the one identified by HESA.

Charts 29a and 29b show the distribution of graduates from the disciplines examined across a range of activities.

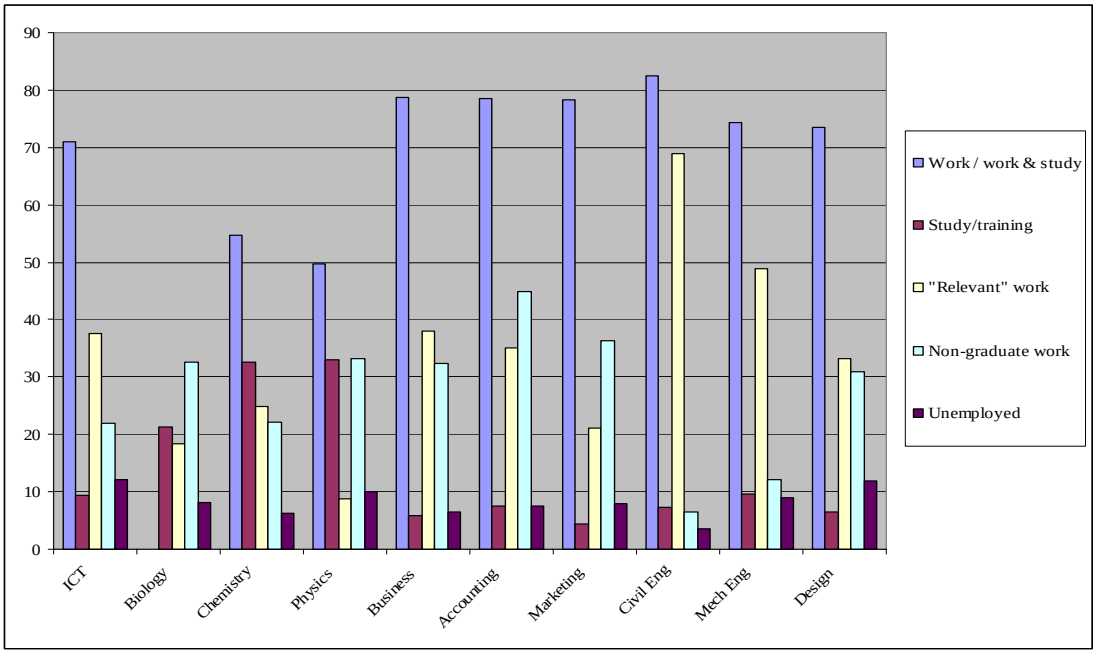

Chart 29a: Comparison of graduate activity, science and non-arts vocational disciplines

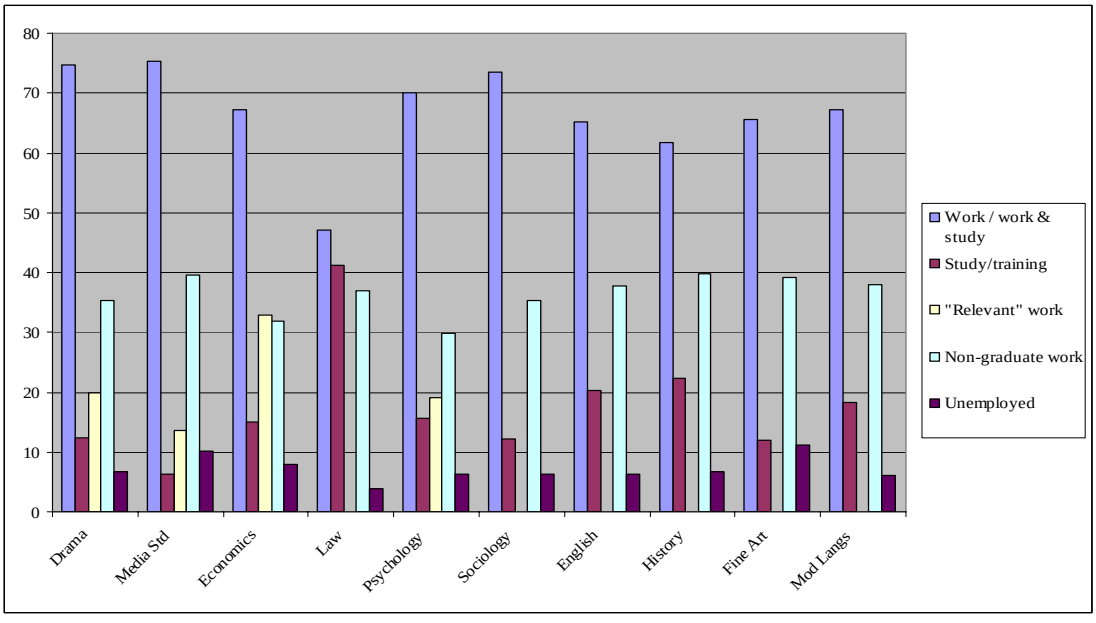

Chart 29b: Comparison of graduate activity, humanities and social sciences

An interesting relationships which can be observed for many subjects is between the proportion of graduates in 'non-graduate' work and the proportion who are unemployed. A low unemployment rate may not necessarily indicate a high level of graduate employability. It may also reflect the willingness of graduates from certain disciplines to apply for and/or to accept 'non-graduate work' as an interim measure while they save money to fund study, training, travel, or other activities, or take 'time out' to think about their long-term career aims. IT graduates may tend to regard this as a less attractive option, and prefer to remain unemployed while seeking a job in their preferred field.

IT graduates also appear to prefer administrative roles to retail, catering, waiting and bar staff positions, suggesting that they are more likely to take non-graduate work which could later lead to an IT or graduate position, or which requires some IT *user* skills. Only 8.1% of IT graduates take jobs in retail or hospitality, which are less likely to offer opportunities of this sort. Figure 15 shows the percentage of graduates from different disciplines who enter retail work.

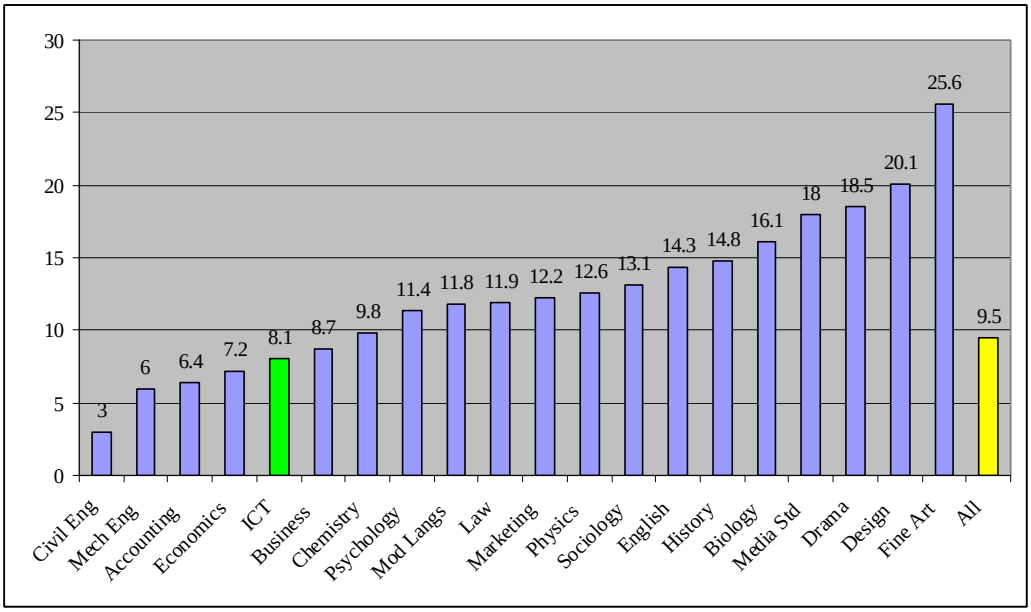

Chart 30: Percentage of graduates from each discipline employed in retail, catering, waiting and bar staff positions

3:4 Conclusions from the subject comparisons

As noted above, these subject comparisons are based on very broad groupings of subjects and employment, and on the interpretations of the HESA data made by the authors of *What Do Graduates Do?* However, they do provide an additional perspective on some of the 'headlines' relating to the employability of IT graduates which have accompanied reports of the First Destinations Survey. In particular:

- A *relatively* high proportion of IT graduates enter IT professional work within six months of graduation.
- Although IT graduates have a *relatively* high unemployment rate within six months of graduation, they have a correspondingly low rate of employment in 'non-graduate' roles at this stage.
- The majority of graduates who enter IT professional employment within six months of graduation hold first degrees in a relevant subject.
- While misclassifications of IT professional work are probably quite rare, at least some graduates who enter IT management roles may be classified as managers rather than IT professionals.
- For practical reasons HESA has little alternative but to undertake its main survey of graduate destinations within six months of their graduation. However, there is strong evidence that it would be unwise to take this as an indicator of *long-term* graduate destinations rather than *first* destinations.

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