

Highlights from the Technicians Skills Survey Summer 2017

Background

In the summer 2017, Imperial College London ran a pilot of the Technicians Skills Survey, created by the HEFCE-funded Catalyst project run by the University of Sheffield. The Survey was sent out by a direct email link to around 750 staff. This included 550 staff in the Technical job family plus another 200 staff who were either identified or self-identified as having a technical role. Promotion of the Survey included through newsletters, staff briefing, posters, line managers and departmental champions such as Faculty Operating Officers.

149 staff from the Technical community completed the Survey although not every respondent answered every question. The full report has been summarised to generate some initial points for discussion. The Survey included a long skills list which has not been included in any depth, for brevity, and due to the small numbers of responses in many cases. All percentages in this report are rounded and may not add up to 100%.

Respondents

The majority (65%) were based at South Kensington although all campuses, apart from the North-West London hospitals, were represented. The majority had been employed between 1 – 5 years (42%) or 6 – 10 years (16%), and 9% of respondents had been employed over 30 years.

90% of respondents were employed full-time. 6% considered themselves to have a disability or preferred not to say. 60% were College/department funded, 24% grant funded, 8% received mixed funding and 9% didn't know.

Most respondents were grades 3a & 3b (64%), just over half reported they were male (52%) and 71% white (including Irish/white/other) and most were aged between 26 – 55.

15% hold a Level 8 or equivalent qualification (e.g. Doctoral), 28% hold a Level 7 or equivalent qualification (Masters, PGCE) and 26% a Level 5/6 or equivalent (e.g. Degree). 70% of respondents agreed that their qualifications were relevant in their current role most or all of the time.

The most common career path involved starting work as a Technician in Higher Education (33% of respondents) while 26% started in industry before moving into HE. 11% started outside of HE in a non-technical role and 11% as a Post-doctoral staff member before becoming a technician.

62% have worked in the same department, in the same role, during their time at Imperial, while 19% have been in the same department but in different roles. 13% have worked across various departments.

Demonstrating Skills

86% of respondents agreed that their current role includes guiding others through a protocol and nearly half of those had received support for this in the form of internal or external courses, experience over time and/or guidance from managers or colleagues. Most respondents were supporting students, including undergraduate, postgraduate and PhDs.

Teaching Skills

41% agreed that their current role includes teaching, including formally assessing learning, and 54% had received support from similar sources and were supporting the same groups.

Supporting Teaching

66% agreed that their role involved supporting teaching, of which the majority responses were supporting labs/workshops, followed by health and safety and maintaining equipment for teaching activities. 8% were assessing or marking work or writing teaching materials.

Supporting Research

82% agreed that their role directly supported research with the majority responses including workshop/lab support, maintaining stores/ordering consumables, setting up and running experiments and collecting research data. A small number (<5%) managed a research budget, made a significant contribution to grant/funding application or were a lead or co-author on a paper.

Interpersonal activities

Most interpersonal support was provided to staff within the same department, followed by students. Support for staff included personal support e.g. colleagues feeling anxious before presentations, mentoring of new or junior colleagues, Apprentices, First Aid, Mental Health First Aid (MHFA), Health & Safety and Fire Safety or talking through experimental options or helping with experiments. Support for students included lab work, experiments, projects and several comments of supporting students through times of stress from work or personal matters.

Management responsibilities

22% reported that they had no management responsibilities; there was a broad spread of reported management responsibilities and respondents had selected more than one option. The most common options were workshop/management, health & safety management, and management of specific equipment followed by people management.

Only **36%** reported receiving support for these activities, examples included existing College provision such as Health & Safety and the Imperial College Leadership and Management Programme (ILMDP), as well as support from PIs or experienced colleagues, shadowing, equipment specific training and BSc and HNC's.

Wider responsibilities

The majority were engaged in department or team working groups/committees or projects (61%), followed by research support within the university and research and collaboration with other HEIs or FE. Only 5% reported participating in University led working groups/committees and projects although 27% were involved in College Widening Participation activities.

There were a wide variety of examples listed including local user groups, Health & Safety groups, Building Users, testing of equipment, Silwood Park 'Bug Day', and providing facilities to other departments e.g. access to resources or equipment. College level examples listed were Safety and Athena SWAN committees and Outreach e.g. The Imperial Festival, and Summer Schools.

Joint projects with other Universities were also mentioned, along with involvement in HEaTED, the HEFCE funded project, working with suppliers and contractors, the NHS, IET, HSE and industry partnerships e.g. Crossrail.

Health and safety

22% of respondents reported having a health and safety qualification; the most commonly cited ones were the CIEH Level 2 Award in Health and Safety in the Workplace and the NEBOSH General Certificate. A further 20% have experience in solvent and chemical storage and equally as many reported having knowledge about the different waste categories. In response to questions concerning student welfare, 30% reported being experienced in advising students on safe working procedures and 16% said that they had led safety inductions in specialist areas.

Skills, knowledge and experience

21% of respondents reported having Lab Sciences skills. Other popular skills included ICT skills (9%), Use of Equipment Including Analytical Instruments (8%), and Animal Handling (7%). In addition, 5% reported having skills in Mechanical Engineering, Design and Manufacturing, and equally 5% were skilled in Electronic and Electrical Engineering.

Professional Registration

A wide list of professional memberships or accreditations were reported and, in addition, 14 people reported other registrations or memberships including NEBOSH, Associate Fellow of the Higher Education Academy, PGCE, ITIL Foundation course, Institute of Occupational Safety and Health (IOSH), Supporting Learning and Teaching (SLTP) and PhDs.

39 people reported that they planned to become professionally registered in the future; 32 people reported that they were working towards being professionally registered or having accredited qualifications with the following bodies:

- Royal Society of Biology
- The Institution of Engineering and Technology
- British Computer Society
- Institute of Biomedical Science
- Higher Education Academy
- The Science Council
- Institute of Leadership & Management/Chartered Management Institute
- Royal Society of Chemistry
- Institute of Animal Technology
- Institute of Science and Technology
- JIB approved electrician
- Institute of Chemical Engineers
- Society of Spanish Researchers
- Prince2

Most frequently reported barriers to professional registration included:

- Not interested or doesn't find it immediately relevant
- Doesn't see the benefits/finds it expensive
- Wasn't aware that it was an option/doesn't seem to be required for roles
- Retiring/semi-retiring - doesn't seem appropriate at current age
- Existing qualifications/specialisation (often a higher degree) seem more relevant

Further development requests

Interpersonal skills

Several requests relate to existing College provision e.g. communication skills including dealing with difficult situations and presentation skills, management skills and supporting others e.g. MHFA, teaching or training.

Additional requests included ways to progress in clinical science, interactions with and shadowing other technicians, mentoring and some role specific requests e.g. databases, analytical equipment, 3D printing.

Management skills

Most requests included access to people management training with additional requests for budget/financial management and lab specific management skills, as well as support with College policies and mentoring/networking opportunities.

Health and safety

NEBOSH, Biosafety and first aid training have been requested by several participants. These are currently offered by the College, free of charge. Certain respondents also expressed an interest in undertaking ethics training and occupational hygiene modules.

Skills, knowledge and experience

The answers of participants with Lab Sciences skills featured MATLAB and statistical analysis training, NMR theory and metabonomics, wetlab training, risk training and training on experimental methods. A respondent also indicated wanting to know more about the types of training available.

Several respondents with ICT skills wished to receive further MATLAB training. Training in PC hardware, CompTia Plus, Business Systems Training (like POS programming), statistics, database and system design, VMware and Microsoft training, data management and computer maintenance also featured among their answers.

Respondents skilled in the Use of Equipment, including Analytical Instruments, requested further NMR spectrometer training, mass spectrometry training, training on the use of a bead beater, freeze-drying and solvent extraction training and workshops for new techniques or pieces of equipment e.g. a piece of software that mines large sequencing data sets. They claim that being able to attend such workshops where the software and subsequent analysis are taught would be highly beneficial in their job.

Participants with skills in Animal Handling requested further training to obtain a personal license.

Those with skills in Electronics and Electrical Engineering expressed a wish to undertake training on PCB CAD, electronic circuit design, safe working with and repair of electrical equipment, professional short courses, MSc degrees in Mathematics and Electronic Engineering. A respondent also wanted to top up their HND to receive a BSc or BEng.

Respondents with skills in Mechanical Engineering requested training in Drawing Packages, 3Dprinting Software, Excel, CNC, Laser Cut and further welding training. Managerial training, a CAD/CAM course and a degree in Industrial Design were also mentioned by this group.

The most common answers among participants with Bioinformatics skills related to training in computer programming (R and Python). Training in protein modelling and docking, databases, data analysis, phylogenetics and a desire to be more involved in projects also featured among the responses. The answers

of those with skills in Controlled Environments included training in a constant temperature room, electronics training specifically dealing with CT room Controls / Humidity / Temperature control/Lighting and Ballast systems.

A small number of participants (<5%) with Clinical skills wished to have training in lab management, as well as clinical trial coordination and management and to have more clinical research information.

Training in the use of tunnels and associated equipment and data acquisition, as well as official training in PIV were mentioned as priorities by respondents with Aeronautics training and Engine instrumentation and diagnostics and hardware-in-loop test system design were included by those with skills in Automotive development. Specific requests included attending symposiums or training on equipment. A small number of respondents (<5%) skilled in Plant Growth/Horticulture expressed an interest in undertaking greenhouse pest management and growth room and cabinet control training, as well as greenhouse controlled condition fault finding and repair, including electronics training.

Future career plans

Completing a PhD is a recurring theme among the answers given to the question: 'Where would you like to see your career go in the next five years?'. Being promoted, becoming a manager, or a research officer/assistant, taking a consultant position, and developing competencies are also frequently mentioned. Certain respondents wish to stay in the College (some in the same role), while others want to move to industry.

Support required to achieve these plans

Further training (both technical and managerial), career planning, attendance at career fairs and support from line managers were the most frequently named factors.

Issues and concerns raised throughout the Survey

- **Lack of information about further training:** Respondents frequently seemed unaware of the training opportunities open to them and/or were unsure of the correct level of training that they should undertake. This was named as a barrier to professional registration and skill-specific training as well.
- **Complaints about a lack of supportive management:** The 'complete lack of managerial transparency' was mentioned as a reason why a respondent was not confident that they would stay the College over the next five years. Others complained about the lack of guidance in their role (specifically, guidance related to supporting students) and lack of access to training e.g. training requests being turned down.
- **Complaints about career progression and salary:** Some respondents reported having worked at the College for a long time, in the same position. This led them to 'not see any growth' within the College. Others mentioned a lack of a 'more positive career development model for technicians/scientists' and 'negativity towards technician progress'. The salaries were cited as a reason for which certain Technical staff are not planning to stay in the College long-term (planning to take a job in industry instead), while others complained about the fact that project managers were paid at a much higher grade than lab managers (even though 'a lot of the same skills are required'). Another participant perceived that 'Currently lab managers hit a glass ceiling with few options for career progression in that more generalised role'.
- **Insufficient mental health awareness training:** Mental health training was mentioned by several participants as a factor that would enable them to be more effective in their interpersonal

responsibilities. The recurring nature of this answer leads to the assumption that Technical staff who interact with staff and students with mental health issues do not currently receive sufficient support. This can be damaging to their own mental health.

Next steps

- Communicate the results of the Survey including updating the Skills Survey webpage with feedback and an example of a report, share Faculty level reports and, where appropriate (depending on numbers of respondents), department and team level reports to allow for more local analysis of skills and development needs
- Consider the College-level development needs and whether resource is needed for further options including provision for the development of lab/workshop management skills
- Explore avenues for the engagement of technical managers and supervisors in leadership and management training and further targeted promotion and awareness raising of existing College development opportunities to all technical staff e.g. study loan, career development support, job swaps etc
- Work with LDC to explore developing the mentoring schemes (e.g. Faculty of Medicine) and shadowing opportunities (e.g. Outside Insight) with a focus on technical staff
- Develop opportunities for Technical staff to get involved in Cross-College or University led projects such as working groups/Committees and projects.
- Explore and promote the benefits for professional registration, especially for providing specialised professional development, and work on removing barriers e.g. cost/ease of application
- Engage with the College-wide Career Development pathways work to support clarity around progression and pay scales/salary and encouragement staff movement across College
- Review the diversity profile of technical staff and consider any issues/barriers this may raise
- Explore how apprenticeships might be used to support technical staff development needs

Appendix

Demographic data - this table presents the options that were selected for Gender and Ethnic Group, further options were available. Any data below 5% is rounded into appropriate clusters:

Grade	%	Age	%
1a -2b	17%	21 - 25	8%
3a	30%	26-30	19%
3b	34%	31 – 35	19%
4-5	12%	36-40	13%
6-7	7%	41-45	6%
Gender	%	Age	%
Male	52%	46- 50	13%
Female	46%	51 – 55	12%
Prefer not to say	2%	56 +	10%
Ethnic Group	%		
White/British	42%	White/Other	24%
White Irish	5%	Black, Asian and Minority Ethnic (BAME)	24%
Prefer not to say	6%		

This table lists the qualifications that were selected, further options were available. Any data below 5% is rounded into appropriate clusters.

Qualification	%	Qualification	%
Level 2 – 4 NVQ/GSCEs/A Levels/BTEC/HNC/CertHE etc	13%	Level 7 – NVQ Level 5, BTEC advanced, Masters, PGCE, PG certificates	28%
Level 5 & 6 – DipHE, HND, BTEC etc	26%	Level 8 – Doctoral degrees, Vocational qualifications	15%
		Other/Don't Know/None	17%

The following table indicates reported management responsibilities; data below 5% is rounded into appropriate clusters:

Responsibility	%	Responsibility	%
Line management or supervision of staff	10%	Project Management	5%
IT infrastructure/Finance/Matrix management e.g. lead a committee	6%	Workshop/Lab	24%
Specific equipment or course content	14%	Health & Safety	14%
		Other*	22%

*responsibilities listed by participants included management of field experiments at Silwood Park, photography and video production in the School of Medicine, lead for clinical trials or lab resources.

The following indicates the wider responsibilities and contributions made by respondents from the Technical staff community:

Responsibility	%	Responsibility	%
Dept./Team working groups/committees/projects	61%	Teaching Support (within the University)	14%
College working groups/committees/projects	17%	Research Support (within the University)	40%
Cross-College working groups/committees/projects	12%	Research (with external partners)	33%
University led working groups/committees/projects	5%	Widening participation (within the University)	27%
Other e.g. patient involvement groups	5%	Widening participation (with external partners)	8%
Collaboration with other HE/FE institutions	30%	Consultancy (within the University)	13%
Professional bodies	12%	Consultancy (with external partners)	11%