

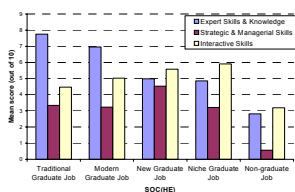
Researching Graduate Careers Seven Years On
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Research paper No. 3

Higher Education, Skills and Employment: careers and jobs in the graduate labour market

Kate Purcell, Peter Elias and Nick Wilton

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University of the West of England

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1. Education, Skills and Economic Restructuring¹

Educational policy and investment in most developed countries, particularly with reference to higher education, is predicated upon the explicit assumption that increased skill and educational achievement levels hold the key to economic prosperity within an increasingly competitive global economy. A central pillar of this is the conviction that in the 21st century, successful economies will rely more upon knowledge rather than material resources, and that location will be less important than technological sophistication. This is not a new idea. It was perhaps most influentially expounded by Daniel Bell (1973) in *The Coming of Post Industrial Society*, which set the foundation for much of the debate on emerging social structures, employment and the future of work organisations. Sociologists have largely been more sceptical about 'the knowledge society' and the implications of technological change for skills and work opportunities than management theorists (cf. Drucker 1992 and Reich 1991). For example, early in the debate, Kumar (1981) questioned the extent to which service sector growth heralded progressive growth of more highly-skilled and 'better' jobs and more recently, Thompson *et al.* (2001) have pointed out that recent UK employment growth has required 'people skills' rather than more expertise or knowledge, as will be discussed below.

In the UK, successive governments since the late 1980s have developed policies designed to widen access and increase participation in higher education, in the belief that the resulting increased output of graduates will contribute to greater economic and social prosperity, nationally and individually (DfEE 1998, Thurow 1994, Crouch *et al.* 1999). Although the longer term implications of UK policies have been questioned, particularly with reference to the social impact of extension of 'the learning society' (Keep and Mayhew 1999, 1996) and some evidence of that the traditional graduate labour market has become increasingly competitive (Brown 2003, Brynin 2002), research has continued to indicate that obtaining a degree increases the propensity of individuals to obtain better jobs and higher earnings both in the short and long term (Elias and Purcell 2004, Brennan *et al.* 2001, 2002 Elias *et al.* 1999a, Dearden *et al.* 2000). Concern remains, however, that there is a growing mismatch between the skills and knowledge developed on degree programmes and the requirements of employers, as indicated by underemployment or under-utilisation of skills among a substantial minority of graduates (Felstead *et al.* 2003, Green *et al.* 1999, Battu *et al.* 2000, Teichler 2000,

OECD 1998) and, particularly among younger employees, widespread subjective and objective evidence of over-qualification for the jobs in which they are working (Ashton et al. 1999, Rose 2000, Wolf 2003).

Research on employers' perceptions of the graduate labour market indicates that they have become progressively more confused by the increasing diversity of the graduate labour supply, which has resulted in a tightening of boundaries between graduate and non-graduate jobs and access to the former in some organisations, and a loosening and diffusion of analogous boundaries in others (Mason 2001, 1996; Harvey et al. 1997, Nove et al. 1997). But the real test of how degrees contribute to employment access and economic prosperity requires systematic exploration and analysis of the variables associated with employment outcomes. What kinds of work do graduates do? Who gets which jobs, and why – and who fails to achieve the employment they aspire to? What evidence is there that the relatively recent graduates who acquired their qualifications in the new UK mass higher education system are accessing jobs that utilise their skills, knowledge and qualifications? And how far has the occupational structure and the organisation of work changed as a result of higher education expansion?

To address these issues we have developed a new classification of occupations, designed specifically to aid our understanding of the changing occupational structure and the position of graduates within this structure. This is an 'external' classification of graduate jobs; in that it is based upon the classification of the type of work graduates do - as indicated by job titles and job descriptions. We explore further the nature of graduate jobs, making use of the detailed data collected in a programme of interviews with graduates who completed their undergraduate programmes some 7-8 years earlier, in summer 1995. Key themes of the interview investigation were the skills and knowledge required by respondents in their current jobs. Systematic analysis of the data collected highlights a number of important dimensions of the skills and knowledge that graduates bring to and use in their employment. We term these dimensions as intrinsic to the nature of their work.

Finally, we explore the relationship between the external classification and these intrinsic dimensions, and other aspects of the jobs performed by graduates. In this way, we arrive at a clearer understanding of the reflexive relationships between higher education expansion and occupational change - of what a 'graduate job' entails - and of how far the graduates in our sample can be said to be engaged in 'knowledge work' (Blackler 1995, Thompson et al. *ibid*).

2. The research

There are two main sources of information drawn upon in this report: the second sweep of the longitudinal study of 1995 graduates surveyed originally in 1998/99 (Elias et al. *op cit*),

¹ This research is supported by the Economic and Social research Council (Award ref: R000239589) and the Higher Education Careers services Unit.

respondents to which participated in a postal survey in 2002/03 and transcripts of in-depth telephone interviews conducted with a sub-sample of survey respondents. The original sample was designed to achieve responses from five per cent of relevant UK 1995 course-leavers, drawn as a one-in-three sample from 33 UK higher education institutions (HEIs), randomly selected to be representative of the full range of British undergraduate provision. They were contacted three and a half years after completing their undergraduate programmes and just under 10,000 responses were achieved at the first sweep. Of these, approximately 70 per cent provided contact details so that they could be re-contacted for a follow-up investigation, and these were mailed questionnaires in 2002. One in three 1995 graduates from a further five HEIs were added to the sample to redress regional and institution-type biases in the 'new' sample, and to take account of sample atrophy caused in the main by the fact that this is a very mobile population and there was a high 'non-contact' return. Completed questionnaires were received from 4,400 graduates. For the survey analysis, the data have been weighted to be representative of the original population from which they were drawn.

3. Defining graduate jobs - the external classification

A good understanding of the career paths of graduates requires a classification of the kind of work that graduates do – a classification that reflects both the demand for their graduate skills and qualifications and the extent to which these are used within their jobs. In the first phase of this research we conducted a detailed analysis of occupations and the changing distribution of graduates in the UK labour market, drawing upon statistical information from all Labour Force Surveys conducted between 1993 and 2000 and the work history data provided by the 1995 cohort sample at the first survey sweep in 1998/9. For further details of how the analysis was conducted, see Elias and Purcell (2004).

Through a careful and detailed analysis of the 353 categories of the national occupational classification², a five-fold classification of occupations was developed. Table 1 describes these categories and gives some typical examples of the kinds of jobs that fit into each.

We then reclassified occupational information provided by employees in the annual New Earnings Surveys for the period 1975-2000, to see how the balance of these occupations and or had not changed. Our findings are discussed fully in Elias and Purcell (2004). We found that, for men and women separately, the changing composition of employment³ over the period 1975-2000 when the level of employment overall expanded, the most significant areas of UK employment growth in recent decades have been among new graduate and modern graduate occupations.

² The 2000 Standard Occupational Classification was used to develop SOC (HE). For a detailed explanation, see Elias and Purcell (2004).

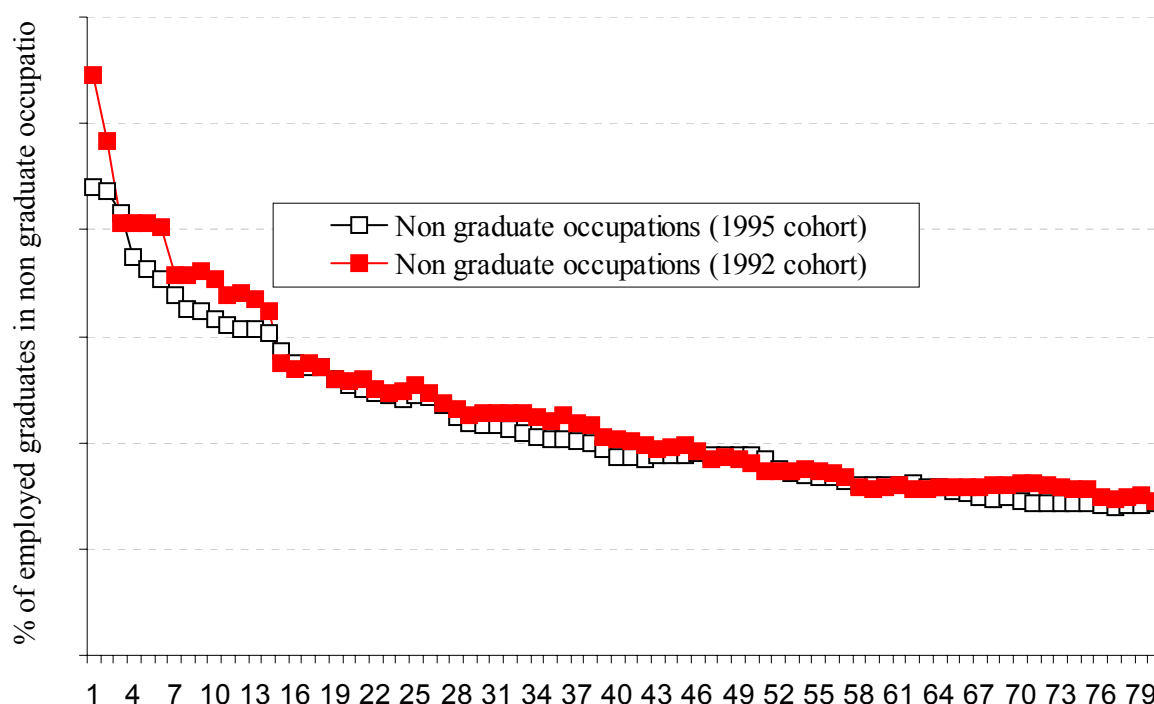
³ 'Employment' consists here of employees in employment. It excludes the self-employed and a small number of jobs which fall outside the scope of the PAYE tax system.

Table 1 SOC (HE): a classification of graduate occupations

SOC(HE) category		Description	Examples
1.	Traditional graduate occupations	The established professions, for which, historically, the normal route has been via an undergraduate degree programme.	Solicitors Medical practitioners HE and secondary education teachers Biological scientists/biochemists
2.	Modern graduate occupations	The newer professions, particularly in management, IT and creative vocational areas, which graduates have been entering since educational expansion in the 1960s.	Directors, chief executives (major organisations) Software professionals, computer programmers Primary school teachers Authors/writers/journalists
3.	New graduate occupations	Areas of employment, many in new or expanding areas, 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, 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 <i>niches</i> which require higher education skills and knowledge.	Leisure and sports managers Hotel, accommodation managers Nurses, midwives Retail managers

Figure 1 explores a different source of longitudinal data to investigate whether or not there is evidence of recently increasing movement of graduates into what we define as non-graduate occupations. The comparison reveals, astonishingly, virtually identical patterns of movement out of non-graduate employment, indicating that a minority of graduates remain in such employment. Interestingly, there is no evidence that higher proportions of graduates than in previous cohorts appeared to remain in such jobs beyond the first few years after graduation.

Figure 1: Movement out of non-graduate jobs: the experience of two cohorts



Sources: Survey of the Career Paths of 1995 graduates; British Cohort Study (1999 survey).

This suggests that the labour market has been changing in a way which has largely absorbed the expanded supply of graduates and that they are doing work that, in terms of our classification job requirements, is likely to require people with their skills and qualifications. Analysis of these two cohorts of graduates, and preliminary analysis of movement out of non-graduate jobs of a cohort of graduates who completed their degrees in 1980, gives little indication of any increase in the proportion of graduates remaining in non-graduate job some six to seven years after graduation.

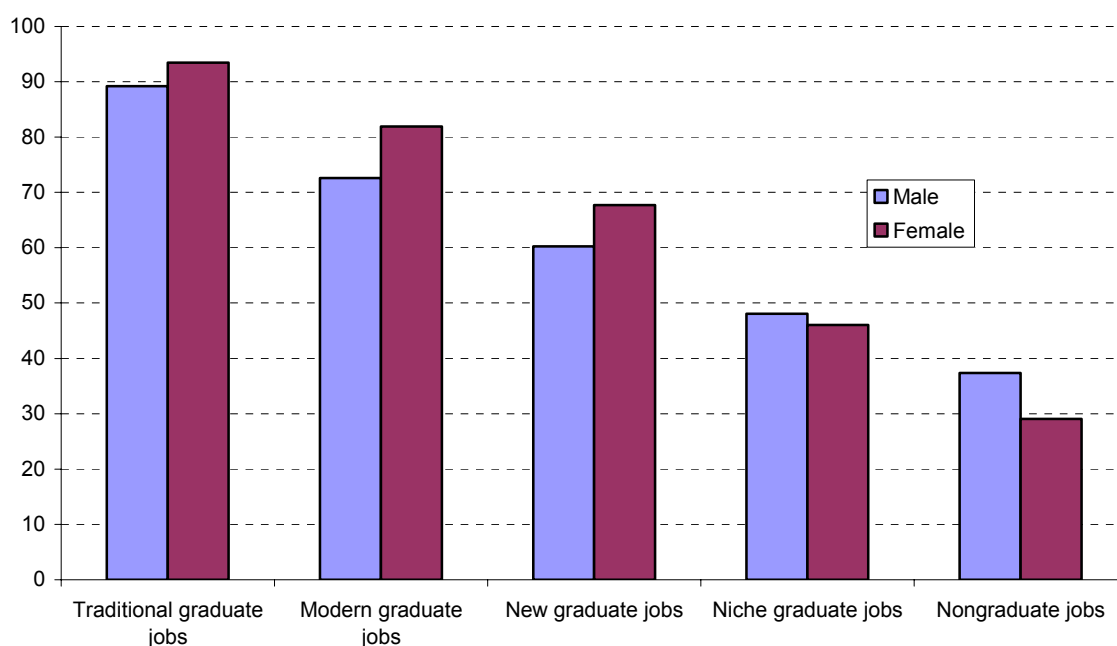
But what do these categories mean? The classification, although an objective indication of the potential that exists within the economy to absorb the increased supply of graduates, tells us little about whether graduate skills and knowledge are actually being used in these jobs. We addressed these issues in two ways. First, we examined the relationship between graduates' occupational location and their survey responses to questions about the relationship between their qualifications and employment. Second, we asked very detailed questions at the follow-up interview stage about the job specifications, job content and labour processes in which the respondents were employed. We discuss our findings from these investigations in the next two sections of the paper.

4. Testing the classification: the survey skills data

Do the occupational categories make sense, in terms of the responses of the graduates in the 1995 cohort study? We examined some of the responses to questions about whether the

graduates themselves perceived that they were in appropriate jobs for people with their skills and qualifications. The extent to which the survey response supports the validity of the classification is illustrated in Figure 2, which shows for each of the five occupational groups the proportion of 1995 graduates who stated that a degree was required for the job in which they were working at the time of the survey in 1998/99.

Figure 2: Percentage of 1995 graduates stating that their degree was required in their 2002 jobs



Source: *Seven Years On: a survey of the career paths of 1995 graduates*

There is a clear gradient evident here. For both men and women the proportion stating that their degree was required declines from around 98 per cent of males in the traditional graduate occupations to around 36 per cent of women in non-graduate occupations, although two-thirds of respondents overall said that a degree had been required. Gender is an important discriminator (c.f. Purcell and Elias 2004, Purcell 2002) and gender differences will be discussed where relevant throughout our analysis. A higher proportion of women than men were in traditional graduate occupations and a higher proportion of men to be in modern graduate occupations - but otherwise their distribution among the categories is similar.

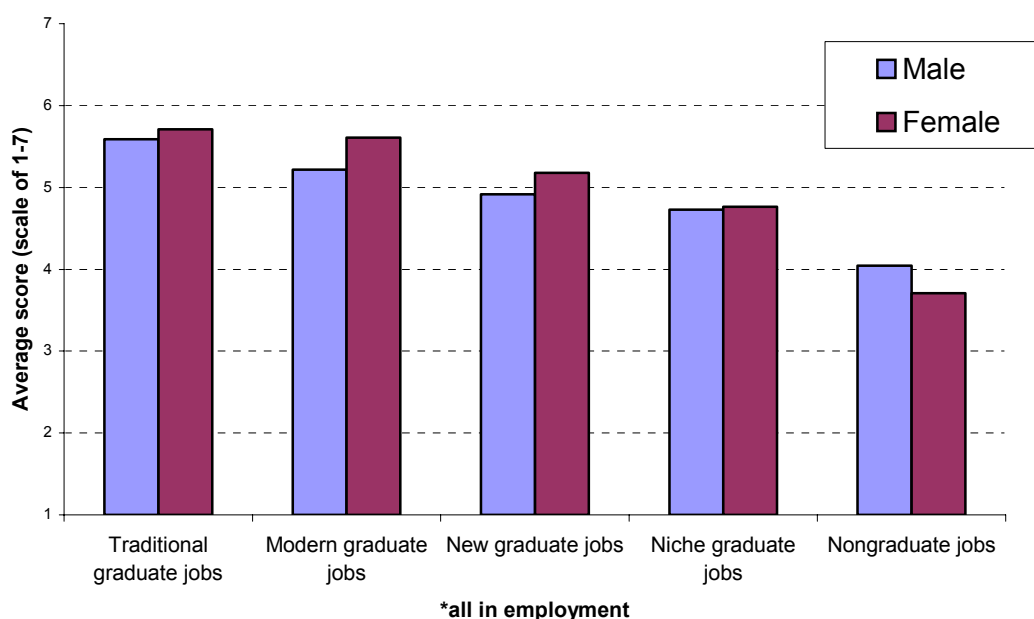
The strong gradient revealed by this analysis indicates that our externally derived classification provides a reasonably robust indication of occupational 'graduateness' (HEQC1996): and there had been significant and virtually identical movement into the 'graduate' categories, and consequently out of the 'non graduate' category, of both women and men between the two sweeps of the survey. As we proceeded with the interview programme, we concluded that if anything, analysis of our data using this classification may over-estimate graduate under-employment. Graduates who were interviewed in the follow-up programme, selected on the basis of being in unequivocally non-graduate jobs in terms of the

criteria used to construct the classifications, very often turned out to be in jobs related to their longer term aspirations or jobs that had actually required a degree.

In addition to whether a degree was required for their job, respondents were also asked whether they were using their degree subject knowledge and the skills they had acquired on their undergraduate programmes. Analysing the jobs they had held at the time of the 1998/9 survey, similar gradients across the classification were revealed (Elias and Purcell 2002 *op. cit.*) and the picture has not changed significantly in the succeeding 3-4 years. All but a small minority of those in traditional graduate occupations reported that they used both subject knowledge and skills; around two-thirds in all the other 'graduate job' categories used subject knowledge and over 80 per cent used skills. Those working in what we classify as non-graduate occupations were significantly less likely than other graduates to state that they were using either.

However, two interesting and disturbing facts emerge from these analyses. Firstly, significant minorities of those in all the 'graduate job' categories apart from the traditional graduate said that their degree had not been required and/or that their knowledge and/or skills were not being used; secondly, there are significant gender differences in responses. Women were more likely to have required a degree than men if in traditional, modern or new graduate jobs, but less likely to have required one for their niche or non-graduate occupations. Once graduates are seven years out of their undergraduate programme, they may rightly perceive that they obtained their current job on the basis of subsequent experience rather than their formal qualifications and (particularly in new and niche graduate jobs in some sectors) the interview data indicates that they are likely to be working alongside older managers at a similar level who do not have degrees. Responses to the question 'On a scale from 1 to 7, where 1 means 'very inappropriate' and 7 means 'ideal', how appropriate do you think your current job is for someone with your skills and qualifications?' - shown in Figure 3 - indicates that perceptions of appropriateness and, implicitly, relative satisfaction levels, even among the non-graduate job-holders, are more likely to have been positive than negative.

Figure 3: How appropriate is your current job* for someone with your skills and qualifications? Average response, by gender and SOC (HE)



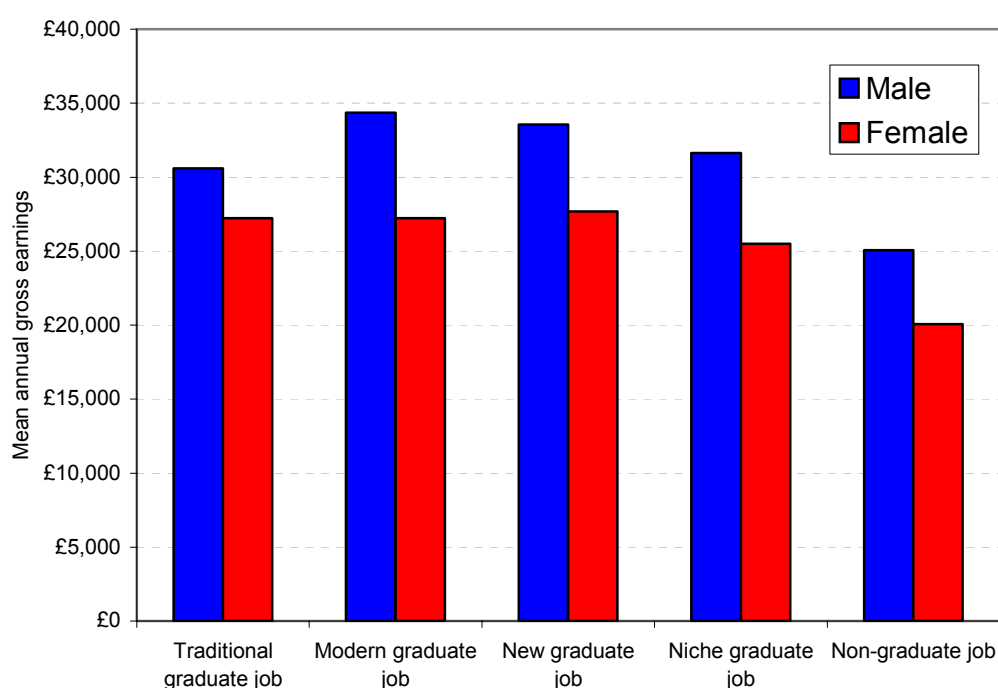
Graduates working in what we termed non-graduate jobs were considerably less likely to indicate that their job was an appropriate one for someone with their qualifications and there is a similar downward trend in this as on the other dimensions examined. It is, however, interesting that in all the categories, a higher proportion felt that their job was appropriate for someone with their skills and qualifications than had said that a degree had been required to get the job. How far this reflects shifting boundaries between graduate and non-graduate jobs and how far it simply reflects the decreasing importance of qualifications in relation to experience and employment track record - particularly for management jobs - is something that we will explore below.

Figure 3 also reveals interesting gender variation. In the more established graduate job categories, women appear to be more likely to be in employment appropriate to their higher education, whereas in niche and non-graduate employment, the position is reversed. This almost certainly reflects established findings (Halford *et al.* 1997, Savage 1992) that in accessing and developing careers, credentials are more important for women than for men, and also reflects gendered subject and career choices - most notably, perhaps, as far as both traditional and modern graduate jobs are concerned, the greater propensity of women to enter teaching. Women were more likely than men to have required a degree for their current job if in traditional, modern or new graduate jobs, but less likely to have required one for their niche or non-graduate occupations. They are also more likely than men, in all but the non-graduate category, to believe that their current job is appropriate for someone with their skills and qualifications. This is in line with findings from successive research on graduates and other

employed groups that have consistently shown women to be less liable than men to express dissatisfaction with their work and conditions of employment.

In Figure 4 we examine average income by gender and SOC (HE) category, looking at those in full-time employment only. We find a consistent gender pay gap in every category: greatest in modern graduate jobs (where the males are disproportionately more likely to work in private sector employment and the women in the public sector) but we also find that there is a distinct gap between the four 'graduate job' categories and the non-graduate category. This relative satisfaction certainly does not reflect income advantage.

Figure 4: Average annual earnings in 2002/03 for 1995 graduates, SOC (HE) and gender (full-time employees only)



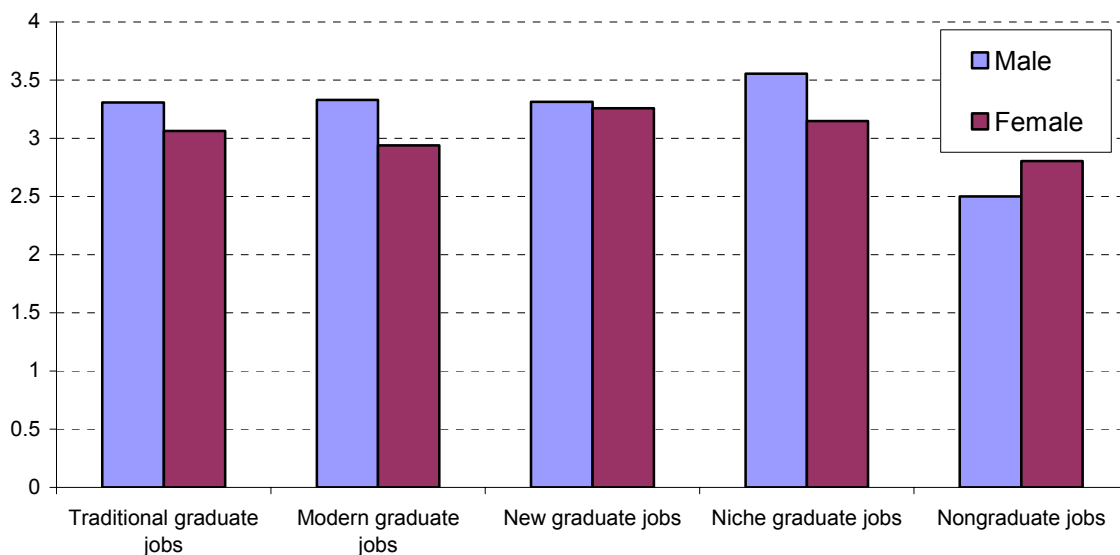
Source: *Seven Years On: a survey of the career paths of 1995 graduates*

The gender pay gap is least in traditional graduate occupations, which are most likely to be public sector employment, but there is a clear distinction between the 'graduate' and 'non-graduate' categories. Of traditional graduate occupations, 62 per cent were in the public sector (and 40 per cent in Education), whereas 56 per cent of modern graduate, 68 per cent of new graduate and 63 per cent of niche graduate employment among the sample was in the private sector.

We had discovered in previous surveys of graduates, including the earlier sweep of this cohort, that high earnings were not the main satisfaction sought from employment. Consequently we developed other measures of satisfaction with career and job. As Figures 5, 6 and 7 show, the responses to these appear to be associated with job type, according to our classification. Figure 5 shows the mean value in each occupation group of an indicator of

the 'quality' of jobs in that group, taking into account salary, the work itself, opportunities for skills and career development, long term security, the degree to which they perceived their organisation to be progressive and dynamic and their satisfaction with working and colleague relationships⁴.

Figure 5: Mean value of indicator of quality of current employment, full-time employees only, by SOC (HE) and gender



Source: *Seven Years On Survey of the Career Paths of 1995 Graduates*

There is a clear difference between the 'graduate' and 'non-graduate' responses - along with the intriguing gender difference in all but new graduate occupations - which requires further exploration: men reporting higher job quality averages in most of the graduate occupational areas and reporting less satisfaction, implicitly, when in non-graduate occupations. Does this reflect gendered expectations? If we look at the incidence of unequivocally negative responses, the difference between the four 'graduate' categories of occupation and non-graduate occupations is further reinforced. Figure 7 shows the proportions of respondents in each category that reported that they were 'not very satisfied' or 'dissatisfied' with their career development to date. Figure 8 shows those who stated that they believed their current job to be a 'dead end' job when questioned in the survey about their promotion prospects.

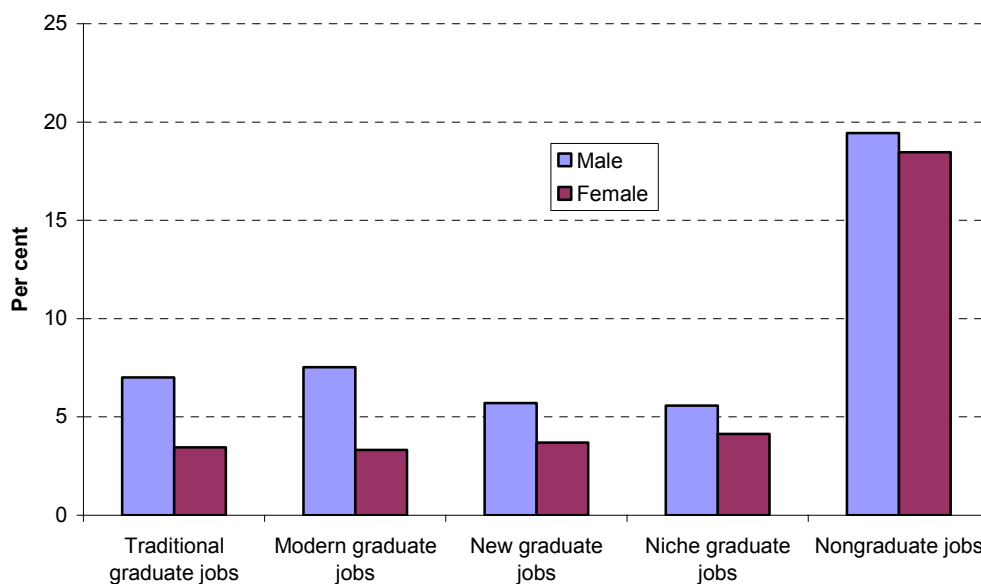
⁴ See Elias *et al.* 1999:21 for an explanation of this scale.

Figure 6: Percentage of graduates who were not satisfied with the way their careers had developed so far, SOC (HE) and gender



Source: Seven Years On Survey of the Career Paths of 1995 Graduates

Figure 7: Percentage of respondents stating that their current (2002/03) job was a 'dead-end' job, by SOC (HE) and gender



Source: Seven Years On Survey of the Career Paths of 1995 Graduates

All of the analysis so far indicates that the external occupational classification is robust - and enables us to distinguish between graduate and non-graduate occupations and, although this requires further analysis, among different categories of graduate employment. It does not provide very much indication of what graduates do, or of whether the knowledge and skills developed on their undergraduate programmes are being used in their work. An intrinsic

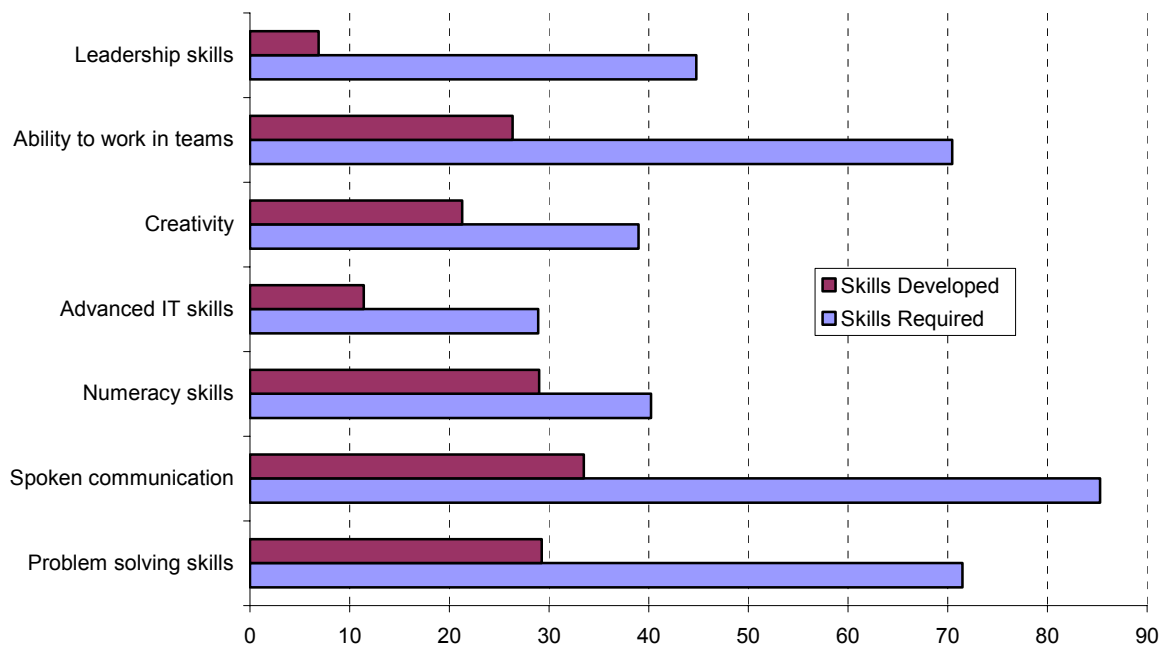
classification is also required, to make sense of what the common features of occupations in employment contexts within and between these horizontal strata might be.

5. Testing the classification: the interview data

According to this classification, of those in employment at the time of the survey, just under a quarter were in traditional graduate jobs, 22 per cent were in modern graduate occupations, 21 per cent in new graduate occupations, 22 per cent in niche graduate occupations and the remaining 10 per cent in non-graduate occupations. As the foregoing discussion indicated, the first four groups represent areas of work in which there is a strong probability that graduates employed in these areas will believe that they are making use of their degree skills and knowledge and doing appropriate work for someone with their qualifications. But what constitutes graduate skills and knowledge? Figure 9 compares the skills that respondents said they had developed 'a lot' on their undergraduate courses with the skills they were being required to use 'a lot' in their current (2002/3) employment. This is a very crude indicative measure, involving subjective and (in the case of assessment of skills development on the course they completed in 1995) long-term *post facto* evaluations. Differences between skills developed and skills required seven years later cannot be taken to be indicative of a mismatch between higher education provision and the needs of the market. For example, graduates are likely to require and to have to exercise - leadership skills seven years after graduating; but this may not mean that it would have been appropriate for these skills to be developed on their undergraduate programmes⁵. In addition, further analysis is required of the relationship between the degree to which skills were required 'a lot' and 'some'. However, the picture provided by Figure 8 gives an indication of graduates' perceptions of the range of skills developed on undergraduate programmes and required in graduate jobs.

⁵ For example, in a swinging attack on the current DfES *White Paper on Higher Education*, Alison Wolf (2003) points to the absurdity of the confusion between the responsibilities of educators and employers in developing 'workplace-ready' employees.

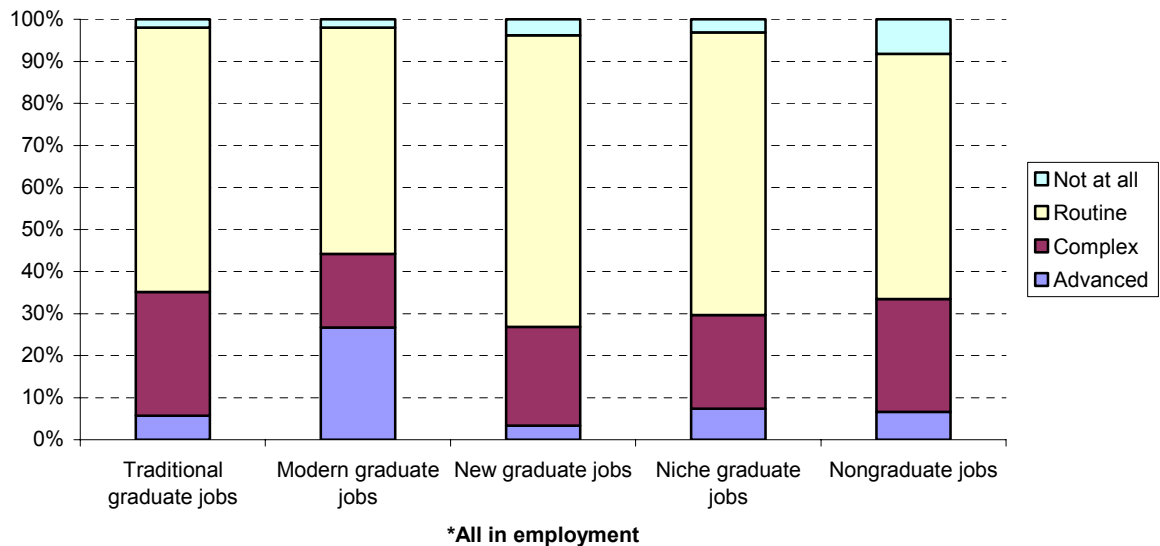
Figure 8: A comparison of skills required in current job and developed on 1995 course 'a lot'



Source: *Seven Years On* Survey of the Career Paths of 1995 Graduates

Finally, we asked about the use of computers in their jobs, and classified this by the occupational classification, as shown in Figure 9.

Figure 9 Use of computers by SOC (HE) category



Source: *Seven Years On: a survey of the Career Paths of 1995 Graduates*

From this, it appears that very few graduates do not use computers in the course of their work and those most likely to claim to be using them at a complex or advanced level were those in traditional and modern graduate jobs - although significant proportions of the other categories claimed to use them for complex work. We are investigating this further, analysing the

descriptions provided by sub-sample interviewees when asked to explain more precisely what their classifications encompassed, and we will discuss this fully in a subsequent paper on the relationship between technology and other aspects of graduate occupations. The overwhelming majority of those surveyed work in jobs that had a significant ICT component and preliminary analysis suggests that the quality and degree of sophistication of computer use might be a significant indicator of job quality and whether graduates are knowledge producers or analysts, or simply information processors or highly-educated routine interactive service workers.

But what did the 1995 graduates actually do?

In order to throw light on who were required to use which skills these questions, we are investigating the skills content and labour process of jobs held by the graduates in our 1995 cohort sample. We conducted 201 detailed follow-up interviews with respondents, 189 of whom were currently in employment, and these were transcribed and analysed using *NVivo* software. A key element of the interview stage of the research was to address, in greater detail than is possible through a postal survey, a range of questions about career trajectories and current employment, including the types and intensity of the skills required and the relevance of skills and knowledge acquired on their undergraduate degree programmes to their current jobs. Questions specifically focused on the responsibilities and range of tasks respondents were required to undertake, the nature of their relationships with colleagues, customers, managers and subordinates, the degree to which they were required to possess generic or specialist skills and knowledge. The telephone interviews enable us to probe around meanings and interpretations, following up responses given to questions asked in the survey and asking some extremely open-ended questions about work contexts and career aspirations. Perhaps the most revealing series of questions that we asked included "Why do you think you were offered [your current] job?" and "What did you do today at work⁶? What did you do first?" followed by probes as the account proceeded, such as "Who was at the meeting? What was your role in it?" and, at the end "Was that a typical day?"

The data collected provided a detailed account of the ranges of skills that graduates were required to possess and use on a regular basis. The classification of responses to these and similarly open-ended questions has enabled us to evaluate the extent to which the jobs described appeared to have required higher education knowledge and skills and to get beyond job titles to a clearer understanding of the degrees of complexity and responsibilities exercised by respondents. By considering the work contexts and day-to-day activities and responsibilities of respondents in the light of the range and intensity of use of a number of specific and general skills, knowledge and personal attributes most often associated with graduate employment, we are able to begin to 'map' the distribution of the graduate jobs in a way which enables us to make sense of the extent to which there is a 'core' of 'graduateness' (or a series of distinct graduate-segment cores) across the diversity of graduate jobs.

⁶ Most interviews were conducted in the evening. All were conducted by members of the research team.

From this analysis of the interview data it has been possible to outline a range of professional and technical knowledge, skills and personal attributes that appear to have been required by employers when recruiting these graduates and used by the respondents in their jobs. The most frequently mentioned requirements of jobs, and the aspects of undergraduate education and experience most often sought by employers and drawn upon on a day-to-day basis, were project management, team-working, written, spoken and presentational skills, basic IT literacy, analytical skills and the ability to be self-directed - regardless of whether or not their jobs had a strong degree-subject relevance or not. Whilst the emphasis varied across degree discipline, sectors of employment and occupation, these skills were widely cited across the very diverse sample. Along with the recognition that skills had been refined by experience (and further training and education in many cases) during seven years in the labour market, there was widespread acknowledgement that undergraduate education had laid their foundations; generic skills as well as subject knowledge appear to be regarded by graduates be the vocational 'legacy' of undergraduate study in the majority of cases, regardless of the position of their undergraduate programme on the academic - vocational spectrum. A male history graduate, earning over £60,000 *per annum* at the time of the interview, working as a brand manager for a household products manufacturer that he first joined as a 'fast track' graduate trainee summed this up well:

'A lot of the work I do is document based, so it will be writing summaries of research and recommendations for the brand in terms of how we market, how we commercialise the brand and the brand strategy, and a lot of the work in my history degree was based on the same way...which is get your sources together, get your material together, pull together your conclusions: that is, your hypothesis of a situation. I think, for me, document writing is something I am therefore comfortable with and that's pretty much a fundamental means of communication, especially with the senior managers'. [Interview 165]

At one end of the spectrum, as Figure 11 indicated, spoken and written communication were significant aspects of most respondents' jobs - whereas (not surprisingly) the requirement for foreign language skills, entrepreneurship, research skills and advanced ICT skills tended to be confined to particular types of occupation.

Having constructed an external classification of graduate occupations, it was necessary to address the labour process and skills content of individual jobs and, in this way, to build up an understanding of the intrinsic nature of these jobs. On the basis of the interviews, and in analysing each job and asking questions about what they were required to do in the course of their work, it was possible to discern specific and often distinct sets of inherent skills and attributes. It seemed to us, from the accounts of graduates from the full spectrum of occupations, that the vast majority of work done by the respondents could be classified, to a greater or lesser degree, under three headings which we label *expertise*, *strategic and managerial skills* and *interactive skills*. Was their value to the organisation their possession of specific technical skills and knowledge? Was it their capacity to plan, manage or co-ordinate physical or virtual processes? Or was it primarily their capacity to deploy emotional

intelligence⁷, in conjunction with the development of interpersonal and communication skills development on their courses, which was required in order to meet the job requirements?

6. The intrinsic classification of graduate occupations

Careful assessment of respondents' accounts of the substance and processes of their daily workloads has enabled us to develop a construct a system of classification to analyse the intrinsic nature of graduate occupations which, related to the external occupational classification already developed - SOC (HE) - enables us to conduct an evidence-based analysis of graduate labour market diversity. It is first important to define the categories we use and how we assessed the evidence provided by respondents.

Expertise⁷ encapsulates occupationally-specific expert or specialist knowledge, usually initially developed during higher education and/or other vocational or professional training (but also through prior employment experience and other learning). For many jobs, the possession of such knowledge and skill is a pre-requisite for entry into that occupation and is required in order to do the job. Graduate jobs with a significant 'expertise' component include the established professions and technical specialist occupations; for example, lawyer, biochemist, systems analyst, medical practitioner, teacher; but they also include jobs where specialist knowledge relating to internal or external organisational processes are crucial to the ability to operate effectively; for example, the broad knowledge of legislation needed by an HR manager, or the business/market knowledge needed by marketing professionals. Jobs at the expert extreme are typically roles with a high level of emphasis on technical analysis, problem diagnosis and solution.

Strategic and managerial skills include project, process and resource management (including the deployment of staff), leadership, decision-making responsibility, risk-taking, forward planning and business/strategy development (Wickham 1998, Pettigrew 1992, Jaques 1990, Mintzberg 1990, Drucker 1968). Occupations incorporating degrees of strategic skills often require, at the lower end of the strategic skills scale, tactical, day-to-day decision-making and responsibility for the operation of processes and people and their management and co-ordination, and at the higher end of the scale, include the requirement to engage in strategic, long-term decision-making, risk-taking, internal or wider policy development and significant responsibility and accountability (for example, for large-scale project management). Examples of jobs requiring relatively low strategic skills would be a relatively junior departmental manager or a specialist taking operational decisions internally or in negotiations with external clients or suppliers; higher strategic skills roles include senior management roles, partners and directors of SMEs and senior civil servants involved in policy development and with responsibility to brief government ministers.

⁷ This is a controversial but useful concept, deriving from the work of psychologists such as Salovey and Mayer(1990) and Goleman (1995). We discuss our use of it in the section that follows.

Interactive skills, at a very basic level, are required in most jobs to some extent, but are an important component of jobs with a high emotional labour component. The concept of emotional labour was initially developed by the American sociologist Arlie Hochschild (1983), who drew attention to the fact that, in addition to mental and manual labour components, most jobs have an 'emotional labour' component, whereby workers are required as part of the job to manage their own emotions and the emotions of others and in some occupations (such as air cabin crew staff) this is arguably the main aspect of their jobs. The concept encompasses interpersonal skills, communication skills, empathic skills and manipulative skills, as will be discussed below, but its key value is in drawing attention to the fact that such apparent attributes are, in fact, skills that are developed and deployed as part of occupational performance - and as work. In terms of 'graduate level' interactive requirements at work, there is a need for a high degree of emotional intelligence, which has been defined as: '... the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions' (Mayer & Salovey, 1990, Goleman 1996).

Obviously, the foundation for the development of such skills is nurtured (or not) from early socialisation onwards and ability to develop them varies according to genetic inheritance and social experience, but the concept refers less to inherent personality traits than to skills that are learned and developed (and explicitly taught, on many higher education and other vocational courses and training programmes) as 'mental skill' (Lam & Kirby, 2002, Mayer & Salovey, 1997); self-awareness, emotional self-management, empathy and, ultimately, the ability to handle and manage relationships: in the case of graduate-level jobs, to a sophisticated degree. The range of job requirements described by the graduates interviewed included the ability to communicate ideas effectively, to influence and persuade others, and to negotiate; to motivate and work successfully with others. There is some overlap here with the skills required under the strategic/managerial skills heading, but the key to interactive skills jobs is their inherent requirement for high levels empathic ability (Baron Cohen 2003) and sophisticated interpersonal skill deployment. Therefore, roles where a high degree of interactive skills are required include the 'caring' professions (mainly requiring what can be described as 'soft' interpersonal skills) and sales and marketing roles (which require a similarly high degree of empathy, but directed towards the 'hard' skills of influence, persuasion and negotiation).

On the basis of the information and accounts provided to us in the survey and interviews, we scored each of the *jobs* described to us on a scale of 1-10 under each of these three headings, thus allocating expert, strategic/managerial and interactive skills scores to each of them. It is important to stress that we are talking about the jobs, not the *incumbents*, assessing, for example, a high interactive component on what is required in order to do the job rather than making evaluations of the emotional intelligence of particular interviewees. There is, of course, an element of subjective judgement, but scoring of each case was undertaken independently by two members of the research team and where there were

discrepancies, discussed. This is no more or less subjective than most evaluation of qualitative material or evidence, and is analogous to allocating grades to students according to clear agreement about criteria, carefully developed scoring schemes, 'double marking' and the expertise of the scorers.

The evolution of such interactive skills, specifically with reference to communication skills, was expressed very clearly by one of our respondents, a Human Resources Advisor working for a large Business Services consultancy, who said:

Communication is something you learn on your degree and that builds as you grow in a role... So, whilst at the beginning, I was probably dealing with lots of other administrators, I am progressing through now to dealing senior management and directors and that obviously takes a different form of communication. And getting people to work with you, it's more about negotiation and initiative now... So all those sorts of things I think you learn and develop... I think the degree gives you the basics in terms of giving you the confidence to go out there and do something but once you're out there then you can build on it".

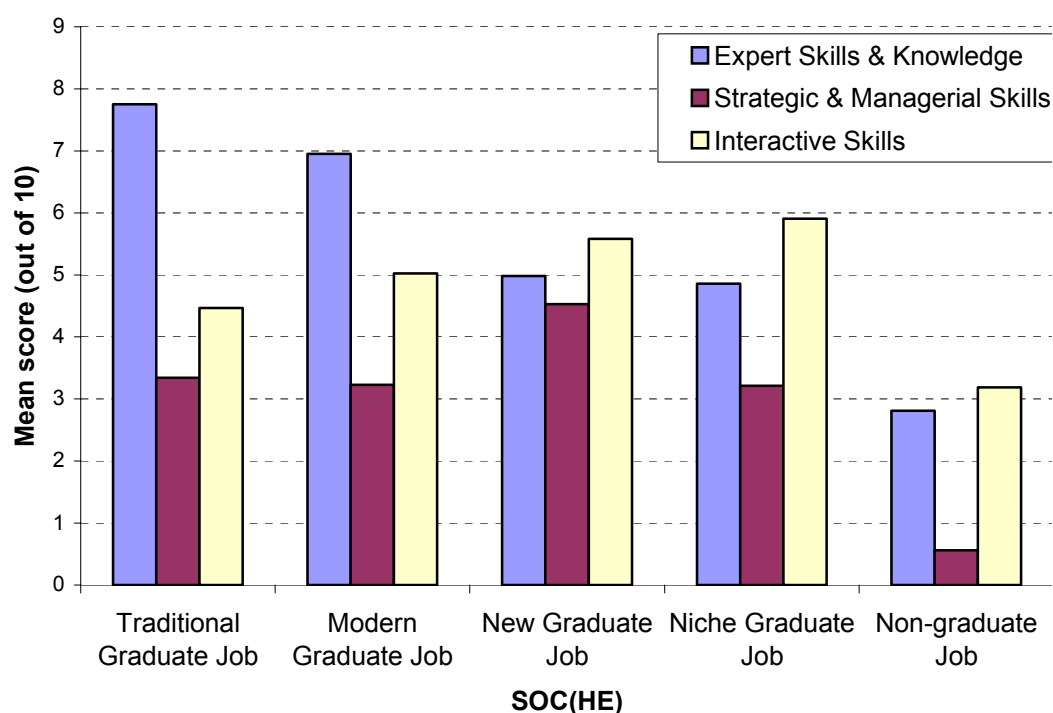
[Interview 038]

We found that the jobs done by some respondents involved the full range of these requirements, others involved only, or mainly, one of these three 'clusters of competences' and the descriptions of jobs being done by the minority in unequivocally non-graduate work indicated negligible deployment of these.

7. Graduate skills and graduate jobs

We wondered how the requirement to exercise these skills would be related to the external graduate occupational classification that we had developed, and we cross tabulated respondents' external graduate occupational categories with these *intrinsic* classifications. The results are intriguing, as Figure 10 reveals.

Figure 10 Mean Skills Scores by SOC (HE), 189 cases



ε

It appears from this that those in the traditional and modern graduate jobs are more likely to be employed on the basis of expert skills or knowledge, and the new graduate jobs more likely to have a strategic/managerial aspect. The average levels of interactive skills are remarkably similar across the board of graduate occupational categories, although they appear to be less often a component of traditional graduate jobs. Non-graduate jobs, not surprisingly, reveal lower skill levels on all dimensions. As the figure indicates, some graduates in 'non graduate' jobs are clearly required to exercise one or more all three kinds of skill - and this reinforces the fact that the external classification cannot take account of small graduate niches in predominantly non-graduate occupations.

There is no mutually-dependent relationship between the degree to which the three groups of skills are required in each job and indeed, a three-dimensional model would be required to depict them accurately as components of each job, but a triangular analysis, although limited, enables us to take the analysis a stage further and examine how 'skill sets' of particular occupations enables us to compare them in terms of the balance of skills required. We found when we analysed our respondents' accounts of their work that some fitted neatly towards one of the points of the triangle (i.e. that the description of the role demonstrated a high degree of emphasis on one of the three skills groups) but most graduate jobs involve the exercise of more than one type of skills. Therefore, we end up with a model where we make sense of cases relative to one another. As is obvious, where some graduate jobs appear unequivocally to require expert skills, strategic/managerial or interactive skills, others require combinations in differing degrees. Indeed, there are a distinct group of roles that require high

levels of all three groups of attributes that we refer to as hybrid jobs. This will be discussed further in the next section.

By assessing the emphasis placed on each of the three attributes in the individual roles occupied by those graduates interviewed, we can nevertheless illustrate the patterns revealed by the analysis on the basis of the skills and knowledge content of their jobs. Therefore, the jobs of graduates working in specialist professions such as medicine, biological scientist and software designer tend to be classified close to the 'expert' point, their jobs requiring limited interpersonal or management skills: so they tend to have high expertise scores and lower strategic/managerial and interactive ones.

"My degree course was obviously quite technical - it covers many aspects: pure design work... you have to look at hydrodynamics, offshore structural response, stability aspects, a lot of technical stuff and that carries through when you are doing the current job ... You are doing plan approval of ship hulls and a lot of the stuff that you were doing at university, like hydrodynamics, response of objects in water, you do as a job".

(Male Naval Architect, Shipping organisation) [Interview 076]

"They wanted somebody who could understand statistics or speak to statisticians and programme and there's plenty of programmers about but there aren't many who understand fundamental statistical concepts".

(Male Statistical Programmer, Pharmaceuticals Company)[Interview 014]

Alternatively, a regional sales manager for a drinks company required limited expert knowledge or skills but needed to be able to exercise management and interpersonal skills in relatively equal measure. Interestingly, the technical project manager for an ICT company, for example, required a high level of technical, management and interpersonal skills and therefore is depicted in the middle of the triangular figure below. Such jobs can be classified as 'hybrid'.

"..probably [I got the job] because I come from a technical background but I have client facing skills... A lot of tech-y people have problems dealing with clients and face-to-face meetings and presenting and things like that, so they were looking for a mix of, if you like, business skills mixed with technical skills. It [customer contact] probably makes up about a third of my job but it's probably the most important in the sense that if you don't fulfil that bit they're not going to want you to do the rest of the job".

(Female systems designer, ICT/Business Consultancy)[Interview 002]

Management skills were required to some extent by many of our respondents, but in some cases they were clearly central to the post:

"It's standard project management really with the addition of the fact that I have the overview of the whole programme of work that's going on... it's taking the requirements of business and making it happen

and making sure it happens in a way that means that not everything else stops... most of the time it is just trying to stop a small problem becoming a large problem”.

(Programme Manager, new media company)[Interview 020]

A good example of an essentially interactive occupation is given by that of the recruitment consultant we interviewed, talking about a typical day in her job:

“There’ll be a number of clients that I’d need to speak to about various issues whether it be interviews that had already happened or been set up or about an advert that I’m still getting authorised. Possibly, could be talking about a pitch that I’d been to the previous week or something... So, it would be quite a number of client phone calls and maybe a couple to candidates as well to discuss interviews that had already happened with the clients, getting all the feedback from them and persuading them the role they’d gone for was the most amazing job they’d ever seen in their lives! So.....,a bit of sales there..... then it could be talking to the advertising agency about an advert that was running and getting all the copy and different ideas for the advert....then most days I’d have a meeting outside of the office with some client to either discuss their needs or it would be an actual presentation where we would pitch for the business, or it may just be me presenting a shortlist of candidates that I’ve found, that I’d interviewed and they’re going to be for the job that they’ve got. I would also most likely be interviewing at least one person that day, so spending about an hour and a half interviewing someone for a role and possibly writing up my report on them as well afterwards, if I was still awake. That’s pretty much all the jobs. Some days, the day would be taken up with client meetings, some days I would be just interviewing back-to-back. But, typically it would be quite a mixture of all of those things”.

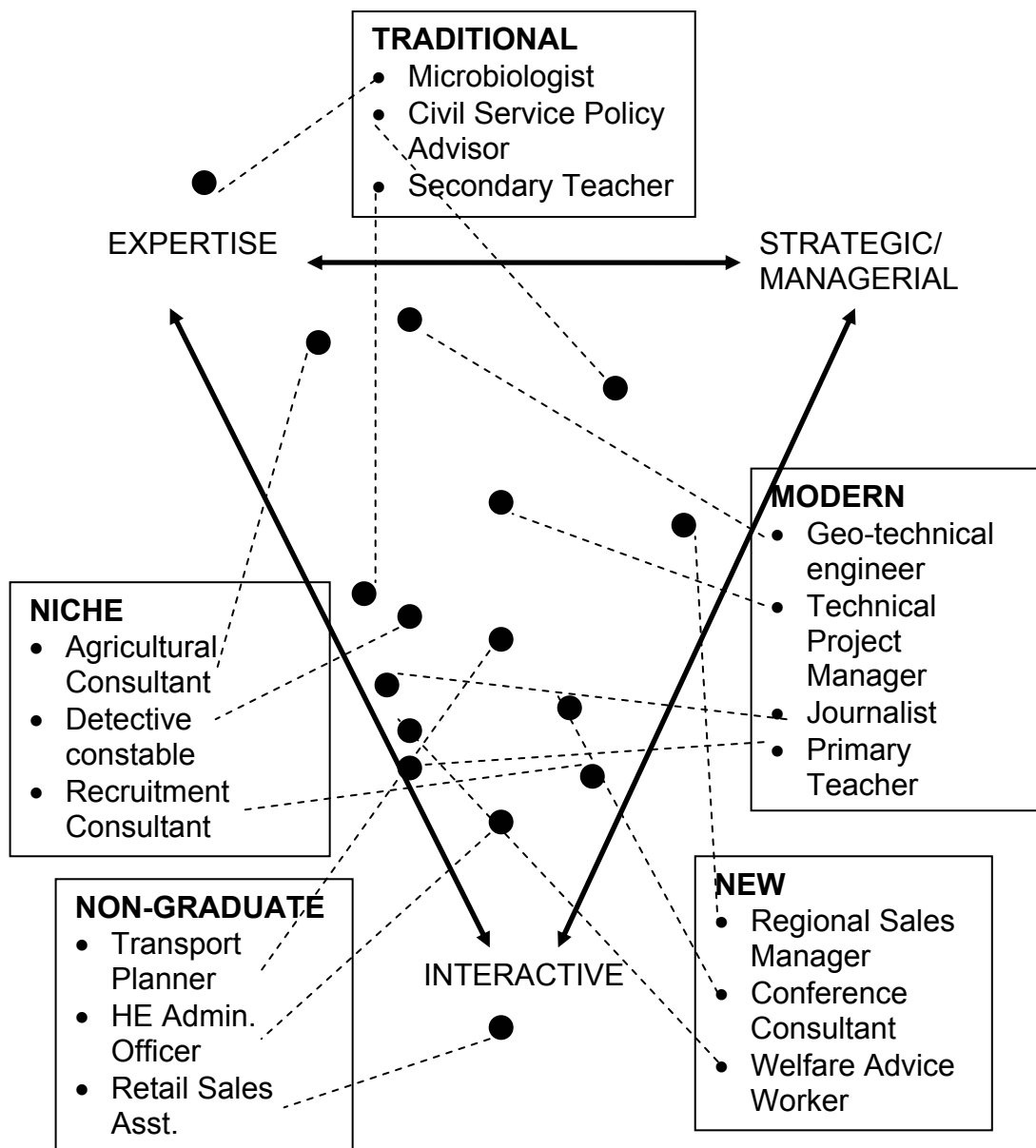
(Recruitment Consultant, small 'head-hunting' Consultancy)[Interview 051]

Plotting individual jobs according to this classification reveals systematic differences among them. However, if we go further and compare the distribution of jobs in each of the external occupational categories on this intrinsic model, we find very interesting - and different - patterns of clustering.

Figure 11 provides some examples of occupations across the spectrum of respondents, according to their scores on the three dimensions. Traditional graduate jobs are typically concentrated around the 'expert' area of the model. The jobs that we see in this figure include a microbiologist, a secondary school teacher and a Civil Service policy adviser. While all three require the possession of expertise, the first two are more firmly grounded in discipline-based knowledge for which the foundation was laid on their undergraduate programme, whereas the third draws on the generic skills and her appointment was clearly made on the basis of considering her high academic achievement as indicative of high level problem-solving, communication skills and the intellectual potential to assess evidence and think strategically. The central requirements of almost all the traditional graduate occupations reported were specialist knowledge and/or technical expertise or ability to play strategic/managerial roles. In the majority of cases, the subject or discipline-based skills developed on undergraduate degree programmes were relevant to the current occupation.

Modern graduate jobs also tended to gravitate towards the expertise end of the spectrum, but were more likely to have substantial strategic or interactive responsibilities than traditional graduate jobs. At the expert end we find a geo-technical engineer, exemplifying modern graduate jobs such as statistical programmer, software engineer, and technical author; towards the interpersonal end of the expert/interpersonal continuum we find a journalist and a primary school teacher. In the strategic/managerial corner we might have depicted a business manager or engineer with project management responsibilities. Modern graduate occupations frequently appear to occupy the middle ground of the model, those jobs requiring 'hybrid' skills; jobs where a distinct mixture of management, technical and interpersonal skills are essential to the performance of the job: like the technical project manager depicted.

Figure 11: Examples of occupational positions on the *intrinsic* classification



Source: Seven Years On Survey; Qualitative Interview Programme data

Modern graduate jobs emphasising technical expertise tend to be in the ICT and engineering sectors and tend to relate closely to undergraduate degree subject. Indeed, the hybrid jobs are often a developed version of these technical positions requiring a similar degree of expertise but incorporating (process/people) management and inter-personal (often client-facing) skills.

New graduate jobs similarly exhibit hybrid trends, but are biased towards the strategic/managerial and interactive rather than towards the expertise side of the model. New graduate jobs appear most likely to require a combination of interactive skills and expertise (e.g. welfare advice worker, pricing and business analyst) or strategic/managerial and

interactive skills (e.g. conference consultant, regional sales manager). Very often these were generic middle management jobs such as a commercial manager, unit manager: new graduate occupations where the emphasis is very much on process control.

'The reason I was taken on was because I had experience of developing software and also with working with customers which is quite a rare thing to have because most engineers in the environment I work are not very customer focussed whereas I am a very customer focussed person, ...and because I have the background of software development and I had also, in my previous company, done things like training and lots of support, software design, ... just lots of different things that they needed at [name of company] - and so they took me on in this post sales support role'. (Female Maths & Computing graduate working as Sales and Marketing Executive) [Interview 143]

Niche graduate occupations were found throughout the spectrum of possible positions, but less likely to have very high scores on any of the dimensions and more often to combine two areas of skills - (less strategic) managerial skills and interactive skills, often in new or growing areas of employment such as recruitment consultant or hotel general manager; or interactive skills and expertise (e.g. health visitor, agricultural consultant advising farmers about health and safety, innovations and, for example changes in food safety regulations). Our evidence suggests, reasonably plausibly, that such jobs tend to be placed towards the more generalist management area of the model - presumably because those with degrees are more likely to gravitate to senior roles within what is often a largely non-graduate area of employment.

The analysis of non-graduate occupations suggests, somewhat surprisingly, that these may (as some of the earlier analysis suggested) include emerging or established, but very small, 'graduate niches' within such occupations. For example, one of those we have interviewed was the secretary of a senior politician - a job advertised stating clearly that applicants should have a degree - and her education, allied to the high level management and interpersonal skills that she described having to use in the course of her work, clearly made this an appropriate job for someone with her skills and qualifications. Other non-graduate jobs that clearly were not in fact non-graduate included a grocery development manager working for a multi-national retailer. On the other hand, we interviewed graduates in both niche and non-graduate jobs who clearly were not required to use their skills and knowledge in their work or to exercise skills in any of the three 'graduate clusters' to a substantial extent and whose earnings indicated that their graduate skills were clearly not valued by their employers in monetary terms, at least. Examples of non-graduate jobs included sales assistant, School secretary and call centre team leader: examples of niche graduate jobs where the respondents were clearly outside the graduate niche included a Human Resources Assistant and a middle manager in a small hotel - but in both these cases, they were in jobs where there was the possibility of progression from their currently low-paid and not very responsible current jobs.

The exploration of the external classification using the intrinsic model leads us to feel confident that both have the potential to bring considerably more sophisticated analysis of

change in the graduate labour market and the relationship between higher education expansion, skills utilisation and occupational and organisational change. Having developed the SOC (HE) classification to a degree where we are confident that it is useful and facilitates meaningful and reliable identification of trends and the capacity to monitor change in the graduate labour market (see Elias and Purcell 2004), we are continuing to develop the analytic potential of the intrinsic skills model.

Nevertheless, these preliminary findings have implications for graduates, aspiring higher education applicants and their families, policy-makers, employers and the higher education industry itself.

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