Technicians are a fundamental part of a science department; it is difficult to imagine teaching science without them. As science teachers, we can sometimes take them for granted, as, when they do their job well, it makes our job so much easier and a lot of their responsibilities take place behind the scenes. However, there is a real concern that the role of the school science technician is at risk.

In the online survey, we asked ASE members to respond to questions that addressed the following issues:

- What is the current situation regarding technician supply in secondary schools?
- What is the expected future?
- What specific issues are there with technician supply?

During early 2017, we received 504 responses from, mostly, technicians, heads of science departments and science teachers. All types of school were represented, but respondents from academies (59.4%), state schools (20.2%) and independent schools (19.4%) made up the significant proportion. In this analysis, just responses from academies, state schools and independent schools are considered, a total of 397 schools.

**What is the current situation in technician supply?**

We would expect that the hours and numbers of technicians for a given school would remain stable unless there was a change in the size of the school. The first questions asked respondents to report if the number of their technicians had increased, decreased or stayed the same. The results are presented in Figure 1.

The headlines from Figure 1 reveal that, if we consider all school types, it appears that over 50% of schools have had their technician numbers stay the same over the past year. However, a third of schools have seen a reduction in technician number and less than 10% have seen an increase. When comparing the three types of school, independent schools are faring best, but the results highlight that state schools particularly are showing a startling situation, with less than 50% staying the same and almost half of them facing a reduction in technician numbers.

We also asked if the number of students on role (NOR) was increasing, decreasing or staying the same and looked at whether this could explain the changes in science technician support.

It would be expected that, if the NOR increased significantly, the technician hours or numbers would increase, and vice versa. However, in all cases, schools were much more likely to be facing a decrease in technicians, despite NOR increasing. Again, this was more pronounced in academies and state schools.

**What is the situation with specialist technicians?**

Ideally, each school should have at least one specialist technician for each of biology, chemistry and physics. The survey reveals that there is a significant difference in the supply of specialist technicians between different types of school (see Table 1). Most, but by no means all, independent schools have the specialist technicians they need (73% – 81%). Just over half of academies have the specialist technicians they need (55% – 68%) and, most startling of all, only a third of state schools have the specialist technicians they need (36% – 43%). In all types of school, there are more biology specialist technicians, followed by chemistry specialists, with physics specialists being the fewest.
Expected future of technician supply

We asked respondents to predict what they expected to happen to the number of technicians over the next year, and the next five years. Figure 2 shows the responses from all school types, and the three school types separately.

Independent schools, again, have the most stability; however, around 10% of both academies and state schools are facing a decrease over the next year. This rises to 16% – 18% predicting a decrease over the next five years.

Issues

Through the survey, a number of issues were raised:

- **Full-time is not really full-time.** It is clear that, even if the number of technicians is stable, their hours are being reduced. There is a trend of employing technicians for term-time only, instead of full-time.
- **Increasing pressure from curriculum change.** The recent changes to A-level and GCSE practical requirements have resulted in an increase in demand for compulsory practicals. This has caused an increase in workload.
- **Recruitment and retention.** Schools are finding it hard to recruit suitably qualified technicians to replace those who leave. Reasons for this include: unattractive employment packages; low pay; reduced hours; and little opportunity for promotion.
- **Undervalued and misunderstood.** Technicians are often undervalued by school senior management who do not appreciate their role and expertise. This means that technicians are an easy target when making financial cuts. In addition, technicians are being asked to ‘diversify’ their roles by taking on additional administrative tasks, taking them away from their areas of expertise.

Conclusions

We can conclude that there is a trend of numbers of technicians reducing, whether in hours or actual numbers. This is happening to some extent in independent schools, but is significant in academies and in state schools. Numbers of technicians seem to be decreasing, despite increasing numbers of students in school (NOR). Many schools do not have technicians representing all three specialisms, again with state schools in a dire situation. Finally, the future seems no brighter, with a significant percentage of schools continuing to face a reduction in their technicians’ hours.

A perfect storm?

We have discussed these findings and recognise that the situation is due to the severe financial shortfalls faced by schools over the past few years, which is becoming critical for many state schools. Where there are cuts, there will be unintended consequences in the long term, but this is exacerbated by some other factors in science education. Required practicals have been introduced for A-level science, as well as at GCSE. These changes require resourcing, specialist knowledge and experience in ensuring that they work safely and that there is regular maintenance of the apparatus and equipment.

Compounding the reduced number of technicians and the increased expectation for practical work is the crisis in science teacher recruitment and retention. Consequently, non-specialist teachers (e.g. PE and psychology teachers) are being used to teach lower school classes. These teachers have little laboratory experience and no relevant knowledge or understanding of risk assessment in science lessons. Without specialist technicians to advise, there is undoubtedly an increased risk to teacher and student safety.

Headteachers and Heads of Science are facing some difficult decisions, but we need to ensure that we protect our technicians and their contracts and, in doing so, we safeguard our students to ensure that they experience science lessons that are engaging, productive and worthwhile.

What the ASE is doing

The results of this survey support members’ concerns about the reduction in technician hours and technician numbers. By doing a medium-scale survey, we have revealed that the situation is critical and we need to support our members by rectifying this. These findings support those from a smaller scale survey carried out by the ASE Technicians’ Committee (see p12).

ASE is represented on a range of committees and is involved in negotiations on policy in science education, responding to consultations and being part of working groups.

Table 1. The percentage of each school type that has subject-specific technicians.

<table>
<thead>
<tr>
<th></th>
<th>We have a Biology Specialist (%)</th>
<th>We have a Chemistry Specialist (%)</th>
<th>We have a Physics Specialist (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independents</td>
<td>81</td>
<td>79</td>
<td>73</td>
</tr>
<tr>
<td>Academies</td>
<td>59</td>
<td>68</td>
<td>55</td>
</tr>
<tr>
<td>State Schools</td>
<td>43</td>
<td>40</td>
<td>36</td>
</tr>
</tbody>
</table>

Figure 2. Next year we expect the number of technicians to... (percentage for each school type).
The technician crisis: What science teachers need to know

Andy Chandler-Grevatt

This survey is being used to raise awareness of this looming crisis.

What can science teachers do?

- Make sure that you let your technician(s) know that they are valued; avoid taking them for granted.
- Inform your Head of Department or line manager of all health and safety issues, issues with laboratory maintenance and any tasks that you are doing that a technician would normally do.
- If your senior management team is considering reducing hours, make a strong case against this. If this has already happened, make a case for recovering hours or technician numbers.

Use the CLEAPSS technician service factor as a guide. This can be found in CLEAPSS document G228, pages 13–18.

Andy Chandler-Grevatt is a member of the ASE 11-19 Committee and works as an ITE Curriculum Tutor at the University of Sussex.

Response from the ASE Science Laboratory Technicians Committee

In this issue of EIS, we have highlighted two surveys: one from the ASE Science Education 11-19 Committee, and another one undertaken by the Technicians Committee to confirm what we had been hearing anecdotally. Both show some very worrying trends. The 11-19 Committee survey is explained in detail on these pages. There will be a full write-up of the Technicians Committee survey in a future issue of EIS, but the main points are highlighted below:

The average age for technicians continues its relentless rise upwards, with precious few new recruits to the profession. Pay and conditions are suffering, as schools have even less money to spend due to the increase of pension and national insurance contributions that they have to pay, together with the fact that schools are moving inevitably to become academies and have to buy in services once provided as a matter of course by their Local Authority. Service factors, which were generally below the levels recommended by CLEAPSS and ASE, have been pushed even lower, leading to a consequent increase in lone technicians.

Many schools are having problems in recruiting (let alone retaining) technicians, which can lead on to inexperienced people working alone, many of whom have never been technicians before as the senior leadership teams in some schools do not understand the safety implications that this sort of recruitment brings. We have a swathe of technicians being left to ‘get on with it’, with minimal, if any, training. As a workforce, we use dangerous items and handle dangerous chemicals – I can think of no other job in which a person with no science experience can be given the keys to a chemical store, with all that entails, and just be expected to know what to do. Anecdotally, I have heard of many unsafe procedures happening in school science departments, particularly where you have an inexperienced technician and NQT teachers. Google and YouTube are not the safest place to look for pracs! (Unless it’s the CLEAPSS channel, of course).

When cuts are to be made, support staff in general seem to bear the brunt, even though we earn very little. It’s easy to cut someone’s role if you have only a hazy idea about what they do. The days have long gone when technicians were a ‘mum’s army’, who worked to get out of the house and earn some pocket money. We are a highly skilled, dedicated workforce and should be recognised as such.

We welcome any comments on the issues raised in this issue of EIS. Please send these to Sue Smith at mullineux@hotmail.com