

SPECIALIST SCIENCE TEACHER
RECRUITMENT IN ENGLAND 2016-2017



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SPECIALIST SCIENCE TEACHER RECRUITMENT IN ENGLAND 2016-2017

This report analyses the science teacher advertisements collected in 2016 and 2017 by TeachVac.¹

SUMMARY OF FINDINGS

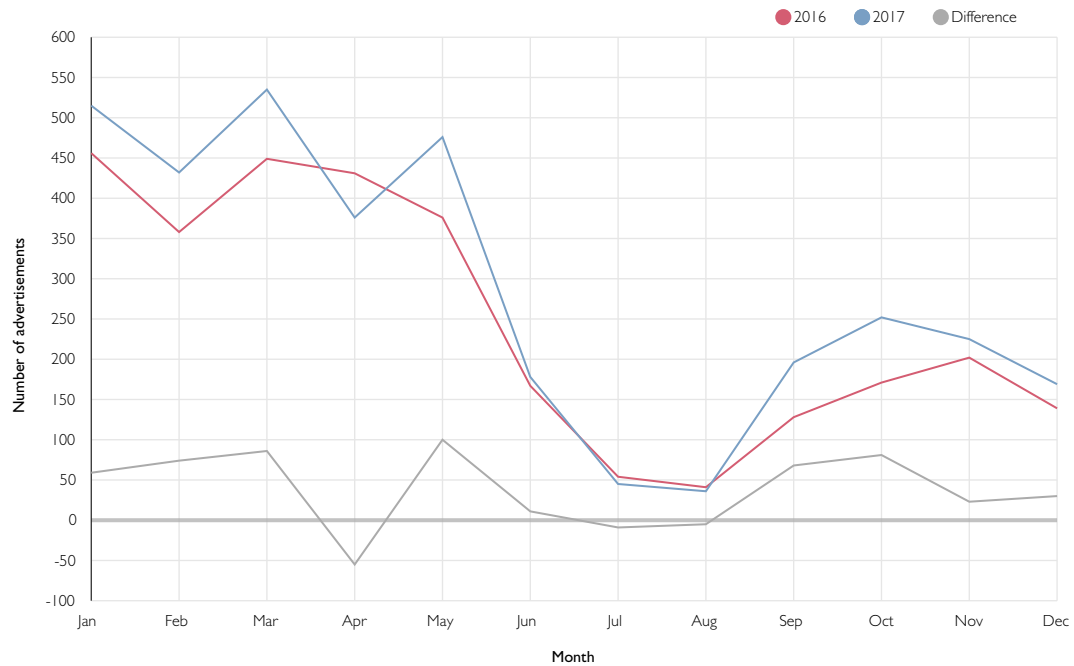
- Between 2016 and 2017, there was an increase of nearly 16% in science teacher recruitment activity in England.
- However, this increase was for generalist science teachers: specialist science teacher recruitment declined slightly.
- There are substantial inequalities in the system: certain parts of the country and types of schools are much more likely than others to seek specialist science teachers.
- The proportions of repeat advertisements suggest there are substantial differences in recruiting success rates.
- There is no evidence to suggest that advertisements for specialist science teacher positions are any less likely to result in success than those for generalist science teacher positions, so schools would do well to seek specialists where appropriate.

¹ TeachVac is a National Vacancy Service for Schools and Teachers, now entering its fourth year. The service is free for teachers and schools.

SEASONALITY AND YEAR-ON-YEAR TRENDS

Recruiting activity is highly seasonal (see Figure 1), with most activity occurring during the first half of the year. Among all positions, most months showed increases between 2016 and 2017.

Figure 1: Number of recruitment advertisements by month (2016 to 2017)

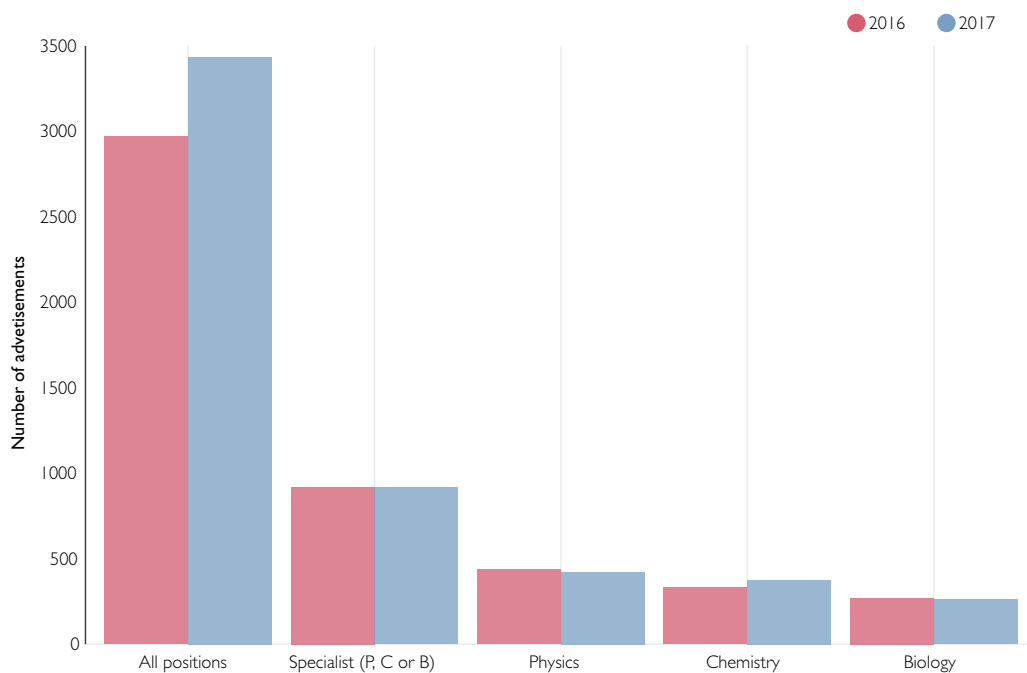


Note: Includes putative repeat advertisements. Numbers of specialist advertisements are less than the sum of physics, chemistry and biology advertisements because some advertisements mention more than one specialty. Sources: TeachVac; The Gatsby Charitable Foundation.

CHANGES BY YEAR AND TYPE

Year-on-year changes are shown more clearly in Figure 2. There were 2,972 advertisements in 2016, rising to 3,435 in 2017, an increase of 15.6%. However, the numbers of specialist advertisements actually fell slightly from 920 to 916 (-0.4%) so the overall increase was caused principally by a rise in generalist science teacher recruitment.

Figure 2: Number of recruitment advertisements by year and type (2016 to 2017)



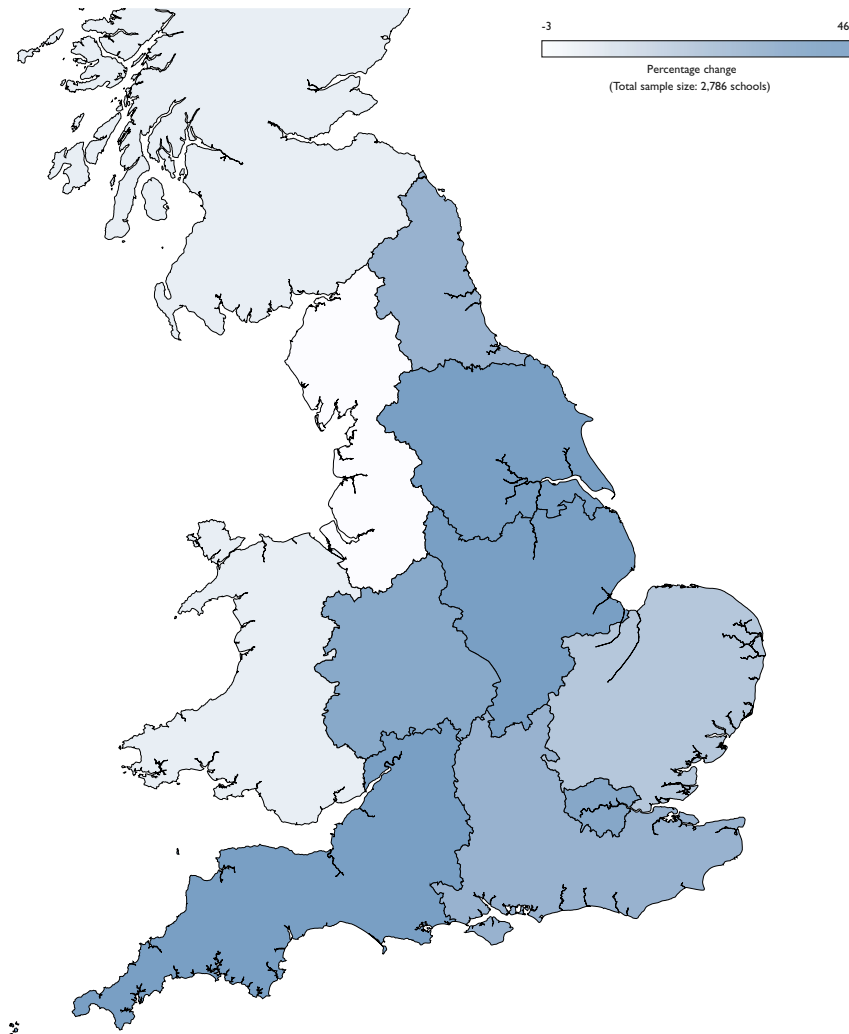
Sources: TeachVac; The Gatsby Charitable Foundation.

Within the individual subject areas, the number of advertisements mentioning chemistry rose (+13.9%) but those mentioning physics (-3.4%) and biology (-3.3%) both fell. This disparity is caused partly by an increased tendency for advertisements to stipulate dual specialisms (most often physics with chemistry or chemistry with biology) rather than single-subject specialisms.

REGIONAL SPREAD

The overall increase in recruitment activity was not evenly spread across the country, as shown in Figure 3. Most regions saw moderate increases of 5-20% but three regions (the South West, Yorkshire and The Humber, and the East Midlands) saw increases of around 40%, while the North West saw a small decline (-2.5%)

Figure 3: Percentage change in the number of recruitment advertisements (2016 to 2017)

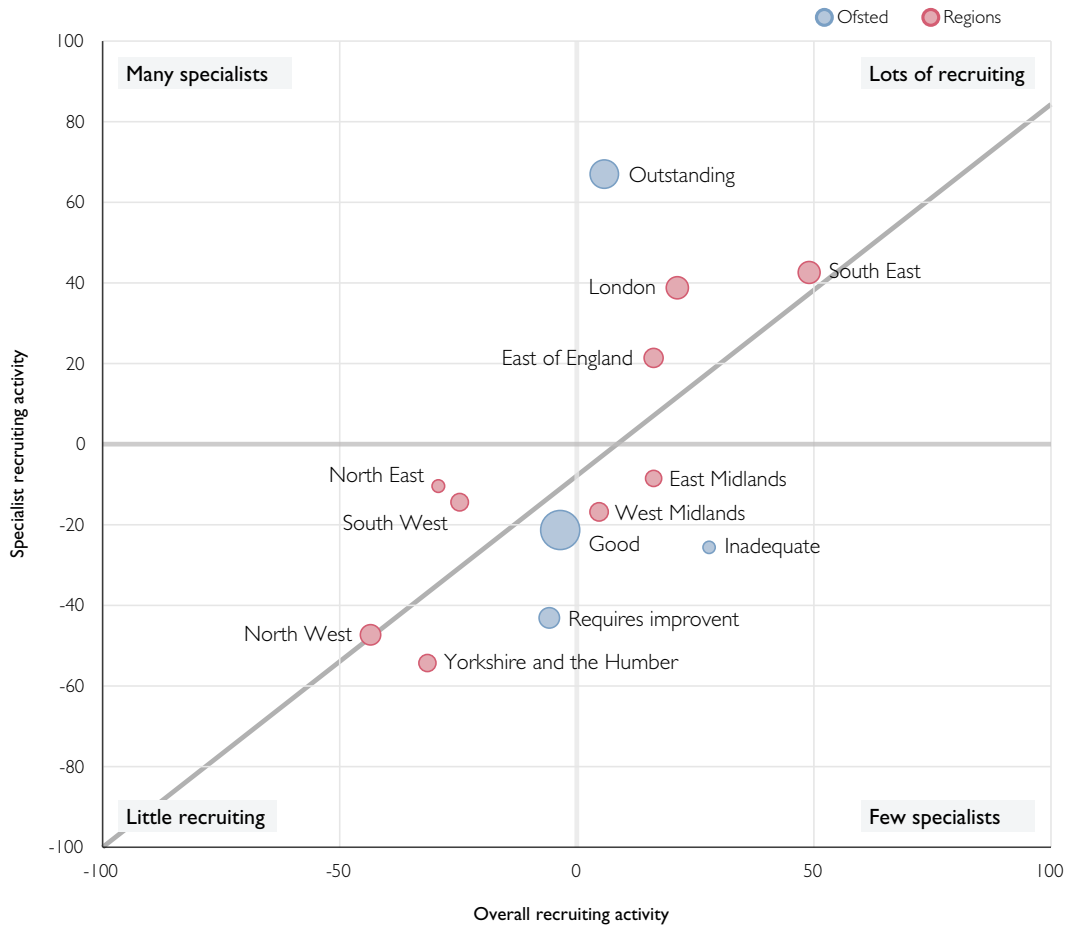


Sources: TeachVac; The Gatsby Charitable Foundation.

ANALYSIS BY SCHOOL TYPE

Figure 4 characterises schools according to their relative levels of overall science teacher recruitment activity (horizontal axis) and specialist physics, chemistry or biology teacher recruitment activity (vertical axis). Dots are scaled according to total teacher numbers.

Figure 4: Science teacher recruitment activity by school type (2016 to 2017)



Notes: Based on data for January 2016 to December 2017 inclusive. Includes putative repeat advertisements. Dots are scaled based on teacher numbers. Schools for which teacher numbers or locations are not available have been omitted.

Sources: TeachVac; Department for Education; The Gatsby Charitable Foundation.

The regions show a pattern scattered around the diagonal line in which areas with low levels of overall science teacher recruiting (such as Yorkshire and The Humber and the North West) also show correspondingly lower levels of specialist recruiting while areas of high recruitment activity (such as the South East and London) also display high levels of specialist recruitment. In summary:

- Some regions have high levels of recruitment (as a result of growth and/or churn) while others show low levels, but there are no big discrepancies in levels of specialist teacher recruitment.
- Academy status (not shown) displays a roughly similar pattern.
- It is notable that free schools show very high levels of recruitment: this is unsurprising since most are new, growing schools.
- Sponsor-led academies show normal levels of overall recruitment but low proportions of specialist positions.

Starker discrepancies emerge when looking by Ofsted rating:

- 'Outstanding' schools are more likely to seek specialist teachers (i.e. they lie well above the diagonal line), although it's impossible to tell from the data whether this is a cause or an effect of their Ofsted rating.
- It seems likely that the two factors reinforce one another: i.e. high-performing schools are more likely to seek specialist teachers, and this in turn helps to perpetuate their success.
- Inadequate schools show higher levels of general recruiting, presumably because many of them are subject to turnaround programmes, but in relative terms are much less likely to seek specialist teachers (i.e. they lie well below the diagonal).

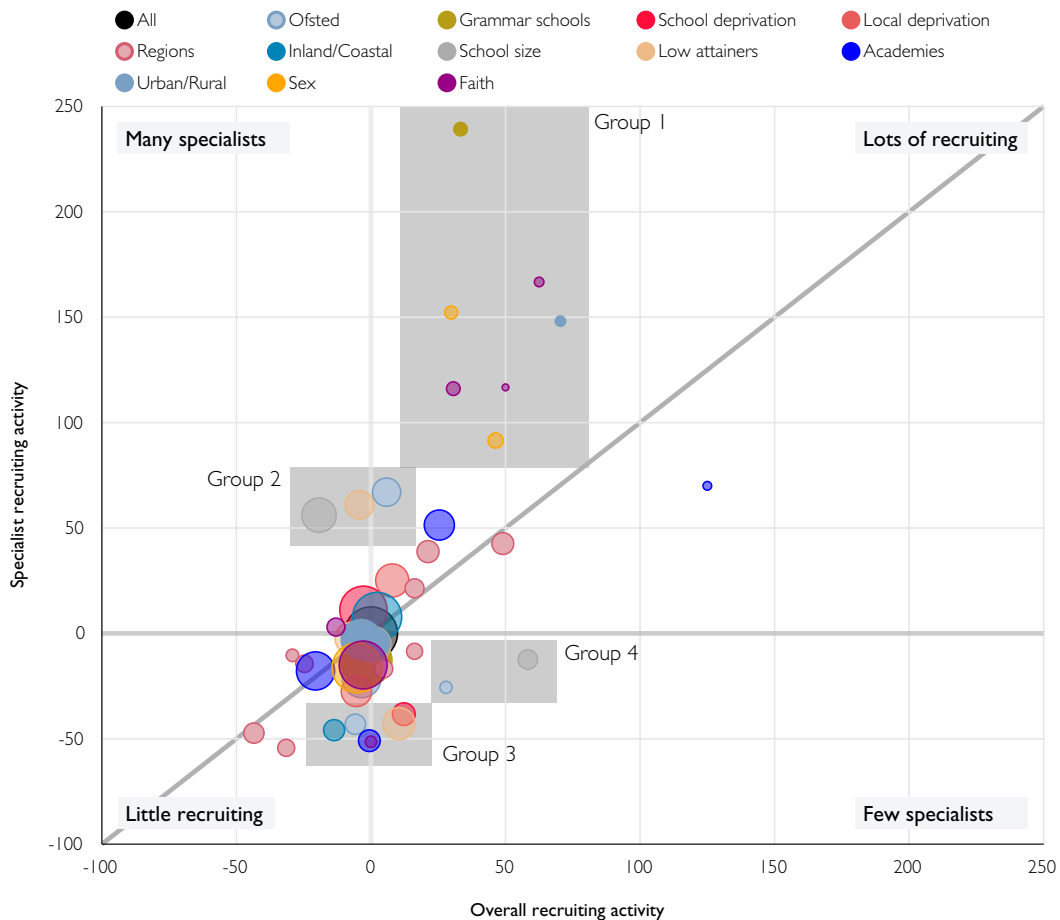
Although not shown in the figure, we see similar patterns with respect to levels of deprivation in the school and local area – i.e. more affluent schools are more likely to seek specialist teachers – and also when comparing coastal and inland schools, or those with large or and small proportions of low-attaining pupils.

Grammar schools, single-sex schools and certain types of faith schools are more likely to be recruiting, but are over-represented among schools seeking specialist science teachers.

Looking at the overall picture (Figure 5), there are four interesting groups of schools.

- The first (Group 1) displays somewhat high levels of overall science teacher recruitment but even higher levels of specialist teacher recruitment. These include grammar schools, single-sex schools, rural schools and certain types of faith schools.
- The second (Group 2) shows more or less normal levels of recruiting but high levels of specialist recruiting. These include Ofsted 'Outstanding' schools, schools with small proportions of low-attaining pupils and large schools.
- The third (Group 3) has normal levels of recruiting but unusually low levels of specialist recruiting. These include sponsor-led academies, schools with high levels of deprivation or low-attaining pupils, coastal schools and those with a 'Requires Improvement' rating from Ofsted.
- The fourth (Group 4) has relatively high levels of overall recruiting but low levels of specialist recruiting and consist of two main types: Ofsted 'Inadequate' schools and small schools.

Figure 5: Science teacher recruitment activity by school type (2016 to 2017)



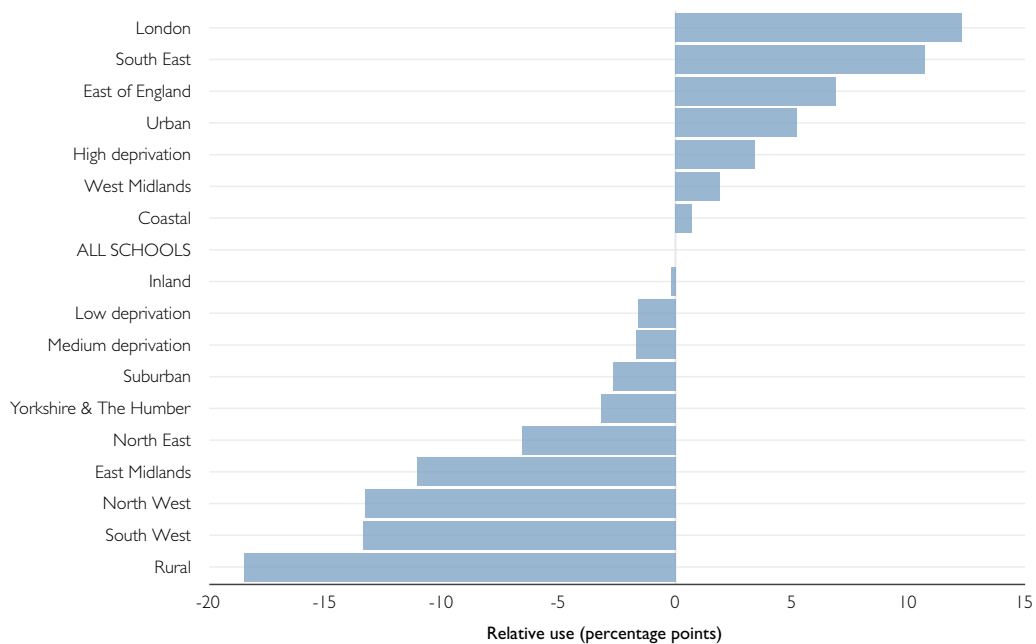
Notes: Based on data for January 2016 to December 2017 inclusive. Includes putative repeat advertisements. Dots are scaled based on teacher numbers. Schools for which teacher numbers or locations are not available have been omitted.

Sources: TeachVac; Department for Education; The Gatsby Charitable Foundation.

REPEAT ADVERTISEMENTS

Figure 6 shows the relative use of putative repeat advertisements² by geographical factor. In general, schools in the East and South East of England, as well as schools in urban and/or deprived areas, tend to issue more repeat advertisements, suggesting that they have more difficulty recruiting.

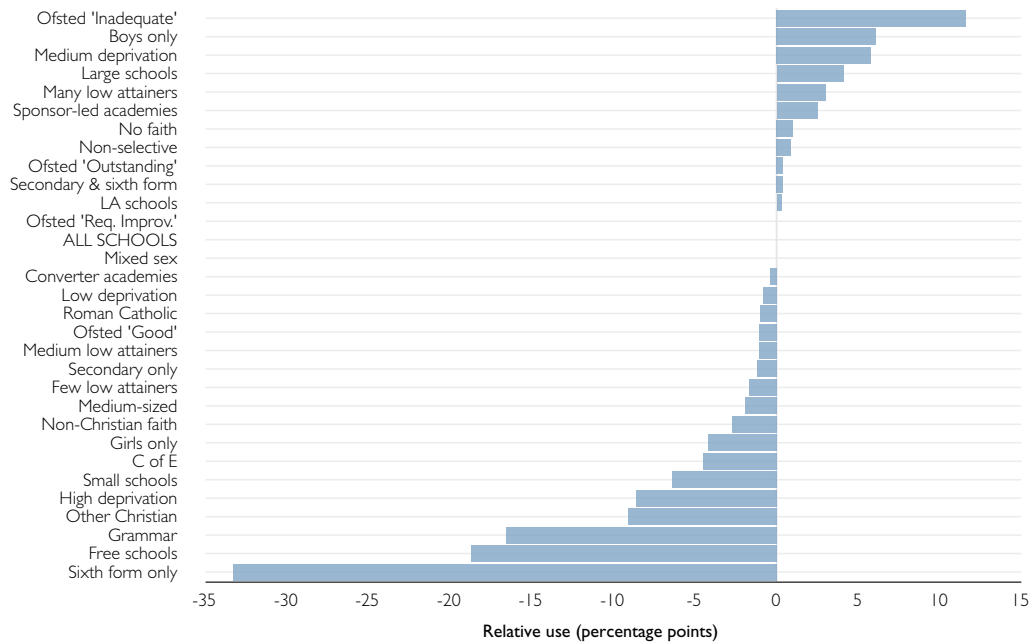
Figure 6: Relative use of repeat advertisements by geographical factor (2016 to 2017)



Notes: Positive numbers indicate heavier use of putative repeat advertisements while negative numbers indicate lower use. Calculations of local deprivation use a radius of 4km around each secondary school.

Sources: TeachVac; Department for Education; The Gatsby Charitable Foundation.

² Repeat advertisements are defined as those appearing for the same school at least 21 days, but no more than 90 days, after an original advertisement. The subjects must also match. Later advertisements that are broader with regard to subject specialism are considered to be repeats as long as there is at least some subject overlap with the preceding advertisement. Those that are narrower are not considered to be repeats.

Figure 7: Relative use of repeat advertisements by school type (2016 to 2017)

Notes: Small schools are those with fewer than 700 pupils; large schools are those with more than 1,200 pupils; medium-sized schools are those in between.

Sources: TeachVac; Department for Education; The Gatsby Charitable Foundation.

Figure 7 shows a similar analysis by school type. There are some predictable entries among those types using lots of repeat advertisements including Ofsted 'Inadequate' schools, those with many low-attaining pupils, and sponsor-led academies.

However, there are some surprises too:

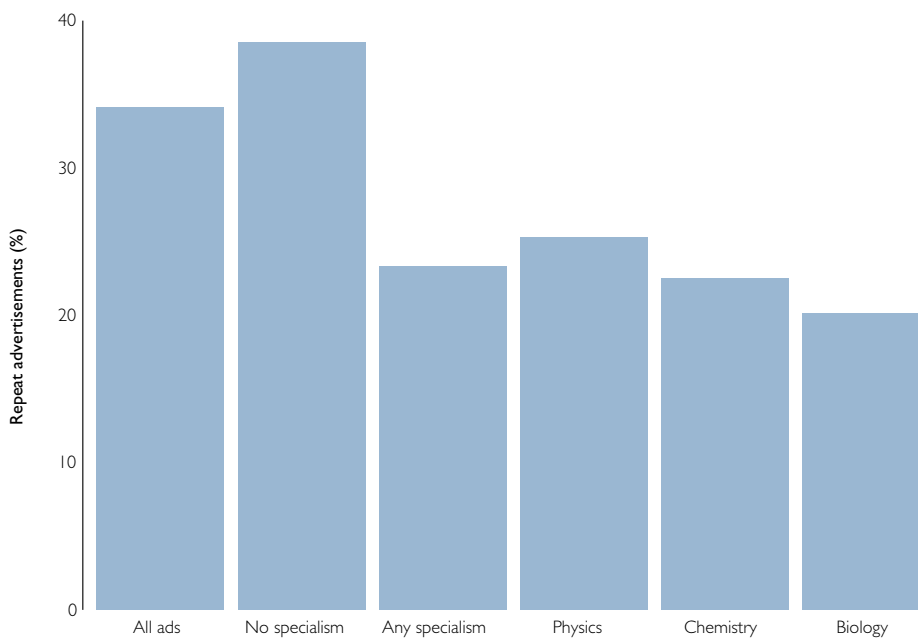
- Boys-only schools re-advertise much more often than girls-only schools (or even mixed-sex schools).
- It seems counter-intuitive that Ofsted 'Outstanding' schools should use repeat advertisements more often than those rated 'Requires improvement', or that those with medium levels of in-school deprivation should do so more than schools with high levels of deprivation.

Repeat advertisements could reflect that the school is particular in appointing the right teachers rather than a more fundamental difficulty in recruiting. Note also that large schools appear high up, but this might be partly an artefact of the analysis: large schools are more likely to recruit multiple positions of the same type, which our methods may have incorrectly assumed to be repeat advertisements.

Can the above factors be interpreted to show a reluctance of certain types of schools to advertise for specialist science teachers? Is there evidence that issuing an advertisement for a specialist science teacher is less likely to result in successful recruitment (i.e. more likely to result in a repeat advertisement)?

Figure 8 shows that, if anything, the reverse seems to be true. The re-advertising rate for specialist positions is consistently much lower (20-25%) than that for non-specialist positions (39%).

Figure 8: Proportions of repeat advertisements by specialism (2016 to 2017)



Sources: TeachVac; The Gatsby Charitable Foundation.

There are complications to this interpretation:

- Schools that tend to recruit specialist science teachers are different in a variety of ways to those that don't.
- These school-specific factors rather than the type of position may explain the lower re-advertising rate for specialist positions.
- However, even if this explains the whole difference, it would still indicate that specialist positions are at least no harder to fill than generalist positions.

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