LIFELONG LEARNING UK

Skills for Learning Professionals

Higher Education Provision in the United Kingdom

An Analysis of HE Workforce Data

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Introduction

This report is an analysis of Higher Education (HE) provision in the United Kingdom. It brings together information about the HE workforce from diverse sources, and provides an authoritative and comprehensive set of facts, figures and insights relating to the UK higher education sector.

The Higher Education Funding Council for England (HEFCE) and the Higher Education Statistics Agency (HESA) already publish HE workforce data and reports (e.g. HEFCE, 2005; forthcoming). However, the analysis in this report does not intend to replicate these other publications.

This report uses data produced by HESA to analyse the workforce to provide a holistic picture of the HE system with information on both academic and non-academic staff, including full and part-time categories; gender, age and ethnicity breakdowns. A summary of research about skills shortages, including an evaluation of the directions the sector has been moving towards in certain areas (e.g. teaching supply by subject disciplines), is also included. The main focus of the report is on the level of the national system rather than on individual institutions. However, when data has permitted more detailed regional analysis is presented.

It is intended that this report be of use to policy makers, human resource managers, administrators, relevant stakeholder bodies, and indeed anyone with a general interest in HE, its provision, and the skills challenges it faces in the immediate future.

Data set

The majority of the data reported here has been obtained from HESA which is the central source for higher education statistics, having standardised and streamlined the data collection and publication process to become the main point of reference.[1] HESA publishes five reference volumes annually, the details of which can be found in Appendix 3.

The data presented here is the most up-to-date and comprehensive available on HE. For the 2003/04 HESA data collection exercise the New Individualised Staff Return (NISR) was used. This is a staff return that covers all academic and non-academic employees who have a contract of employment with a HEI in the UK, or for whom the HEI is liable to pay Class 1 National Insurance contributions. However, the coverage excludes staff employed under consultancy contracts, or those employed on the basis of payment of fees for services. In other words, all staff without an official contract of employment with a specific HEI are not included in the record.

Qualitative information about the sector has also been analysed from various sources. HE related research published in academic journals, such as the Journal of Further and Higher Education, have been reviewed. A more detailed list of other documents referred to can be found in Appendix 4.

Report Structure

Section 1 of this report identifies the main organisations that have a stake in UK HE sector. There is a breakdown and descriptive summary of the key functions each organisation serves within the constituency. There are already a significant and growing number of cross collaborations and joint partnership initiatives in progress.

Section 2 provides an overview of the available statistics about HE in the UK, and proceeds to present a tabular and chart-driven analysis of workforce data. This statistical information is supplemented with a commentary drawing the reader's attention to findings considered to be significant. Sections 2.1 through to 2.6 are specifically concerned with workforce and skills issues as they relate to academic staff in HEIs. Sections 2.7 and 2.8 concentrate on issues impacting on non-academic staff.

[1] HESA data used in this report adheres to their reporting methodology, which requires rounding all numbers quoted in tables to the nearest 5.

1 Key Organisations Influencing Higher Education in the UK

Key organisations that have a stake in the HE constituency can be categorised into four – those with an interest in HE policy, funding councils, key government bodies and other HE related organisations.

1.1 Key organisations with an interest in Higher Education Policy

- **Higher Education Staff Development Agency (HESDA):** was the lead UK agency providing strategic advice, specialist resources and professional services for the development of people working in higher education. Some of the functions of HESDA became part of the Leadership Foundation for Higher Education from 1 August 2004 (see below), while others now fall under the remit of LLUK.

- **Higher Education Academy (HEA):** provides a central focus to support the enhancement of learning and teaching in higher education. It is an independent organisation funded by grants from the UK HE funding bodies, subscriptions from HEIs, individual fees from practitioners and grants and contract income. The Academy is owned by two higher education sector bodies; Universities UK (UUK) and the Standing Conference of Principals Ltd (SCOP) – see below.

- **Universities UK:** is the main voice of all UK universities. Its vision is to make universities more autonomous; to see them properly funded from a diversity of sources; accessible to all, delivering high quality teaching and learning; and at the leading edge of research of regional, national and international significance.

- **The Standing Conference of Principals Ltd (SCOP):** comprises the Heads of publicly-designated colleges and institutions of HE in England and Northern Ireland. SCOP's key objective is to reinforce the common ideals of its members, not least in their aim to provide enriching education and training for their students. Where appropriate, these objectives are, pursued in liaison with the other higher education representative bodies within the UK, particularly UUK, Universities Scotland and Higher Education Wales (HEW).

1.2 Funding Councils

- **Higher Education Funding Council for England (HEFCE):** distributes public money for teaching and research to universities and colleges. In doing so it aims to promote high quality education and research within a financially healthy sector. The Council plays a key role in ensuring accountability and promoting good practice.

- **Scottish Higher Education Funding Council (SHEFC):** was established in June 1992 as a non-departmental public body responsible to the Scottish Executive. The Council provides financial support for teaching, research and associated activities in Scottish higher education institutions.

- **Higher Education Funding Council for Wales (HEFCW):** assumed responsibility for the funding of higher education in Wales in April 1993. It administers funds made available by the National Assembly for Wales to support education, research and associated activities at twelve higher education institutions. It also provides funds for prescribed higher education courses at further education colleges.

- **Learning and Skills Council (Formerly FEFC):** exists to make England better skilled and more competitive. The main goal is to improve the skills of England's young people and adults, ensuring we have a workforce that is of a world-class standard.

1.3 Key Government Bodies

- **Department for Education and Skills (DfES):** on 22 January 2003 the former Education and Skills Secretary, Charles Clarke, announced the publication of the White Paper "The Future of Higher Education", which set out the Government's plans for radical reform and investment in universities and HE colleges.
- **Scottish Executive (SE):** the executive undertakes a wide range of activities to support and guide Scotland's Higher Education institutions.
- **National Assembly for Wales (NAW):** the assembly develops policy and approves legislation that reflects the needs of people in Wales.
- **National Council for Education and Training for Wales (ELWa):** is an Assembly Sponsored Public Body (ASPB) established by the Learning and Skills Act of 2000. Its remit covers further education, government-supported training, adult community learning and school sixth forms.
- **Department of Education and Learning, Northern Ireland (DELNI):** aims to promote a culture of lifelong learning and to equip people for work in a modern economy.

1.4 Other HE Related Organisations

- **The Leadership Foundation for Higher Education (a derivative of HESDA):** provides a dedicated service of support and advice on leadership, governance and management for all the UK's universities and Higher Education colleges.
- **British Council (Education and Training):** helps UK education and training providers recruit international students, develop partnerships and promote UK universities overseas.
- **Research Councils UK (RCUK):** is a strategic partnership through which the UK's eight Research Councils work together to champion the research, training and innovation they support.
- **Teacher Training Agency (TTA):** aims to raise standards by attracting able and committed people to teaching and by improving the quality of training for teachers and the wider school workforce.
- **The Joint Information Systems Committee (JISC):** supports further and higher education by providing strategic guidance, advice and opportunities to use Information and Communications Technology (ICT) to support teaching, learning, research and administration. JISC is funded by all the UK post-16 and higher education funding councils.
- **Society for Research into Higher Education (SRHE):** is an independent society aiming to improve the quality of higher education through the encouragement of debate and publication on issues of policy, on the organisation and management of higher education institutions and on the curriculum, teaching and learning methods.
- **The Quality Assurance Agency for Higher Education:** works with higher education institutions to define academic standards and quality, and carry out and publish reviews against these standards.

Partnership practices are well established between the various institutions and organisations with a stake in UK HE. For instance, the HEA is taking the lead in developing a professional standards framework for teaching and supporting the student learning experience in higher education. LLUK is collaborating with the HEA and its partners on these developments.

2 Higher Education Statistics in the UK

Workforce data is collected by HESA from all 171 HEIs in a uniform manner regardless of size, nature and location of institution. These 171 HEIs include 117 University institutions and 54 HE colleges (see table 1 below). For a more detailed list of HEIs, please see Appendix 1.

Table 1 – Number of HE institutions in the UK (August 2004)

	Universities	*University Institutions*	*Colleges of HE*	*Total*
England	74	93	41	134
Scotland	13	13	7	20
Wales	2	9	4	13
Northern Ireland	2	2	2	4
United Kingdom	91	117	54	171

Source: UUK (2004)

According to HESA in 2003/04 there was a total of 318,525 staff working across all 171 HEIs. Library staff in HEIs have been deducted from this total because they are calculated as part of another LLUK sector footprint: libraries, archives and information services (see appendix 2).

Of this total, 214,940 staff were full-time and 103,585 were part-time. The total amount of income within the HE constituency during 1 August 2003 to 31 July 2004 was £16.9 billion. The surplus of income over expenditure was £241 million.

2.1 Academic staff: Characteristics of Full Time-Part Time staff

'Academic staff' is defined as those employees whose primary function is teaching and/or research, while 'full-time' staff are defined as those whose contracts state that their mode of employment is full-time. This includes staff who work full-time for part of a year and term-time only staff who work full-time during the term. Table 2 below compares the numbers and characteristics of academic staff working in the HE constituency in 2002/03 with 2003/04.

Table 2 – Total Academic Staff of UK HEIs, 2002-2004

	Full-time		*Part-time*		*TOTAL*	
	2002/03	2003/04	2002/03	2003/04	2002/03	2003/04
Total Academic Staff	***120,800***	***106,900***	***26,080***	***43,330***	***146,875***	***150,230***
% female	35%	35%	56%	52%	39%	40%
% non white ethnicity*	6%	11%	5%	9%	6%	11%
% disabled*	2%	2%	2%	2%	2%	2%

** Based on responding staff, Sources: UUK (2004) and HESA (2005)*

The total number of staff employed in the sector has increased by 2 per cent; a notable, but slightly misleading, trend seems to be a decline in full-time staff (down 12 per cent), offset by a significant increase in part-time staff (up 66 per cent). However, this steep change is the consequence of a change in definition of full-time/part-time in 2003/04 from 2002/03. For example, the number of full-time academic staff for 2002/03 recalculated on the new basis was 105,550; in real terms the

corresponding 2003/04 figure is an increase of 1.3 per cent on this. These shifting definitions limit the scope of comparative analyses of changes in staffing proportions by modes of employment. The percentage share of ethnic minorities working as academic staff increased from 6% (2002/03) to 11% (2003/04), while the number of disabled workers remained constant at around 2%. The proportion of female staff has risen to 40%.

Table 3 below summarises the key characteristics of academic staff by the English regions and countries comprising the United Kingdom.

Table 3 – Key characteristics of academic staff employed in UK HEIs by location, 2003/04

	Academic Staff	*% part-time*	*% female*	*% non white ethnicity**	*% disabled**
North East	5,735	17%	36%	8%	2%
North West	14,785	27%	40%	10%	3%
Yorkshire & Humberside	12,690	28%	40%	10%	3%
East Midlands	10,270	30%	38%	10%	2%
West Midlands	10,110	26%	40%	12%	2%
East	9,380	22%	39%	12%	3%
London	33,115	40%	43%	16%	1%
South East	19,310	32%	41%	9%	3%
South West	8,750	27%	38%	7%	2%
Wales	7,590	25%	39%	6%	2%
Scotland	15,460	18%	39%	8%	1%
Northern Ireland	3,045	15%	37%	7%	1%
Total	***150,230***	***29%***	***40%***	***11%***	***2%***

** Based on responding staff*

London employs the most academic staff - 33,115. It also recorded the highest proportions of part-time (40%), female (43%) and non-white staff (16%) employed across the UK. The North East recorded the lowest proportion of female academic staff, just 36%. Northern Ireland had the lowest number of actual academic staff with 3,045, while Wales had the smallest percentage of staff employed from ethnic minority groups with 6%.

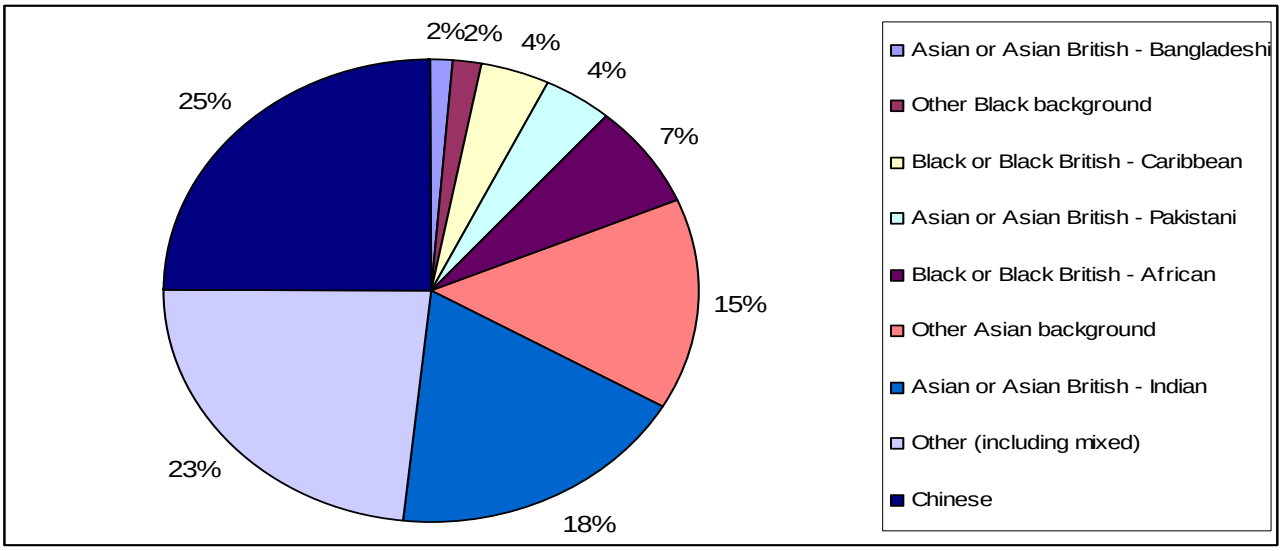
2.2 Academic staff by ethnic breakdown

In 2003/04, 86% of academic staff responded to the ethnicity question, while 14% did not give any answer. The ethnic classification 'White', which was how 89% of all responding staff classified themselves, included:

- White
- White – British
- White – Irish
- White – Scottish
- Irish traveller
- Other white background

The explanation for the 5 % rise in overall representation of ethnic minorities in academic staff in 2003/04 (11%) from the rate in 2002/03 (6%) is the fact that HESA data capture methodology changed such that it was no longer limited solely to recording staff of UK nationality. The 11% of staff from minorities (including foreign nationals – please see table 10) were distributed according to the ethnic groups shown in Figure 1 below.

Figure 1 – Academic Professionals by Ethnic Minority Groups 2003/04



The largest share of those from ethnic minorities working as academic staff were staff of Chinese origin (25%) closely followed by the 'Other' (including mixed) category which recorded 23%. This latter subgroup includes the entries: Mixed – White and Black Caribbean, Mixed – White and Black African, Mixed – White and Asian, Other Mixed background and other ethnic background.

2.3 Academic staff by Grade and Region

Academic staff in HEIs tend to be paid according to graded scales, which are typically negotiated nationally for most university staff. There are separate pay scales for 'old' and 'new' universities. In the old universities, conditions of employment (such as holiday entitlement) are negotiated locally. In the new universities, there is a national agreement covering conditions of employment. In general the highest paid grading scale is professor, while the lowest tends to be research assistant.

- Professors include heads of department, former UAP scale researchers (grade IV), clinical professors and those appointed professors on a locally determined scheme.
- Senior lecturers and researchers include principal lecturers, senior lecturers (former UAP/CSCFC scales), and former UAP scale researchers (grade III), clinical senior lecturers and those appointed senior or principal on a local scale.
- Lecturers include lecturers, senior lecturers (former PCEF scale), clinical lecturers and those appointed lecturers on a locally determined scale.
- Researchers include all research grades not listed above.
- Other grades include other grades of academic staff not listed above.

Table 4 below shows a noticeable new trend across all grades from 2002/03 to 2003/04 (apart from researchers) whereby there has been a steady shift towards part-time instead of full-time working patterns. This partly reflects macro-employment policies shaping the whole UK and global economy, which have encouraged a move towards "flexible" labour markets (Casey et al., 1997; Felstead and

Jewson, 1999). However, the degree of this shift would be less notable if consistent mode of work definitions (i.e. part-time; full-time) were to be applied to both sets of data.

Table 4 – Academic Staff of UK HEIs by Grade Employed, 2002-2004

	2002/03				*2003/04*			
	Full-time	*Part-time*	*Total*	*% female*	*Full-time*	*Part-time*	*Total*	*% female*
Professors	13,170	1,055	14,225	14%	12,325	1,200	13,525	15%
Senior lecturers and researchers	23,280	2,070	25,350	28%	21,925	2,820	24,745	29%
Lecturers	41,110	9,235	50,345	44%	37,450	16,595	54,045	45%
Researchers	35,625	5,805	41,435	46%	27,590	5,600	33,190	46%
Other grades	7,610	7,910	15,520	45%	7,615	17,115	24,725	46%
Total Academic Staff	***120,800***	***26,075***	***146,875***	***39%***	***106,900***	***43,330***	***150,230***	***40%***

The rates of employed female academic staff across all grades (except researchers) have increased slightly from those in 2002/03. However, the rate of female professors remains very low at only 15% compared with the other grades. The general pattern is the "lower" the grade the "greater" the proportion of female staff employed.[2]

Table 5 below summarises the numbers of academic staff employed by grade and location of HEIs. The proportions of staff employed by grade across the regions are fairly consistent showing marginal variation. For instance, the region with the highest proportion of professors was Northern Ireland with 12%, while the lowest proportions recorded were 8% by the North West, East Midlands, South East and Wales.

Table 5 – Academic Staff by Grade and Location, 2003/04

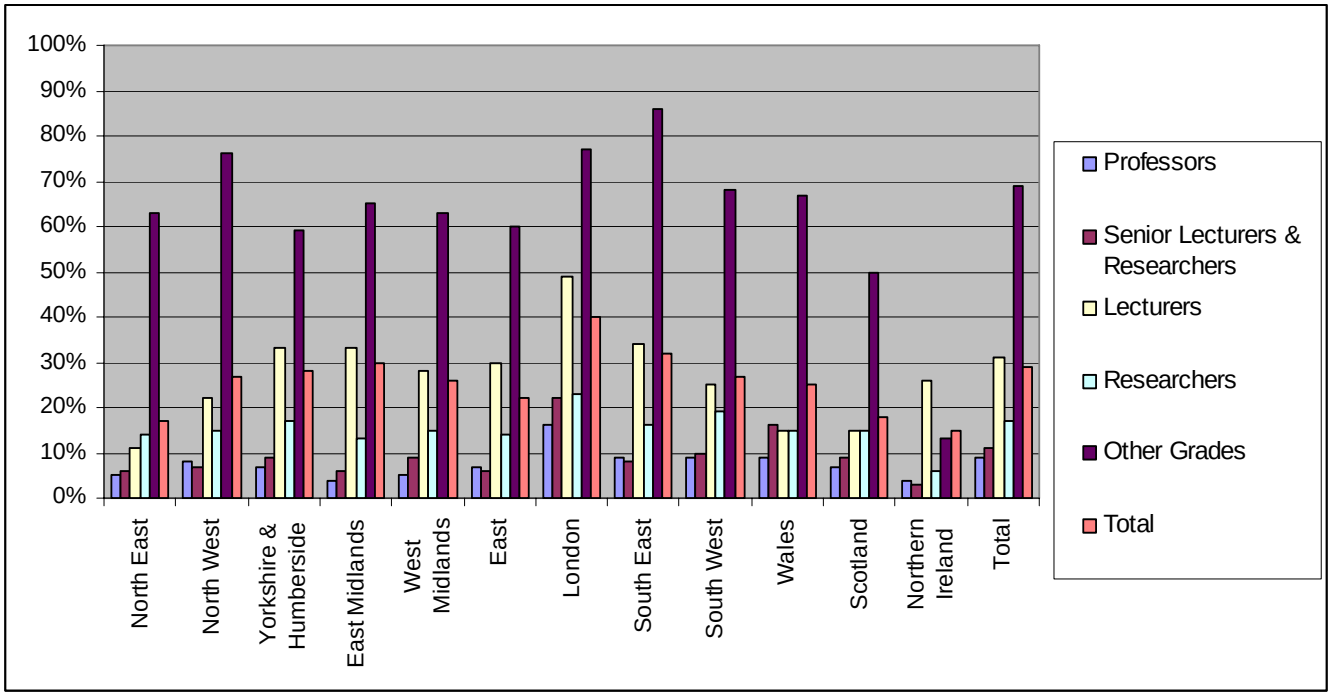
Government office region of Institution	*Grade group*					
	Professors	*Senior Lecturers & Researchers*	*Lecturers*	*Researchers*	*Other Grades*	*Total*
North East	515	965	2,135	1,295	815	5,735
	9%	17%	37%	23%	14%	100%
North West	1,250	2,055	6,105	2,755	2,620	14,785
	8%	14%	41%	19%	18%	100%
Yorkshire & Humberside	1,170	1,965	4,800	2,510	2,245	12,690
	9%	15%	38%	20%	18%	100%

[2] According to HESA the number of professors reported above is underestimated, this is due to the fact that some HEIs (including many large post 1992 universities) report their academic staff on a single grade structure. In other words, they have no independent category for the professor grade. This has to be borne in mind when making inferences about the number of professors across HEIs.

East Midlands	845	1,470	4,310	1,690	1,960	10,270
	8%	14%	42%	16%	19%	100%
West Midlands	865	1,900	4,050	1,650	1,640	10,110
	9%	19%	40%	16%	16%	100%
East	900	1,320	2,980	3,200	980	9,380
	10%	14%	32%	34%	10%	100%
London	2,870	5,665	11,740	7,250	5,590	33,115
	9%	17%	35%	22%	17%	100%
South East	1,590	3,475	5,855	4,970	3,415	19,305
	8%	18%	30%	26%	18%	100%
South West	790	1,500	3,380	1,665	1,405	8,750
	9%	17%	39%	19%	16%	100%
Wales	615	1,135	2,995	1,300	1,540	7,585
	8%	15%	40%	17%	20%	100%
Scotland	1,760	2,750	4,380	4,270	2,295	15,460
	11%	18%	28%	28%	15%	100%
Northern Ireland	350	535	1,315	630	215	3,045
	12%	18%	43%	21%	7%	100%
Total	***13,525***	***24,745***	***54,045***	***33,190***	***24,725***	***150,230***
	9%	***16%***	***36%***	***22%***	***16%***	***100%***

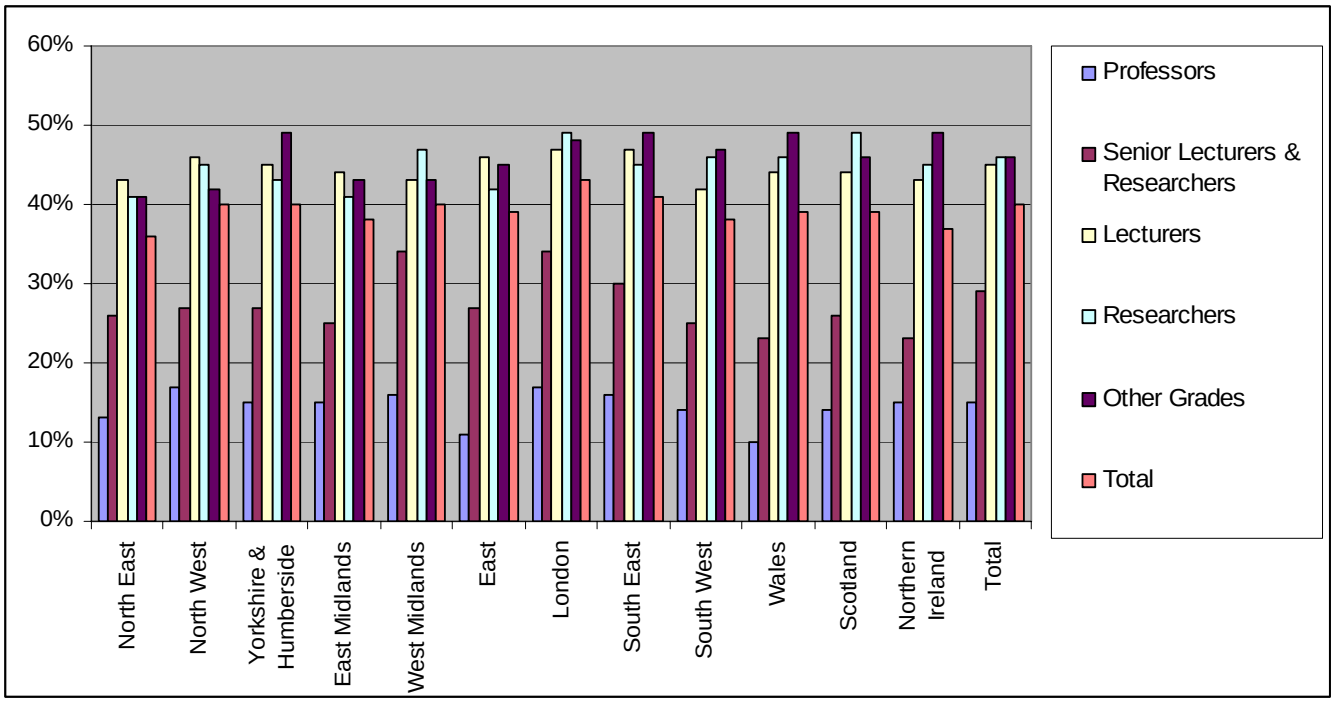
Figures 2 through to 5 present charts illustrating the proportions of part-time, female, disabled and non-white academic staff employed across UK regions and by grade.

Figure 2 – Proportions of academic staff that are part-time by region 2003/04



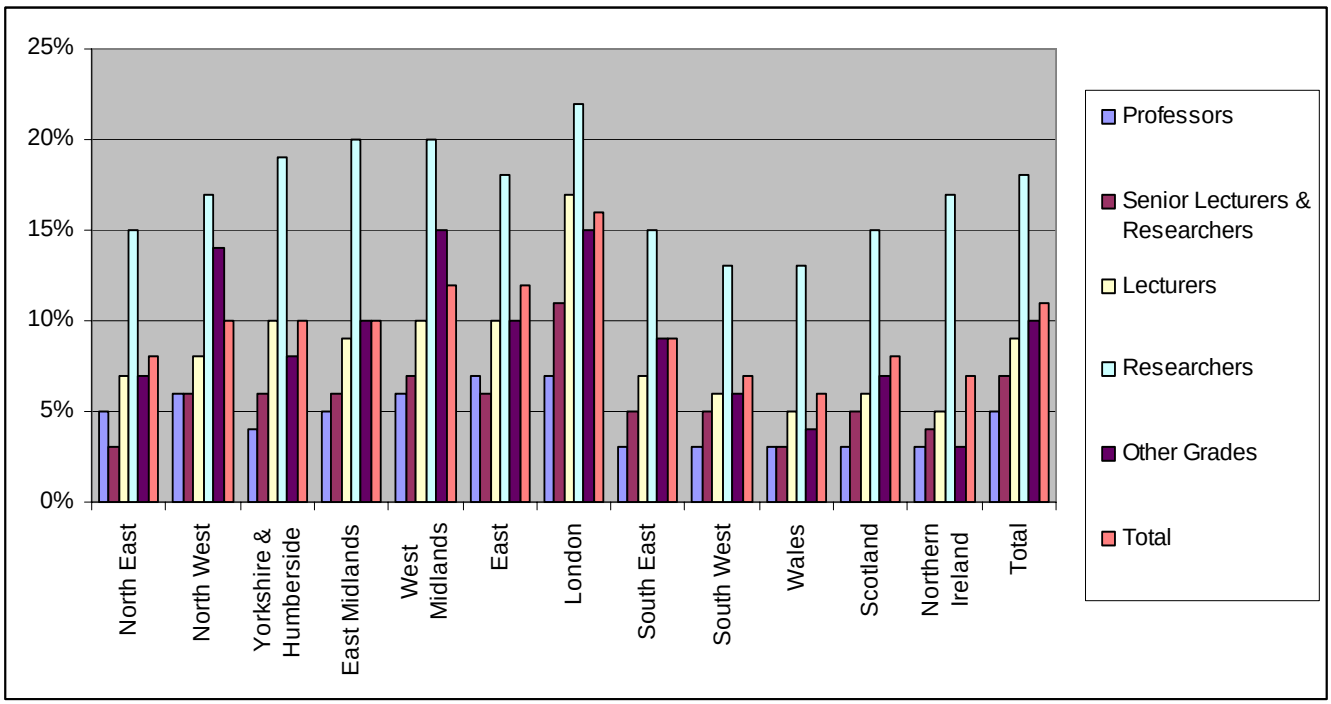
As figure 2 above shows, Northern Ireland recorded the lowest proportion of total academic staff employed on a part time basis (15%). London had the highest proportion of total academic staff employed part time (40%). The category 'Other' grades in academic staff showed the highest levels of staff employed part time. All English regions and countries (apart from Northern Ireland) had over 50% of staff employed on a part-time basis in the 'Other' category of academic staff. On average, Professors were least likely of all academic staff to be employed on a part-time basis.

Figure 3 – Proportions of academic staff that are female by region 2003/04



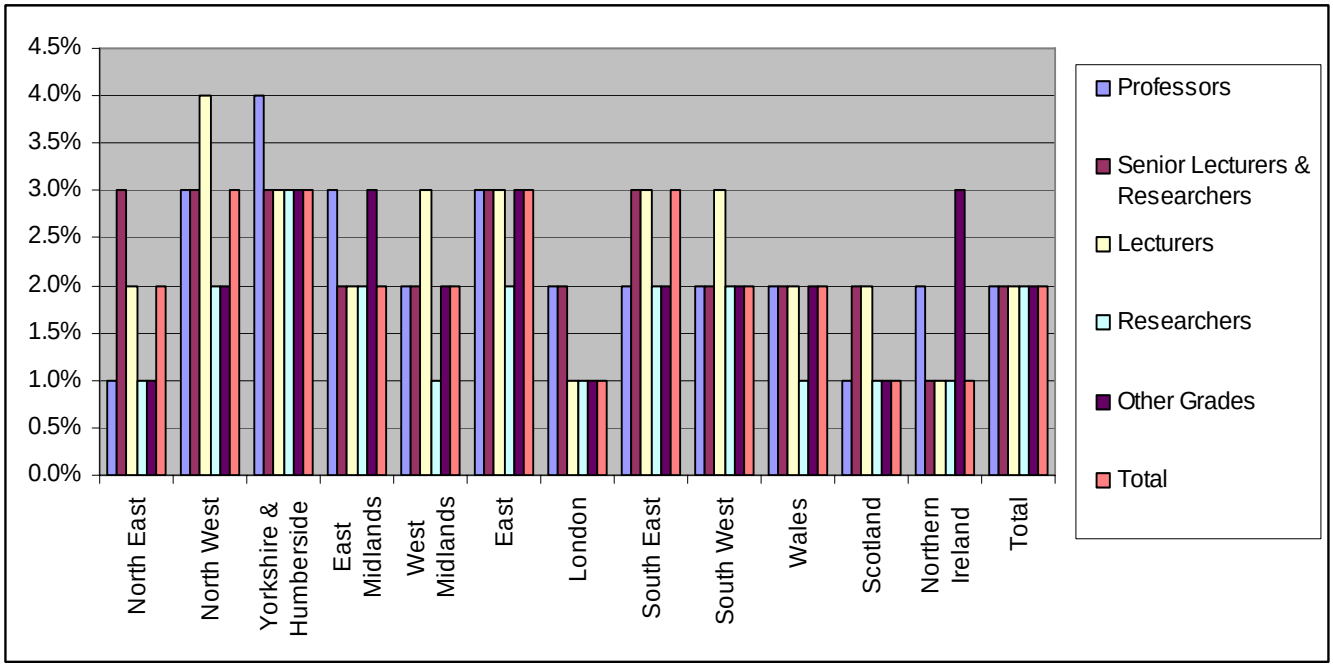
According to figure 3 above, London consistently had the highest proportions of females employed across academic grades with 43% overall; Northern Ireland had the lowest with 37%. Proportions of female professors remain relatively low as a percentage of the total workforce when compared to rates recorded for the other academic staff categories.

Figure 4 - Proportions of academic staff that are of non-white ethnicity by region 2003/04



London has the highest proportions of staff employed from non-white ethnic groups across academic grades - and in total when compared with other UK regions. Wales and Northern Ireland had the lowest proportions of staff hired from ethnic minorities. Of the various academic staff categories professors were least likely to be employed from ethnic minority groups - only 5%. On the other hand, at 18% researchers were most likely to be employed from ethnic minorities.

Figure 5 - Proportions of academic staff that are disabled by region 2003/04

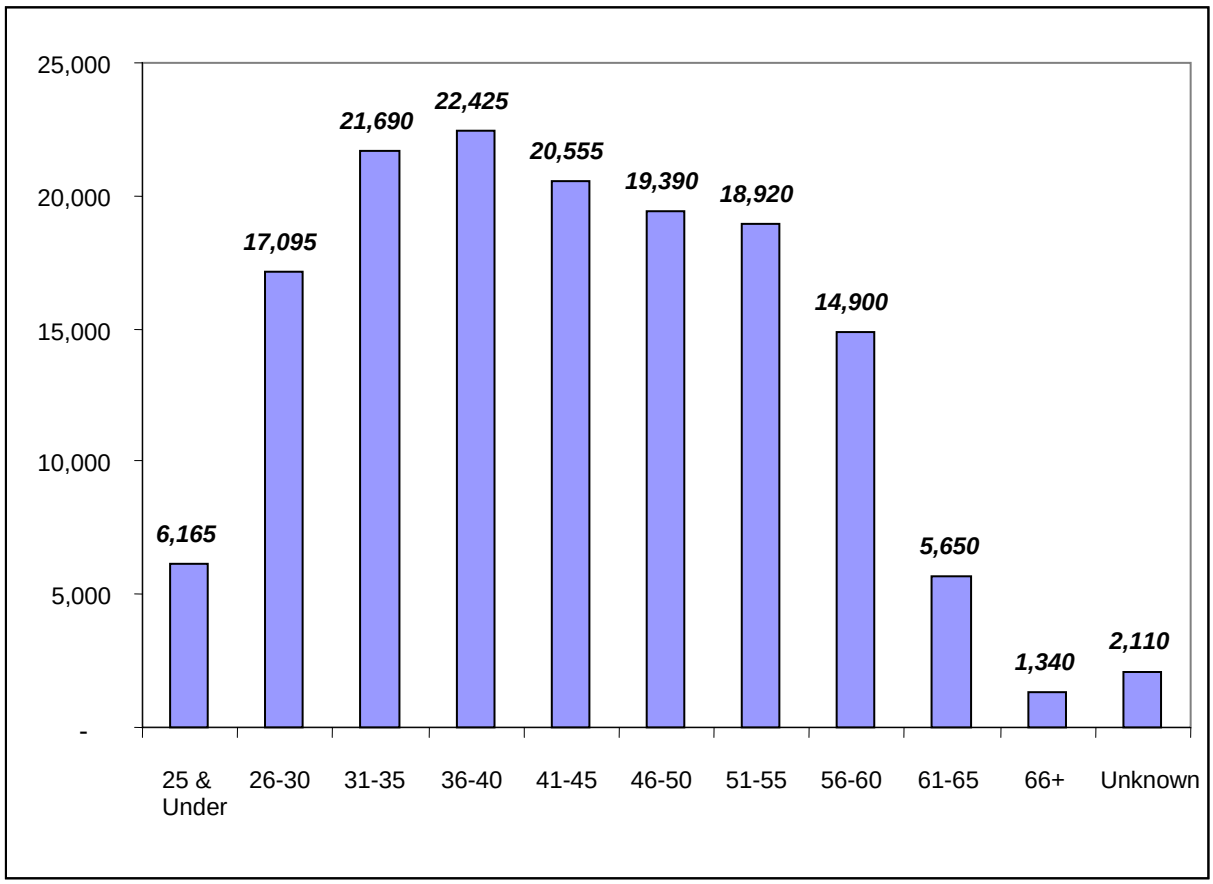


As figure 5 above demonstrates the rate of disabled staff across academic staff and by regions fluctuates between 1% and 4%. Total disabled staff employed across the English regions and the countries of the United Kingdom is consistently around the 2% mark.

2.4 Academic staff by Age and Grade

Figure 6 below illustrates that the majority of academic staff employed across HEIs fall within the 36-40 age group, while the least represented (probably due to imminent retirement) was the over 66 year-old group. In total 2,110 respondents to the NISR did not specify their age.

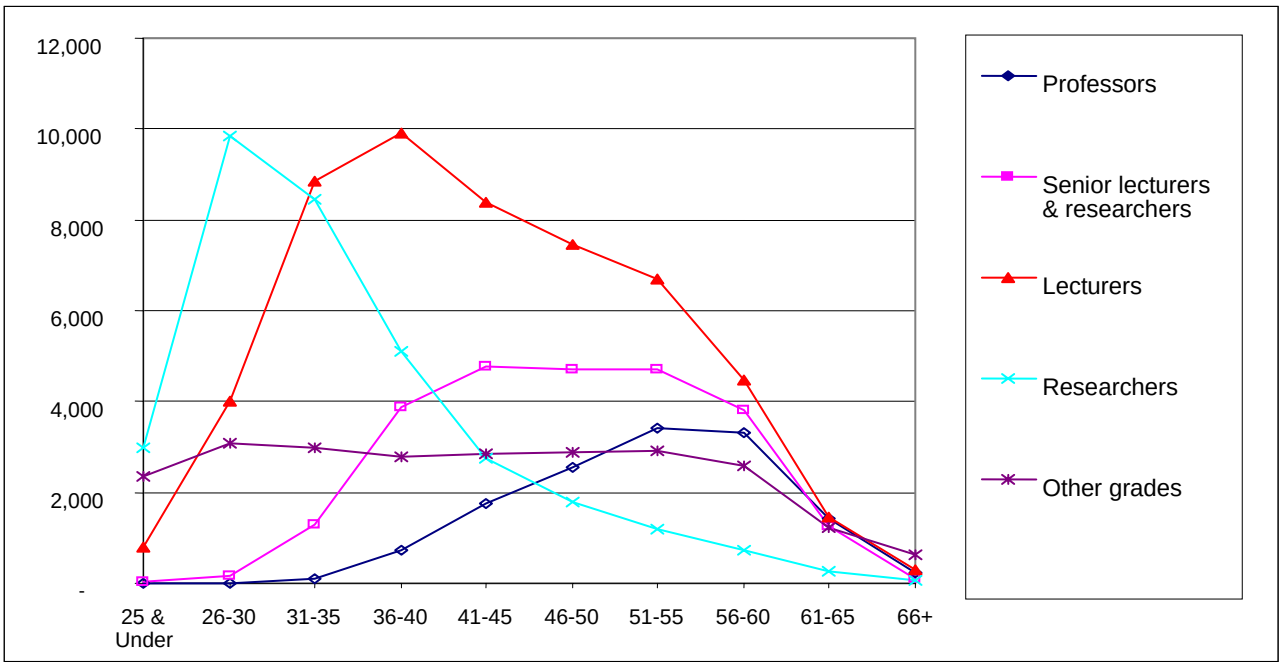
Figure 6 – Distribution of Academic Staff (Full-time + Part-time) by Age Group



In terms of the age distribution by grade, the most common age range for professors is 51-55 years old, for senior lecturers 41-45 years old, for lecturers 36-40 years old, and for researchers and the other grades 26-30 years old. There is a predictable pattern exhibited here linking grade progression/promotion with the maturing of staff.

Figure 7 below confirms that the higher the grade the older in general the member of staff in that scale. For example, there were no recorded professors less than 25 years old across HEIs; there were just 5 professors between 26-30 years old, and only 90 in the 31-35 range. On the other hand, researchers/lecturers were highly represented in the 'younger' age groups, but decreased rapidly in number after 40 years old.

Figure 7 – Age Distribution of Academic Staff by Grade



2.5 Academic Staff: Highest Qualifications

Table 6 below summarises the highest qualifications held by academic staff across the regions. The most significant observations we can make are that over 95% of academic staff across the country are qualified to at least first degree level; 76% of staff are qualified to postgraduate level, and 47% are qualified to doctoral standard.[3]

Table 6 – Highest Qualification of Academic Staff by Location, 2003/04

	Not known	*No Formal Qualifications*	*Level 2*	*Level 3*	*Professional – first degree*	*Postgraduate degree or higher*	*Doctorate*	*Other Qualifications*	*TOTAL*
North East	305	10	-	5	1,225	1,625	2,290	270	5,735
North West	2,145	40	5	35	2,375	4,330	5,560	295	14,785
Yorkshire & Humberside	1,775	200	10	10	1,820	3,280	5,360	235	12,690
East Midlands	1,295	40	15	25	1,750	2,915	3,860	370	10,270
West Midlands	1,600	15	20	40	1,465	2,860	3,810	300	10,110
East	595	25	10	10	1,630	2,805	4,120	185	9,380
London	7,460	1,395	10	35	4,350	7,355	11,595	915	33,115
South East	2,310	95	5	15	2,795	4,780	8,800	510	19,305

[3] The calculation of these proportions excludes staff whose qualifications were not known.

South West	750	65	5	10	1,430	2,430	3,760	300	8,750
Wales	1,145	15	5	5	1,520	1,780	3,020	90	7,585
Scotland	1,995	25	15	10	3,270	2,890	6,635	620	15,460
Northern Ireland	735	-	-	-	330	715	1,260	-	3,045
Total	***22,120*** ***(14.7%)***	***1,925*** ***(1.3%)***	***95*** ***(0.1%)***	***195*** ***(0.1%)***	***23,965*** ***(16.0%)***	***37,770*** ***(25.1%)***	***60,075*** ***(40.0%)***	***4,085*** ***(2.7%)***	***150,230*** ***(100%)****

Notes: Level 2 includes 'O' level/GCSE or equivalent (NVQ/SNVQ Level 2). Level 3 includes 'A' level, Scottish Higher or equivalent (NVQ/SVQ Level 3). Professional includes first degree (with and without OTS), Diploma in higher education (HNC and HND), other undergraduate qualification (including professional), or NVQ/VRQ/SNVQ Level 4. Postgraduate degree or higher includes PGCE, Other Higher Degree, Other Postgraduate qualification (including professional). Other Qualifications includes qualifications that do not fit any other of the preceding categories. The above data has been rounded according to HESA conven*tion so the sum of numbers in each row or column may not match the totals shown precisely.*

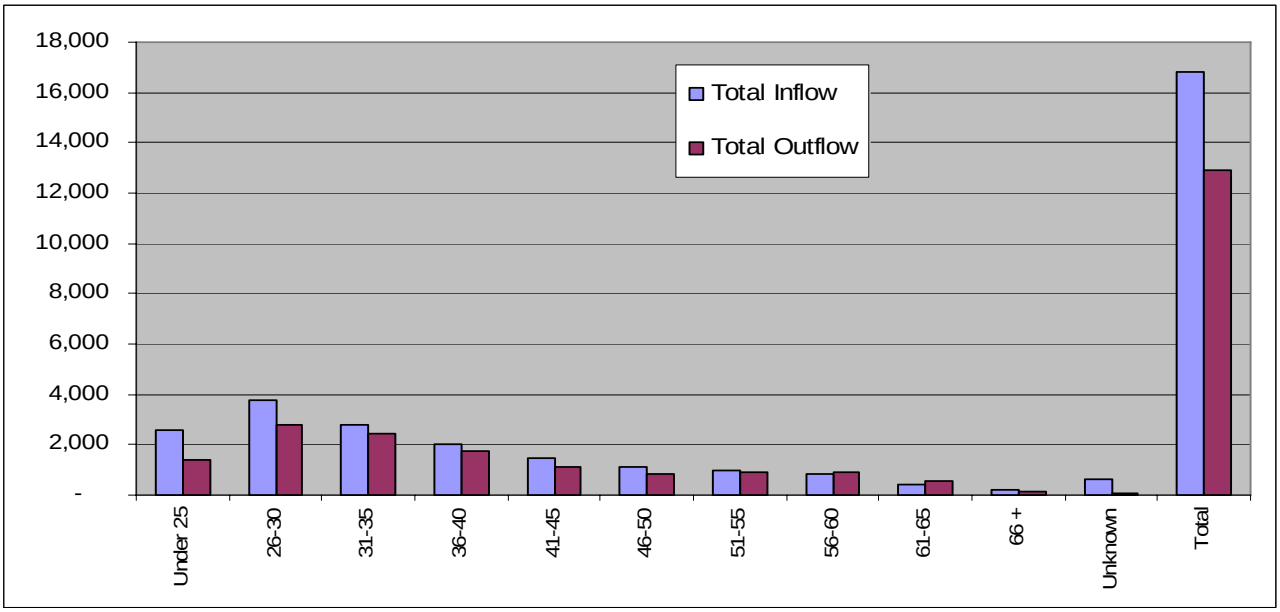
**The proportions calculated here are not the same as the ones cited above in paragraph 4.27 because of the inclusion of the not known category.*

One notable finding from additional analysis of the qualifications data by grade is that the lower scales of academic staff such as Researchers (26%) and Lecturers (27%) have higher proportions of those qualified to doctoral level in comparison with the more advanced academic grades including Professors (17%) and Senior Lecturers (24%). This indicates that the upcoming HE workforce is becoming progressively better qualified.

2.6 Academic staff: Teaching Skills Shortages

In 2003/04 there was a surplus of staff (around 4,000) coming into the HE sector, so inflow far exceeded outflow (see figure 8 below). Based on the assumption that the current levels of supply and the rate of inflow and outflow remain the same, recruitment in the LLUK footprint should continue to satisfy demand.[4]

Figure 8 – Inflow and Outflow of Academic Staff by Age Group, 2003/04



However, using projections of current staff trends to predict the level of recruitment needed for HE in the near future has key limitations. Primarily the characteristics of populations are not static. The number of young people is going to increase and there have been plans to raise participation rates across higher education. For example, according to reports by Ramsden (2004) and UUK (2004) student enrolment numbers have increased by 39 % (or 600,000) between 1994/95 to 2002/03. Therefore, future demand for courses is likely to be even higher than those of current levels. A recent report written for HEFCE predicts that Universities may need to hire as many as 20,000 academics if the Government achieves its target of getting 50% of 18 to 30-year-olds into higher education. The report also estimates that an extra 30,000 professional and support staff will be required in 2010/11 compared with 2003/04.

Table 7 shows the most consistent increases in staff levels by academic subjects taught between 1995/6 and 2003/4. Subjects allied to medicine have risen most rapidly with a 66 % increase, closely followed by computer science (up 56 %). The noticeable rate of growth in staff levels in subjects related to medicine is largely the product of mergers between HEIs and nursing schools.

These increases mirror the extreme rates of growth in student enrolments recorded for these subjects between 1994/5 and 2001/02, which have gone up 142 % for subjects allied to medicine and 82 % for computer science. (See Ramsden, 2004: 63-4).

[4] This is in line with the projections made by HEFCE (2002), suggesting 'all the projections we have carried out imply that current recruitment rates would maintain overall staff numbers in the future' (p. 35).

Table 7 – Numbers of permanent academic staff increases by subject area

Subject	*1995-96*	*2000-01*	*2003-04*	*% Change (1995-2003)*
Subjects allied to medicine	3,115	4,615	5,180	66%
Computer science/librarianship/info science	1,935	2,560	3,020	56%
Creative arts/design	2,560	3,170	3,635	42%
Business/administrative studies	3,015	3,505	3,860	28%
Biological sciences	4,655	5,495	5,880	26%
Law	1,560	1,795	1,915	23%
Education	2,895	3,215	3,545	22%
Veterinary sciences/agriculture and related	475	500	550	15%
Social/political/economic studies	6,170	6,790	6,895	12%
Unknown and combined subjects	5,100	3,280	5,720	12%
Humanities	3,160	3,460	3,460	9%
Languages	3,965	4,055	4,050	2%
All subjects	***51,310***	***54,645***	***59,310***	***16%***

Source: HEFCE (2005); following HESA convention numbers have been rounded so totals may not sum exactly.

But there are also some well pronounced skills shortages in HE teaching provision. Notable shortfalls exist in the teaching of four subject areas: mathematical sciences, physics, chemistry and engineering related disciplines. In these subjects previous and current recruitment patterns and strategies have proved insufficient to maintain staff levels (see table 8).

To exacerbate matters, Ramsden (2004: appendix 1) reports that student numbers increased by 9 % for mathematical sciences between 1994/5 and 2001/02, but student numbers for physics (down 12 %), chemistry (down 19 %) and engineering and related subjects (down 5 %) have all decreased.

Table 8 – Numbers of decline of permanent academic staff by subject area

Subject	*1995-96*	*2000-01*	*2003-04*	*% Change (1995-2003)*
Engineering/technology/building/architecture	5,700	5,235	4,920	-14%
Mathematical sciences	2,210	2,130	2,000	-10%
Physics	1,835	1,765	1,645	-10%
Chemistry	1,640	1,550	1,485	-10%

Source: HEFCE (2005); unlike the table in HEFCE the above data has been rounded according to HESA convention.

Decreasing teaching supply has meant that those entering the academic labour market as lecturers for ‘shortage’ subjects have generally received on average higher pay. A study by HEFCE (2005) investigating the numbers and pay of academics in England over the past eight years has shown that lecturers in physics, chemistry and mathematics get the highest pay, largely because their numbers are diminishing. Thus, the median salary for physics academics on permanent contracts was £41,330 in 2003/04, - about £6,000 higher than the median for the HE sector as a whole (see table 9). Paying ‘in demand’ or ‘low supply’ staff higher salaries is a strategy universities have used to ensure they retain their much-needed services.

Table 9 Salaries of Permanent Academic Staff, 2003-04

Subject	*Number of staff*	*Median salary*	*% of staff earning £50,000+*
Physics	1,635	£41,330	21
Chemistry	1,485	£40,010	20
Mathematical sciences	1,990	£39,350	18
Biological sciences	5,865	£38,920	18
Other physical sciences	1,555	£38,920	16
Engineering/technology/building/architecture	4,900	£37,770	14
Social/political/ economic studies	6,855	£36,460	13
Humanities	3,440	£36,460	12
Veterinary sciences/agriculture and related	545	£35,880	11
Law	1,910	£35,370	13
Subjects allied to medicine	5,155	£35,370	11
Business/administrative studies	3,835	£35,370	10
Languages	4,020	£35,370	10
Computer science/librarianship/info science	3,005	£35,370	6
Education	3,510	£35,370	4
Creative arts/design	3,605	£35,370	3
Unknown and combined subjects	5,480	£35,370	14
All subjects	58,785	£35,370	12

Source: HEFCE (2005); unlike the table in HEFCE the above data has been rounded according to HESA convention.

Another technique which has been used in HE to curb subject teaching shortages has been recruiting academic staff from foreign countries. This has led to a notable influx in the past ten-years of staff not being UK nationals. Table 10 shows the change in numbers of staff by nationality. The biggest increase is in the number of Eastern and Central European staff, which has risen by 164 % since 1995/6. Western European and Scandinavian staff are the largest group after UK nationals and have also grown rapidly by 120 % since 1995/6.

Table 10 – Change in Permanent Academic Staff by Nationality

Nationality	*1995-96*	*2000-01*	*2003-04*	*% Change (1995-2003)*
Eastern and Central Europe	285	590	805	164%
Western Europe and Scandinavia	1,285	2,155	3,020	120%
China, Japan and East Asia	270	390	525	84%
Middle East and Central Asia	430	515	680	48%
Australia, US, Canada and New Zealand	1,235	1,605	1,925	46%
Other non-European nationality	435	505	610	32%
UK	42,965	46,420	50,300	10%
Unknown	4,405	2,470	1,450	N/A
Total	***51,310***	***54,645***	***59,310***	***16%***

Source: HEFCE (2005); unlike the table in HEFCE the above data has been rounded according to HESA convention.

Addressing the widening skills gap for the teaching of certain subjects is crucial. Current research carried out by the Institute of Education calculates rates of return to education based on the assumption that if wages reflect productivity we can use this to measure the impact of specific qualifications (Vignoles, 2005).[5] Research shows that average rates of return to an undergraduate degree are far higher than for other qualifications (see table 11 below).

Table 11 – Returns to Specific Qualifications*

Qualification	*Men*	*Women*
O Levels – GCSE	12-21%	10-19%
A Levels	15-18%	18-23%
Degree	10-28%	21-26%
Level 1-2 NVQ/BTEC First	Nil	Nil
Level 3-5 NVQ	6-9%	1-5%
C&G Craft	4-7%	Nil
C&G Advanced	7-10%	Nil
ONC/OND/ BTEC National	7-12%	8%
HNC/ HND	6-22%	3-12%

*Additive wage premiums: hence to calculate return to the usual route to a degree one must sum returns to O levels, A levels and a Degree.

Source: Vignoles (2005) – controls for ability, ethnicity, family background, region and employer type.

[5] Rates of return tell us about the relative supply of and demand for qualifications; high returns means high demand and/or low supply, while low returns mean low demand and/or high supply. The overall rate of return to education in the UK is quite stable. The UK generally exhibits high private returns to academic qualifications. However, some newer low level vocational qualifications yield nil/low returns. The Centre for Economic Performance at the London School of Economics along with the Centre for the Economics of Education at the Institute of Education both carry out extensive research in this area.

Rates of return are highest for the degree subjects; Accountancy (42.2%), Electrical engineering (40.7%) and Maths and computing (37.2%). The latter two are important subjects identified above as having shortages of staff able to teach in these areas.

Universities UK (2005) has devised a number of policies/strategies to maintain the competitiveness of UK higher education and to reinvigorate science and engineering allied disciplines. They aim to work closely with the British Council, DfES, the Office for Science and Technology (OST), Scottish Executive, Welsh Assembly Government and the Department for Employment and Learning Northern Ireland to ensure the UK remains one of the countries of choice for international students. An additional aim is to continue to provide quality teaching and improve career prospects for domestic learners.

2.7 Non-academic staff: Staff Volume and Characteristics

Table 12 below shows the number of non-academic staff by location of HE institution. This was calculated by excluding library staff (please see appendix 2).

HESA uses a modified version of the Standardised Occupational Classification (SOC) code to distinguish between non-academic staff. These employees are defined as workers who fall into 1 of 12 occupational groups such as managers, non-academic professionals, student welfare workers, secretaries, caretakers and cleaners. Table 13 provides their details.

Table 12 – Characteristics of Non-academic staff by location of HEI 2003/04

	Total Staff	*Library staff*	*All staff excluding Library*	*% female*	*% part-time*	*% non white ethnicity*	*% disabled*
North East	8,710	910	7,800	66%	37%	3%	1%
North West	18,805	2,205	16,600	63%	33%	6%	4%
Yorkshire & Humberside	16,395	1,880	14,510	64%	39%	8%	4%
East Midlands	12,930	1,405	11,525	63%	41%	7%	3%
West Midlands	13,870	1,810	12,060	65%	33%	10%	2%
East	11,460	1,115	10,345	61%	32%	5%	4%
London	29,130	3,575	25,550	60%	28%	21%	2%
South East	30,320	2,670	27,645	59%	49%	6%	3%
South West	11,770	1,275	10,495	64%	38%	3%	3%
Wales	9,245	735	8,510	62%	32%	3%	3%
Scotland	20,970	1,720	19,250	63%	31%	2%	1%
Northern Ireland	4,275	275	4,000	62%	32%	1%	2%
Total	***187,875***	***19,575***	***168,300***	***62%***	***36%***	***8%***	***3%***

Table 13 – Non-academic staff by activity 2003/04

Non-Academic Staff by occupational group	*No of Staff*	*% female*	*% non white ethnicity**	*% disabled**
Managers	11,665	46%	4%	2%
Non-academic professionals	27,170	54%	6%	3%
Laboratory, engineering, building, IT & medical technicians (including nurses)	27,240	34%	8%	3%
Student welfare workers, careers advisors, vocational training instructors, personnel & planning officers	7,270	73%	8%	4%
Artistic, media, public relations, marketing & sports occupations	4,705	55%	6%	2%
Clerks & general administrative assistants**	24,935	81%	8%	3%
Secretaries, typists, receptionists & telephonists	19,600	94%	6%	2%
Chefs, gardeners, electrical & construction trades, mechanical fitters & printers	5,510	18%	6%	3%
Caretakers, residential wardens, sports & leisure attendants, nursery nurses & care occupations	4,910	53%	6%	2%
Retail & customer service occupations	1,120	76%	8%	3%
Drivers, maintenance supervisors & plant operatives	1,535	22%	4%	3%
Cleaners, catering assistants, security officers, porters & maintenance workers	32,630	62%	11%	3%
Total Non Academic Staff	***168,300***	***62%***	***8%***	***3%***

*Notes: * Based on responding staff; ** Library staff have been excluded from this occupational group.*

Two key factors can be distinguished from the characteristics of non-academic staff when compared with academic staff across HEIs:

- First, there is a far higher share of female staff who accounted for 62% of all occupations when compared with their representation in academic staff (40%). Consistent with gender stereotypes of what are deemed 'common' jobs for females, secretaries, typists, receptionists and telephonists were the most common occupations women were to be found in, with 94% doing these jobs. Women were least represented in roles such as chefs, gardeners, electrical & construction trades, mechanical fitters and printers, with only 18% found in these careers. They were also considerably less likely than men to be drivers, maintenance supervisors and plant operatives (22%).

- Second, people from ethnic minorities were less represented amongst non-academic staff than they are in academic jobs with all non-academic occupations - apart from cleaners, catering assistants, security officers, porters and maintenance workers - falling beneath the 11% threshold. Only 4% of Managers were from ethnic minority groups making this the least represented occupation by minorities. Many universities have been required to set up specific action plans for equality. HEFCE (2005b) have undertaken research into equal opportunities and diversity for staff in HE and make a number of recommendations of best practice for HEIs to improve equal opportunities. For example, 15% of Bradford University staff claim ethnic backgrounds, but the university is still keen to work towards the local proportion of 22%.

Currently HESA do not collect complete information about the highest qualifications of non-academic staff. The data collected is for certain categories only and as a result the value of any statistical analysis is limited.

2.8 Non-Academic Staff: Skills Shortages

Very little data is available on specific skills shortages amongst non-academic staff in HE. The prime source remains the generic NESS (2003) survey which uses SIC codes to represent the Lifelong Learning workforce. The report argues that the most common areas of skills deficiency across the Lifelong Learning sector (including HE) were technical and practical skills (41 %), followed by communication skills (39 %) and customer handling skills (33 %). The key causes of internal skills gaps were due largely to staff being recently recruited or having a lack of experience (cited by 75 % of establishments with a skills gap), followed - at some distance - by the inability of staff to keep apace with change (30%).

HESDA's (2002) skills foresight analysed the significance of skills gaps in HE. The key gaps identified for academic staff were related to IT skills for learning and e-learning, learning and teaching as well as assessment skills, while management skills, computer literacy and team-working were the generic skills needs highlighted across all the higher education occupational brackets (i.e. encompassing both academic and non-academic jobs).

1. Conclusions

- In 2003/04 there was a total of 318,525 staff working across all the 171 HEIs. Of this total 214,940 were full-time and 103,585 were part-time.
- Women accounted for 52% of all staff across the sector, with females having a 40% share in academic staff and a 62% share of non-academic jobs.
- Non-white ethnic minorities accounted for 9% of all staff, with an 11% share in academic jobs and an 8% share in non academic jobs.
- Disabled employees accounted for 3% of the total workforce; 2% of academic staff were disabled as were 3% of non-academic workers. There is also a notable pattern of an increase in part-time modes of work across higher education institutions.
- The key recruitment and skills shortages amongst academic staff are related to the teaching of subject areas such as mathematics, physics, chemistry and engineering. Due to a stagnant and limited supply of teaching skills in these areas, those who can teach the subjects, and others hoping to work in HE as lecturers within these areas of expertise, receive higher pay when compared with lecturers of other subjects. Low teaching supply seems to have an influence on student demand for such degree subjects, but more research is needed to see what the prime driver is.
- There is little research available on specific skills gaps in non-academic occupations within HE. What information is accessible is generic and based on SIC codes that do not map well to the lifelong learning sector and consequently the HE constituency. A familiar range of skills shortages are highlighted as lacking across all occupational categories, including management skills, computer literacy and team working skills.
- MacKenzie (2002) draws on conclusions from the Dearing report to reiterate the need for HE programmes to enhance students' basic skills, a significant one being numeracy skills. The key conclusion is that HE institutions need to consider carefully how to provide good educational opportunities for individuals with low motivation to engage in maths-related activity. There is also an urgent need to challenge cultural myths and stereotyping related to learning maths if the next generation of graduates is to have more confidence in their maths skills. These skills needs for basic numeracy amplify the case for intervention to curtail the declining teaching supply of mathematics and related disciplines across UK HEIs.
- There are no tangible predictions that can be made about the impact globalisation will have on the UK HE workforce. However, a couple of speculations are possible. First, the increasing inter-penetration of labour markets will facilitate the continued influx of university lecturers, who are not UK nationals – a trend that is already clearly visible.[6] Second, the need to be competitive, both internationally as well as nationally, will see the continued 'cost' rationalisation of UK universities. Greenaway and Haynes (2003) argue that while higher education has undergone considerable expansion in the UK in recent decades where aggregate student numbers have doubled in 20 years, over the same period funding per student has halved in real terms. The greater the pressures become for universities to operate in an efficient and businesslike manner the more likely it will be that permanent jobs will decline and contract and part-time work will increase. These are trends already found in HE workforce data.[7]

[6] http://www.dfes.gov.uk/pns/DisplayPN.cgi?pn_id=2005_0040.

[7] The first findings of the 2004 Workplace Employee Relations Survey have been published on the DTI website. The main highlight has been the spread of family friendly working practices. The survey shows a substantial increase in the availability of flexible working and leave arrangements in British workplaces since 1998, including: home working (28%, up from 16% in

- HESA provides comprehensive annually updated workforce data about HEIs, one based on a reliable and exhaustive collection methodology. However, LLUK proposes an extension to HESA's current staff return specification, which is to extend the return to include additional skills-related questions. These need to be agreed upon and implemented in consultation with HEFCE and the DfES. This will greatly assist LLUK to conduct a thorough Skills Needs Assessment and foresight to inform and assist HE stakeholders through the Sector Skills Agreement process.

- There is a great deal of research still to be done to assess the regional impact of HEIs. The Economic and Social Research Council (ESRC) in partnership with the four UK funding councils began consultation on a new initiative to address the impact of HEIs on regional economies. There is acknowledgment of the need to recognise more fully the dynamics operating in different parts of the UK and their consequences for local communities. There is also a greater need for an understanding of the issues determining recruitment both regionally and nationally and how this relates to skills issues.

1998); term-time only working (28%, up from 14%); flexi-time (26%, up from 19%); job-sharing (41%, up from 31%); parental leave (73%, up from 38%); and paid paternity leave (92%, up from 48%).

Appendix 1: Universities and higher education colleges in England, Scotland, Wales and Northern Ireland

England	England Continued
Anglia Polytechnic University	St Martin's College
Aston University	St Mary's College
Bath Spa University College	The University of Salford
The University of Bath	The School of Oriental and African Studies
Birkbeck College	The School of Pharmacy
Birmingham College of Food, Tourism and Creative Studies	Sheffield Hallam University
The University of Birmingham	The University of Sheffield
Bishop Grosseteste College	Southampton Institute
Bolton Institute of Higher Education	The University of Southampton
The Arts Institute at Bournemouth	Staffordshire University
Bournemouth University	The University of Sunderland
The University of Bradford	The Surrey Institute of Art and Design, University College
The University of Brighton	The University of Surrey
The University of Bristol	The University of Sussex
Brunel University	The University of Teesside
Buckinghamshire Chilterns University College	Thames Valley University
The University of Cambridge	Trinity and All Saints College
The Institute of Cancer Research	Trinity College of Music
Canterbury Christ Church University College	University College London
University of Central England in Birmingham	The University of Warwick
The University of Central Lancashire	University of the West of England, Bristol
Central School of Speech and Drama	The University of Westminster
University College Chester	Wimbledon School of Art
University College Chichester	University College Winchester
City University	The University of Wolverhampton
Conservatoire for Dance and Drama	University College Worcester
Coventry University	Writtle College
Courtauld Institute of Art	York St John College
Cranfield University	The University of York
Cumbria Institute of the Arts	Ravensbourne College of Design and Communication
Dartington College of Arts	The University of Reading
De Montfort University	Roehampton University
University of Derby	Rose Bruford College
University of Durham	Royal Academy of Music
The University of East Anglia	Royal Agricultural College
The University of East London	Royal College of Art
Edge Hill College of Higher Education	Royal College of Music
The University of Essex	The Royal College of Nursing
The University of Exeter	Royal Holloway and Bedford New College
Falmouth College of Arts	Royal Northern College of Music
University of Gloucestershire	The Royal Veterinary College
Goldsmiths College	St George's Hospital Medical School
The University of Greenwich	College of St Mark and St John

Harper Adams University College	**Wales**
University of Hertfordshire	University of Wales, Aberystwyth
Homerton College	University of Wales, Bangor
The University of Huddersfield	Cardiff University
The University of Hull	University of Wales Institute, Cardiff
Imperial College of Science, Technology & Medicine	University of Glamorgan
Institute of Education	The University of Wales, Lampeter
The University of Keele	University of Wales College of Medicine
The University of Kent	The University of Wales, Newport
Kent Institute of Art & Design	The North-East Wales Institute of Higher Education
King's College London	The University of Wales, Registry
Kingston University	Royal Welsh College of Music and Drama
The University of Lancaster	Swansea Institute of Higher Education
Leeds Metropolitan University	University of Wales, Swansea
The University of Leeds	Trinity College, Carmarthen
The University of Leicester	
The University of Lincoln	
Liverpool Hope University College	
Liverpool John Moores University	**Scotland**
The University of Liverpool	The University of Aberdeen
University of the Arts, London	University of Abertay Dundee
London Business School	Bell College
University of London (Institutes and activities)	The University of Dundee
London Metropolitan University	Edinburgh College of Art
London South Bank University	The University of Edinburgh
London School of Economics and Political Science	Glasgow Caledonian University
London School of Hygiene & Tropical Medicine	Glasgow School of Art
Loughborough University	The University of Glasgow
University of Luton	Heriot-Watt University
University of Manchester	Napier University
University of Manchester Institute of Science & Technology	The University of Paisley
The Manchester Metropolitan University	Queen Margaret University College, Edinburgh
Middlesex University	The Robert Gordon University
The University of Newcastle-upon-Tyne	The Royal Scottish Academy of Music and Drama
Newman College of HE	The University of St Andrews
University College Northampton	Scottish Agricultural College
Northern School of Contemporary Dance	The University of Stirling
The University of Northumbria at Newcastle	The University of Strathclyde
Norwich School of Art and Design	UHI Millennium Institute
The Nottingham Trent University	
The University of Nottingham	
The Open University	
Oxford Brookes University	**Northern Ireland**
The University of Oxford	The Queen's University of Belfast
The University of Plymouth	St Mary's University College
The University of Portsmouth	Stranmillis University College
Queen Mary and Westfield College	University of Ulster

Appendix 2: A note on the calculations used to exclude library staff

HESA does not collect separate data on library staff within HE. However, it does have information about staff by general modes of activity, one of which includes the categories library assistants, clerks and general administrative assistants. Using this subset of the HESA workforce data on non-academic employees, library staff numbers were estimated and excluded from the total calculations. According to HESA data there were 44,515 staff (28,615 full time and 15,905 part time) employed according to the above three modes in 2003/04. Based on this data, the following estimate of library staff was reached:

Table (i) – Library Staff in HE by mode of employment

	Full Time	***Part Time***	***Total***
Central libraries & information services	12,585	6,995	19,580

The above estimates were used to further help generate non-academic staff breakdowns by location of HEIs excluding library staff. The first section of table (ii) below gives a breakdown of HESA data according to the three categories, including library staff. The second section called percentage breakdown details the share of these staff by location. The last section shows how the calculations in table (i) above were used to estimate potential library staff numbers by location of HEIs.

Table (ii) – Three Steps to Calculating library staff by location of HEIs

Library assistants, clerks and general administrative assistants

	England	*Wales*	*Scotland*	*Northern Ireland*	*Total UK*
Full-time	24,280	1,205	2,695	430	28,610
Part-time	14,030	465	1,210	200	15,905
All modes	38,305	1,670	3,910	625	44,515
Percentage breakdown					
Full-time	85%	4%	9%	2%	100%
Part-time	88%	3%	8%	1%	100%
All modes	**86%**	4%	9%	1%	100%
Calculations of Library Staffs					
Full-time	10,680	530	1,185	189	12,585
Part-time	6,170	205	530	88	6,995
All modes	16,845	735	1,720	275	19,580

For example, England had a total share of 86% of library assistants, clerks and general administrative assistants, so 19,578 (total library staff) was multiplied by 0.86 to get an estimate of library staff in England. The estimated total for England was then used to calculate proportions of library staff across the nine English regions. The above estimates were then subtracted from non-academic staff by location of HE institutions to generate the results presented in tables 12/13 on page 21-2.

Appendix 3: Annual data from HESA

- *Resources of Higher Education Institutions*: brings together information about the finances and the staff of HEIs. Most of the data presented here derives from this source, but more detailed staff data was also obtained from HESA for the regional analysis.

- *Students in Higher Education Institutions*: includes information at the institutional level about entry qualifications, programmes taken and outcomes, together with background variables such as age, gender, ethnicity and disability.

- *Destinations of Leavers from Higher Education*: provides information about patterns of employment, further study or training at a point about six months after completion or graduation of students from recent degree courses.

- *Higher Education Statistics for the United Kingdom*: gives an overview of HE in the UK including statistics about applications, participation, institutional finance, staffing, student awards and loans.

- *Higher Education Management Statistics/HE Planning Plus/HE Finance Plus*: these are statistical releases available at sector and institutional levels (on CD ROM).

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