

# Attainment grouping in schools: implications for equity

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## Abstract

Grouping by attainment is the dominant practice for organising students into classes for teaching in English schools. Attainment grouping persists despite decades of evidence that it provides no overall benefit to learners and that it is in fact detrimental to pupils with middle and low prior attainment. In this article we provide an overview of grouping practices and why they are so prevalent, and present key findings from our recent study, 'Best Practice in Grouping Students.' Finally we make suggestions for principles of best practice in pupil grouping.

## Introduction

Grouping by 'ability'<sup>1</sup> within education has long been controversial. Internationally, segregation by attainment remains prevalent, whether it is segregating students into different types of school; or, within schools, separating pupils into different tracks, streams, or sets; or within classrooms, dividing pupils into 'ability groups' (Francis, Taylor, & Tereshchenko, 2020). Since the 1970s, the majority of government-funded schools in England have been comprehensive and do not select pupils by 'ability'. However, Jerrim (2019) found that England's schools were almost the most segregated in the world and our own research (Taylor, Hodgen, Tereshchenko, & Gutiérrez, 2020) found that grouping by attainment is pervasive within English non-selective schools, particularly for mathematics. In fact, grouping by attainment has been actively encouraged as 'good practice' by successive UK Governments (Dracup, 2014; Francis, Archer, et al., 2017) and many practitioners argue that homogeneous grouping is beneficial, despite research evidence to the contrary.

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<sup>1</sup> We do not subscribe to conceptions of 'ability' as ascribed and fixed. We see it as malleable, and prior attainment as reflecting a range of societal factors that impact educational progress and outcome.

## The different forms of attainment grouping

In many countries, students are grouped into different schools based on measures of 'ability' or attainment, or to follow particular courses of study. Our concern in this article is with within-school grouping, which can be categorised into four main types: streaming (or tracking), setting, within-class 'ability' grouping and mixed-attainment grouping (figure 1). *Within-class grouping*, where children sit at different tables according to their prior attainment, is frequently used in primary schools in England, even with children as young as age 5 (Bradbury & Roberts-Holmes, 2017; Hallam & Parsons, 2013b).

Figure 1. Different forms of within-school attainment grouping (adapted from Francis et al., 2020)

Streaming (tracking)	Grouping students according to their perceived general 'ability' across all or most subjects, such that students are taught in the same, streamed groups for all lessons. Hence irrespective of subject, students will be sitting in class with the same students.
Setting (tracking by subject)	Grouping based on attainment in individual subjects, so a student might be in a high set for mathematics and a lower set for English.
Within-class 'ability' grouping	Most commonly practiced in primary schools. Children are organised at 'ability tables' within a class containing a wide range of prior attainment.
Mixed-attainment grouping (mixed ability grouping)	Students are not grouped based on prior attainment. There may be a deliberate effort to achieve a broad range of prior attainment in each class.

*Between-class grouping* is also prevalent in English primary schools, with children divided into different classes based on attainment in specific subjects, most frequently mathematics and English (*setting*), or on the basis of a notion of general ability (*streaming*) (Hallam & Parsons, 2013a). These approaches become increasingly common in the later years of primary education (Towers, Taylor, Tereshchenko, & Mazonod, 2019).

In English secondary schools the dominant practice is setting (Taylor et al., 2020), where students are grouped based on attainment in an individual subject for teaching in that subject. This approach has the advantage of recognising that a pupil can be low-attaining in one subject area and high-attaining in another, thus reducing the amount of ability-labelling associated with grouping and

increasing the level of social mixing, as well as keeping more closely to the espoused benefit of attainment grouping, being the ability to target teaching to students' needs.

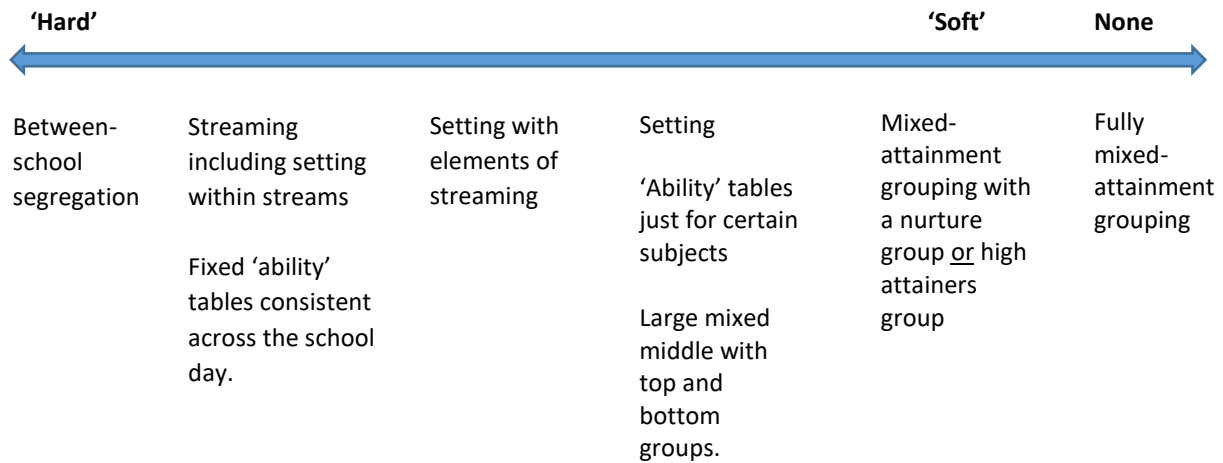
Finally, there is mixed-attainment grouping, where no attempt is made to group pupils by their prior attainment. In some schools there is a deliberate effort to achieve heterogeneous groups with a broad range of prior attainment, while other schools seek to achieve socially diverse groups by taking other characteristics into account.

However, types of grouping are not this simple in practice. For example, in the case of setting practice, we have encountered examples of mathematics attainment determining set placement in science and English attainment determining set placement in modern foreign languages; introducing an element of streaming. Additionally, schools may combine grouping strategies, using setting within streams, or within-class grouping within mixed-attainment groups. (See Francis et al., 2020 for discussion).

Furthermore a variety of terms are used for attainment grouping practices, not always consistently (Steenbergen-Hu, Makel, & Olszewski-Kubilius, 2016). Domina et al. (2019) identified five dimensions of tracking in the US (curricular differentiation, classroom skills, track exclusivity, track stability and track scope), which they note can vary independently to produce a vast range of different practices all described as 'tracking'. Differences in understanding of grouping practices between individuals within school complicate the picture further (Watanabe, 2006).

We choose therefore to conceptualise attainment grouping in the UK as a continuum (figure 2). Between-school grouping is at the 'hard' end of the spectrum, as it is based on the assumption that children can be segregated into different types of schools and destined for different futures. Fully mixed-attainment grouping sits at the opposite end of the spectrum. Streaming and setting lie in the middle of the spectrum, with setting at least in theory allowing more scope for children to move between groups.

Figure 2. Attainment grouping spectrum. We note that with subject specific grouping types (setting and partial mixing), the more subjects that they apply to, the 'harder' the attainment grouping. (Reproduced from Taylor et al., 2020)



### The international picture

The English education system is highly inclusive when compared to others globally, despite the close correlation between educational attainment and family wealth (Jerrim & Macmillan, 2015) and the unusually large number of different types of school (Francis, 2017). The majority of children are educated in comprehensive schools until age 16, at which point educational trajectories diverge.

By contrast, the majority of countries employ some kind of stratification of secondary schooling. In many cases this consists of explicit, between-school tracking, with children sorted into different academic (university track) or vocational educational programmes. Across the OECD the mean age of selection is 14, but it ranges from 10-16 with the majority of countries tracking at age 15 or 16 (OECD, 2016). Pathways beyond age 16 tend to be highly socially-classed in all countries (Fjellman, Hansen, & Beach, 2019).

Between-class grouping is also employed in a number of national education systems. As in England this can be on a subject-by-subject basis (setting), or curriculum-wide (streaming). Some systems offer distinct courses at different levels of difficulty in one or more subjects (see for example Domina, Hanselman, Hwang, & McEachin, 2016). In some systems late tracking is combined with high levels of between-class grouping, e.g. UK, USA, Australia, New Zealand. Other systems have low levels of between-class grouping. These include both countries with between-school tracking such as Austria and Italy, and those with highly comprehensive practice, such as Denmark and Norway (OECD, 2016; and see Francis et al, 2020, for discussion).

The OECD also reports on within-class grouping, finding this a more common practice than between-class grouping in OECD countries. In Beijing, Shanghai, Jiangsu and Zhejiang (China) students are tracked into four tracks at age 15, but 77% are grouped within-class in some or all subjects. By

contrast the majority of students (63%) do not experience between-class attainment grouping (OECD, 2016).

There is clearly a need for more fine-grained analysis of national practices, however, it remains clear that a wide range of practices are used in different systems and it is very rare for countries not to apply some kind of grouping by attainment. Only a small number of countries are identified as having both a system that is comprehensive to age 16 and minimising the use of between and within-class grouping (Norway, Spain, Iceland, Estonia and Sweden; OECD, 2016).

### Why is attainment grouping adopted?

There is limited research exploring the reasons why educationalists implement different attainment grouping practices. Some countries have explicit policies on attainment grouping, however in England where there is a high level of school autonomy, decisions are made at the school level. As such, in some schools the approach to grouping is decided at a whole school level by senior leadership, while in others the decision is devolved to subject leaders. It appears frequently to be the case that historical practices are absorbed into institutional culture and are rarely questioned (Taylor et al., 2017).

Where active decisions are made about attainment grouping, the most significant motivation appears to be about raising pupil attainment. Advocates argue that this approach enables teachers to stretch and challenge 'able' learners, and to provide support to those who are struggling (DFES, 2005). It is claimed that homogeneous attainment groups allow teachers to direct appropriate resources and activities to meet students' needs and help them progress (Hallinan & Sorenson, 1987). Indeed, a recent study carried out for the Department for Education in England found that one third of schools had 'introduced or improved' attainment grouping practices in order to raise the attainment of disadvantaged pupils (Macleod, Sharp, Bernardinelli, Skipp, & Higgins, 2015).

### Is attainment grouping effective?

Much research has attempted to answer the question of the effectiveness of attainment grouping, however the impact on student outcomes remains a contested area. Many smaller-scale, qualitative studies have focused on student experiences of attainment grouping, while large-scale quantitative, experimental and/or meta-analytic studies have focused on pupil outcomes. Despite 'one hundred years' of research (as per the title of a recent study by Steenbergen-Hu et al., 2016) the findings are somewhat inconclusive.

Particular issues faced by those researching attainment grouping include the complexity of grouping practices, as outlined above; the generalisation of research with sub-groups (e.g. 'gifted' students) to

the wider population; the compounding of these issues in meta-analytic studies with different inclusion criteria; and the political nature of the topic (Francis, Archer, et al., 2017). Furthermore, the majority of studies have been conducted in the US and are rather dated. Given the great variation in practices between and even within countries, it is clear that research needs to take context into account and may not be transferable in the way that has been assumed.

With the above reservations in mind, reviews of attainment grouping research have found that on average pupils in classes grouped by attainment make slightly less progress than pupils in mixed-attainment classes. While those with high prior attainment may gain a small benefit, middle- and lower-attainers – the majority of pupils – make less progress (e.g. Higgins et al., 2018; Steenbergen-Hu et al., 2016). As Boaler & Wiliam (2001) summarise:

.... bringing together the different research studies on ability grouping the general conclusion is that streaming has no academic benefits whatsoever, while setting confers small academic benefits on some high-attaining students, at the expense of large disadvantages for lower attainers. (p. 179)

Slavin's (1990) best evidence synthesis comparing outcomes for students taught the same curriculum in grouped and ungrouped classes concluded that 'the effects of ability grouping on student achievement are essentially zero' (p. 484). Rui (2009) found overall positive effects of heterogeneous (mixed attainment) grouping on students' academic outcomes. Further analysis by student attainment level revealed statistically significant academic gains for low-attaining groups in de-tracked (mixed attainment) settings, but no effects for students at high and average attainment levels. Steenbergen-Hu et al. (2016) conducted a second order meta-analysis, replicating earlier findings regarding that the effects of between-class grouping are negligible, regardless of students' initial attainment levels. However, all these reviews are based on research that is now very dated, with the most *recent* study included in Steenbergen-Hu et al.'s meta-analysis published in 1991.

This overall finding conceals the serious implications for pupils in particular attainment groups. Many studies have demonstrated the gains made by high-attaining students at the cost of low attainers placed in bottom groups (e.g. Kerckhoff, 1986). Linchevski & Kutscher (1998) found that the attainment of students on the borderline between different 'ability' bands was greatly affected by their placement, with those assigned to higher groups making more progress than those assigned to lower groups. The Education Endowment Foundation Teaching and Learning Toolkit concludes that

The evidence suggests that setting and streaming has a very small negative impact for low and mid-range attaining learners, and a very small positive impact for higher attaining pupils. (Higgins et al., 2018)

### Attainment grouping and equity

This finding is even more concerning when considering that segregation by attainment also means segregation by social background. Working class students have been consistently shown to be over-represented in low sets and streams (Cassen & Kingdon, 2007). This is partly explained because, on average, children from disadvantaged backgrounds are shown to be significantly behind their middle-class peers on entry to schooling (Waldfogel & Washbrook, 2010), although there is also evidence of misallocation of pupils from disadvantaged backgrounds to lower sets (Muijs & Dunne, 2010).

Ethnicity is also a significant predictor of allocation to particular attainment groups or tracks. Black students are more likely to be allocated to lower tracks both in England and the USA (Hallinan, 1996; Muijs & Dunne, 2010), while White students are more likely to be allocated to higher sets (Moller & Stearns, 2012; Muijs & Dunne, 2010). In England, Bangladeshi students are more likely to be in lower groups (Muijs & Dunne, 2010), while in the USA Asian-American Students are more likely to be in college tracks (Moller & Stearns, 2012).

Findings relating to gender are less clear with some studies indicating boys are more likely to be assigned to lower groups (Hallam & Parsons, 2013b; Van de Gaer, Pustjens, Van Damme, & De Munter, 2006), others finding no difference (Muijs & Dunne, 2010) and still others finding that boys are more likely to be placed in higher tracks (Moller & Stearns, 2012).

It is important to emphasise, however, that research has also found evidence that practices of track allocation are biased, with placement frequently influenced by other factors, including prejudice (Dunne et al., 2007; Jackson, 1964). Although more weight tends to be put on attainment these days, schools have still been found frequently to make use of teacher judgements and recommendations alongside assessment data, with similar outcomes of social segregation (Muijs & Dunne, 2010; Taylor et al., 2019).

As we have observed above, a substantial body of international research shows that once assigned to low attainment groups, students make less educational progress than their counterparts in higher sets and streams. In other words, young people from disadvantaged backgrounds who are placed in 'low ability' groups face a double disadvantage and segregation by 'ability' within schools exacerbates wider social inequalities (Francis, Archer, et al., 2017).

## The Best Practice in Grouping Students Study

Our literature review identified seven key factors that we postulated might underlie the detrimental effects of attainment grouping (Francis, Archer, et al., 2017). These included:

- Misallocation of pupils to attainment groups
- Lack of movement between groups so that pupils get 'stuck' in lower-attaining groups and cannot move up
- Quality of teaching, with pupils in lower-attaining groups receiving lower quality teaching
- Teachers having higher expectations of pupils in high-attaining groups and lower expectations of pupils in low-attaining groups
- Pupils in lower-attaining groups receive a restricted and less demanding range of pedagogies and an impoverished curriculum and qualifications, which in turn creates a barrier to movement between sets
- Pupil perception and experiences of 'ability' grouping and impact on their learner identities
- These factors working together to cause a self-fulfilling prophecy.

We designed the 'Best Practice in Grouping Students' project to explore these issues. The study, funded by the Education Endowment Foundation, ran from 2014-2018 and investigated setting and mixed attainment grouping in 139 secondary schools in England. It consisted of two interventions: Best Practice in Setting, which aimed to address the problematic practices associated with setting identified above, and Best Practice in Mixed Attainment, which endeavoured to establish principles for teaching students in heterogeneous groups. The interventions were independently evaluated using a randomised controlled trial design (Roy, Styles, Walker, Bradshaw, et al., 2018; Roy, Styles, Walker, Morrison, et al., 2018) and a mixed methods process evaluation enabled us to explore in depth the experiences of teachers and students involved in the research.

Our focus here is on the young people and their English and mathematics teachers participating in the Best Practice in Setting trial, who were followed for their first two years of secondary school from age 11 to 13. Baseline (N=11608) and follow-up (N=8653) surveys were conducted with students and teachers (baseline N=597; follow-up N=471) and case studies were conducted in 10 schools, including semi-structured interviews with students (N=118) and teachers (N=34). The surveys included scales to measure general and subject (English and mathematics) self-confidence as well as wider questions about attitudes to school and experience of attainment grouping. Additionally, prior attainment data was collected from the National Pupil Database and sub-samples of students completed mathematics and English attainment tests at the end of their second year of secondary school.



The independent evaluation did not find any statistically significant difference in outcomes between the intervention and control groups, and therefore no significant effect of the Best Practice in Setting or Best Practice in Mixed Attainment interventions. Nevertheless, a number of concerning and significant findings arose from the wider dataset, which we present here. These findings include evidence of misallocation of students to sets on the basis of gender and ethnicity; evidence that pupils in lower sets do not have access to the same quality of teaching as pupils in higher sets; evidence of the detrimental effect of attainment grouping on pupils' general and subject self-confidence; and evidence that schools find it difficult to change and improve their grouping practices.

### Misallocation of pupils to sets

Past research has indicated that pupils from disadvantaged backgrounds and those from certain minority ethnic groups are more likely to be incorrectly placed in lower sets and streams (Muijs & Dunne, 2010). In line with this we found evidence that disadvantaged pupils, and Black and Asian (predominantly Pakistani, Bangladeshi and Indian) pupils were disproportionately likely to be placed in lower sets (Archer et al., 2018). To investigate this further, we explored the set placement of pupils in the control group in the Best Practice in Setting trial. These schools were assumed to be carrying on with their normal practices and so considered to be comparable to English schools in general. We compared the actual mathematics set placement of pupils in these schools with a hypothetical mathematics set placement, based on the same number and size of sets, but assuming that allocation was solely on the basis of Key Stage 2 mathematics tests scores<sup>2</sup>. Pupils were then coded as being in the same set, or a higher or lower set.

We found worrying group differences based on ethnicity and on gender. Black students were 2.54 times more likely to be placed in a lower set than was predicted from their KS2 score. Asian students were 1.77 times more likely than White students to be placed in a lower set than predicted, and girls were 1.55 times more likely than boys to be placed a lower set than predicted. Conversely, White students were 1.79 times more likely than Black students and 1.69 times more likely than Asian students to be placed in a higher set than predicted by their KS2 mathematics score, and boys were 1.42 times more likely than girls to be placed in a higher mathematics set than predicted by their KS2 score (Connolly et al., 2020).

We argue that this provides evidence of stereotyped views of students influencing set placement. Combined with prior research that students in lower sets and streams make less progress and

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<sup>2</sup> Key Stage 2 tests are taken in the final term of primary education by all children in English state-funded primary schools.

achieve lower outcomes, misallocation is highly likely to be exacerbating existing injustices around ethnicity and gender in English schools.

Unlike prior research we found no evidence of misallocation based on social disadvantage – we suggest that this may be due to a policy focus in recent years of closing the attainment gap between disadvantaged students and their more advantaged peers. Indeed some teachers reported to us that they were not allowed to move disadvantaged children down to a lower set, and other policies designed to promote the attainment of disadvantaged pupils.

### Quality of teaching

Another important factor we had identified for further investigation was that of the quality of teaching available to pupils in different sets (Francis et al., 2019). By examining the relationship between teachers' qualifications and the set level they were assigned to teach, we found some evidence of bias in teacher allocation, with teachers who were highly qualified in their subject being less likely to be allocated to low sets.

Pupils also perceived differences between the teachers of high and low sets. In focus groups they told us that teachers of high sets had rigorous expectations of discipline and 'pushed' pupils to do their best. This was appreciated by pupils who saw it as a sign of teachers respecting their pupils, furthered by the independent learning opportunities that pupils in high sets were offered.

By contrast the pedagogy in low sets was widely regarded as being more tolerant and relaxed. Teachers were perceived to 'spoon-feed' their pupils and there were fewer opportunities provided for independent study and skill development. Lessons were slow paced and less demanding. This difference in pedagogy between teachers of high and low sets was corroborated by teachers themselves (Mazenod et al., 2019).

### Self-confidence

Early multilevel analysis of data from our baseline student survey found some unsurprising differences in self-confidence between pupils in top, middle and bottom sets. Pupils in the top sets had the highest self-confidence scores, with pupils in the bottom sets having the lowest self-confidence. This held true for both subject-specific and general self-confidence (Francis, Connolly, et al., 2017). This data had been collected shortly after pupils had been placed in their mathematics and English sets for the first time and may reflect the impact of being assigned to these groups.

However, even more concerning is the cumulative effect on self-confidence of two years in attainment groups, after controlling for prior attainment and prior self-confidence (figure 3, and see Francis, Craig, et al., 2020). After two years in the top set for mathematics, pupils had significantly

higher general self-confidence compared to the middle set, while the bottom set had significantly lower general self-confidence. There was also a similar trend for pupils in the bottom set for mathematics and subject-specific self-confidence, although this did not reach statistical significance. After two years in the top set for English, pupils had significantly higher self-confidence in English, compared with pupils in the middle set.

We conclude from these findings that being placed in a top set increases pupils' self-confidence, while being placed in a bottom set lowers it.

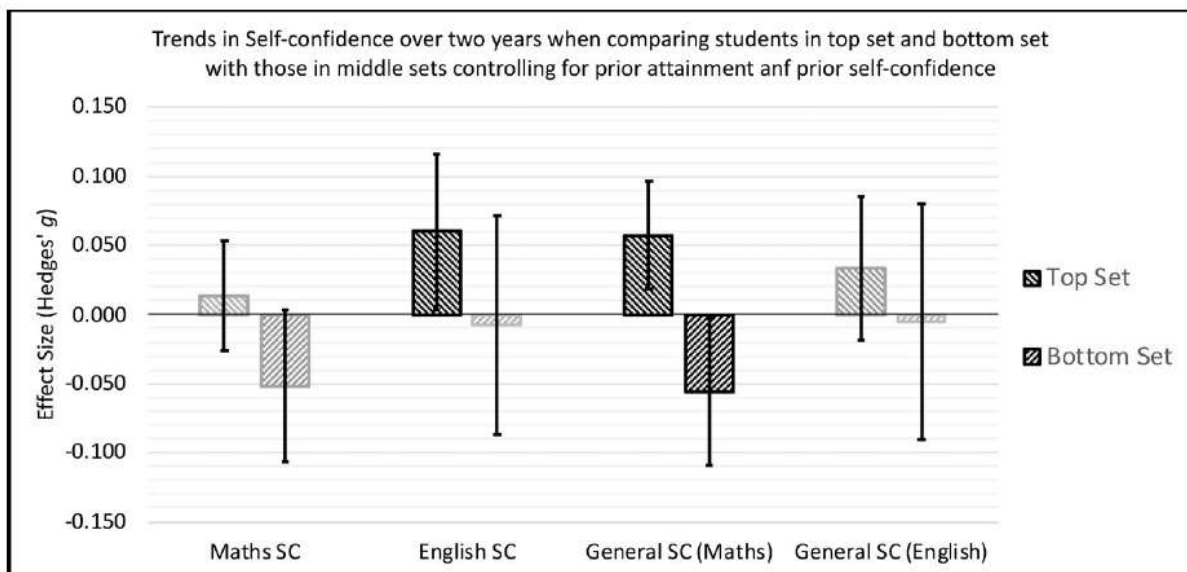


Figure 3. Trends in self-confidence over two years when comparing students in the top and bottom set with those in middle sets, controlling for prior attainment and prior self-confidence. (Reproduced from Francis, Craig, et al., 2020).

### Recommendations for practice

Attainment grouping, we have shown, creates social segregation within schools on the basis of social class, ethnicity and gender. We have demonstrated that certain pupil groups are more likely to be misallocated to attainment groups, meaning that existing social inequalities on the basis of ethnicity and gender are likely to be exacerbated. We have shown that students in low attainment groups have low subject and general self-confidence, with the gap in self-confidence between high set and low set pupils widening over time. The quality of provision for pupils differs between sets, contributing to the above. We conclude therefore that attainment grouping perpetuates social injustice in English schools and doubly disadvantages those students most in need of support.

We have been encouraging teachers and school leaders in England to reflect on their attainment grouping practices in the light of research findings and have formulated guidance for schools to

assist with making improvements to practice. Our research has shown that schools find it difficult to change their practices (see, e.g. Taylor et al., 2017, 2019) and we therefore advocate a pragmatic approach of taking small, manageable, evidence-based steps toward making practice more equitable. We have constructed these as ‘Dos and Don’ts of Attainment Grouping’ (see table 1).

Table 1. Dos and don’ts of setting (reproduced from Francis, Taylor, Hodgen, Tereshchenko, & Archer, 2018)

Do make setting as subject-specific as possible	Don’t set by timetable convenience
Do group students by attainment only	Don’t extrapolate setting across subjects
Do retest regularly and move students between groups	Don’t assign subject expert teachers only to top sets
Do use a lottery system when assigning borderline students to sets	Don’t give less homework to low sets
Do make sure all students have access to a rich curriculum	Don’t provide low sets with a ‘dumbed-down’ curriculum
Do apply high expectations to all sets	Don’t leave students in sets without regular testing

The ‘Dos and Don’ts of Attainment Grouping’ are designed to address the concerns raised by our research about the practice of setting in English schools. For example, to address the finding that pupils are misallocated to sets on the basis of ethnicity and gender, we recommend that – if schools remain committed to setting - schools should group pupils by subject attainment only and not by any other measure. It is likely however that when pupils are allocated to groups on the basis of attainment there are groups of borderline students with similar scores who could go into either a higher or a lower group. We recommend that a lottery system (random allocation) is used in these cases, to prevent any stereotyping or biases influencing set placement decisions.

To address the finding that students in low attainment groups are less likely to have access to highly qualified subject teachers, and are more likely to receive a limited curriculum and pedagogy, we recommend that subject expert teachers are not just assigned to top groups and that teachers ensure that all students have access to a rich curriculum. We also advise that teachers have high expectations of students in all sets, for example by setting homework tasks for all students and not just for those in higher sets.

Finally, to prevent placement in low-attainment sets becoming a self-fulfilling prophecy and to avoid the feelings of hopelessness expressed by students in our study, we suggest that teachers test students regularly to facilitate their movement between groups, and to ensure that pupils do move

set when it is appropriate for them to do so. However, it does remain likely that the simple act of placing a student in a set or 'ability track' impacts their confidence (negatively for low tracks and positively for high tracks), meaning that pedagogic reflection on the consequences of tracking practices is important.

## Conclusion

In this article we have summarised our findings in relation to attainment group in English schools. We find that this dominant practice is perpetuating disadvantage and harming those students that many schools believe it is helping. We believe that between-class grouping in schools should be minimised, but our conversations with many teachers indicate that this is difficult to achieve, particularly in subjects such as mathematics and foreign languages, where grouping by attainment is a strong part of the subject culture. Mixed-attainment grouping, where pupils are taught in classes with a spectrum of prior attainment reflecting the full range present in the cohort, might be a desirable way forward and indeed is used successfully in countries such as Finland and Norway. However, in mathematics there are relatively few teachers in the English system with experience of teaching mixed attainment groups and our understanding of successful mixed attainment teaching is limited (see Francis, Taylor, et al., 2020, for further discussion). We believe that more support needs to be given to mixed attainment teaching and further research conducted in order to understand what works well in setting and in mixed attainment teaching, particularly in supporting the achievement of lower-attaining pupils and closing the attainment gap between disadvantaged pupils and their more advantaged peers. We hope that our ongoing Student Grouping Study (Hodgen, Taylor, Anders, Tereshchenko, & Francis, 2019) will provide answers to these questions.

We have also observed that attainment grouping practices are complex and highly contextualised (Domina et al., 2019; OECD, 2016). Therefore, there is a need for further research to explore how attainment grouping is practised and what its effects are in a wider range of countries including those such as China with relatively little research conducted in this area to date.

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