

Introducing, developing and maintaining all-attainment mathematics teaching while convincing others

Colin Jackson

Independent academic

‘Ability’ grouping, almost universal in English secondary mathematics classrooms nowadays, limits access to the subject for many children. Thus, it is a social justice issue. Here, I draw on my doctoral thesis, a small-scale qualitative study, using interviews, into all attainment teaching in secondary mathematics departments. Here I focus in particular on my findings in relation to the question: How do mathematics teachers introduce, develop and maintain all attainment teaching in the current educational environment?

Keywords: all-attainment; introducing; developing; maintaining.

Introduction

The research reported here draws on some of the findings of my doctoral thesis (Jackson, 2020). My thesis focussed on those mathematics teachers who do not accept the hegemonic practice of grouping students in secondary mathematics by perceived ‘ability’. This practice in mathematics teaching in England is now virtually unquestioned and is almost universally accepted as ‘common-sense’. In my thesis I argue that, as previous research shows, this practice is unjust.

During 2016 I carried out in-depth interviews with six teachers in three schools.

Brierley Grove	inner London comprehensive with a largely working-class intake	Pete, Philippa, Akhila
Shortvalley	comprehensive on the south coast	Bob, Sarah
Duckworth Community School	rural comprehensive in Cambridgeshire	Adara

Table 1 The schools and the teachers (all names are pseudonyms)

Here I report on one of three major themes which emerged from my research: how they introduce, develop and maintain all-attainment teaching.

All of the teachers either introduced all-attainment teaching or actively chose to join a department which was already teaching all-attainment or in the process of changing to all-attainment. Despite different experiences some common patterns emerged. These were the need:

- for support both from above including crucially the headteacher and from at least one like-minded and committed colleague;
- to convince others in the department including how this can be achieved; and
- to support the professional development of those others through collaborative curriculum planning and designing resources.

Support from above

Support from above played a significant role in the successful introduction of all-attainment grouping and the need for this support was recognised by the teachers. Unsurprisingly one key factor was the attitude of the headteacher. If the headteacher actively opposes all-attainment even if it is working successfully, it can become impossible to either implement it or continue with it. However, one of the striking things to emerge is the extent to which the teachers, in a culture where compliance to authority is the norm (Hall and McGinty, 2015), took the power they could find and vigorously used it to support and defend all-attainment teaching.

Pete and Bob had joined their schools with the agreement of their heads that they could introduce all-attainment. Despite this undertaking the headteacher at Shortvalley delayed its introduction because of the opposition of a deputy head.

When I arrived, I had been given an undertaking that we would have all-attainment teaching in maths in year 7 in the first year ... but it took a year to get it and I had to make a threat that I was going to leave if the promise wasn't honoured ... We just got through the year with the deputy head. We had a battle. ... There was scepticism, there's no doubt about that ... at the time it wasn't so pleasant because I was getting frustrated having been given a guarantee [by the headteacher on my appointment], but we had the debate. [Bob]

At Brierley Grove the headteacher devolved curriculum responsibility to the head of mathematics, who devolved some responsibility to Pete in return.

A job came up here ... So, I thought I'll apply for it, but I'll make it clear where I'm coming from ... I'd like to ... work towards ... mixed-attainment ... if you give me the job, that's what you're getting ... So [the headteacher] ... to his credit, said fine ... [Pete]

The support of the head of mathematics at Brierley Grove was important and his support seemed to be genuinely based on what was occurring, unlike in so many contexts. Therefore, it was important that Pete was prepared to monitor, report on and base his argument on results, 'hard' and 'soft'. Just like Bob, Pete had needed to use the threat of leaving the school in order to maintain the programme of change for which he had been appointed. He and Philippa were also able to use the shortage of mathematics teachers in London as a threat:

We've had to put our argument across as to why we're doing 'mixed ability'. The [recently appointed] head himself has said to us "Well, every other school in the borough is teaching in sets, you need to be teaching in sets" ... We use the shortage of maths teachers to our advantage in that case ... [Philippa]

So important is support from above that when 'ability' grouping is reimposed by a change of headteacher they are left with a choice: stay and comply or leave. Sarah ended up in this position at her previous school and subsequently at Shortvalley where both she and Bob took the decision to leave. Similarly Philippa sought to work in an all-attainment setting rather than stay in a school which set.

[At the school I left] people are expected to teach [in a] way that doesn't seem to make any sense at all ... there's no research, .. that suggests this is the best way to teach ... I struggled with that because I was ... having to do things that I don't believe in ... I took a job [at Brierley Grove] because I knew I'd be able to teach in a way I wanted without being hassled. [Philippa]

However, vital as the support of the headteacher is, it can prove detrimental in the long-term if it leads to ill-thought through policies. At Shortvalley this had a particularly strong negative impact:

Our main problem was that the headteacher, having seen this in maths in year 7, decreed to the school that all classes in years 7 and 8 in all subjects would be mixed-attainment and didn't give any training or any justification in the lead up to ... the implementation of that decision ... [Bob]

In addition the SENCO decided on the timetable and how the classes were formed which had a serious negative impact on what was achievable in mathematics:

[The year 7 and 8 classes are] definitely skewed in certain ways so even though they're supposed to be ... mixed-attainment we've got a class that has ... predominately SEN students because they were grouped by the SENCO. She put all the class lists together so that she could support them with less staff ... we've ended up with classes we wouldn't have constructed in that way ... it was very hard to get anyone on SLT to understand ... a mixed-attainment class doesn't mean you can just put any kid in there ... you have to represent all of the attainments across the year group ... it was all around how the SENCO decided to group the children ... and we couldn't make any changes. [Sarah]

It was a very strange decision ... if it had been a form group that might have worked ... but the form groups are different ... we've got no control whereas [previously] in maths we had direct control ... That was the headteacher's and the senior leader decision ... I'm only the head of maths, I didn't have any say in this. [Bob]

A change of headteacher can often cause problems because, ultimately, control can be exercised by the headteacher even in the face of success and high attainment:

We found when mixed-attainment was introduced at my previous school, the last year that I was there the year 11s got 65% A – C and it had previously been 45%. Bizarrely the new headteacher that came in there also did away with mixed-attainment teaching even though the school had the best results ever ... [Sarah]

It appears that departments need a very strong established track record of success for resistance to be successful against unsympathetic senior leadership and even that is sometimes not enough.

Support from colleagues

Although it is possible for one teacher, as head or second in charge of mathematics, to introduce all-attainment, it is a difficult thing to do in the face of the current orthodoxy. Even knowing the research evidence supports you and you have the support of the senior management, going against the 'common-sense' prevalent among your mathematics colleagues is problematic. In such circumstances the support of one or more colleagues is very important:

It was driven forward by me ... I persuaded three or four other people to go along with it [including] one teacher who's left now, who became quite enthusiastic ... so that was helpful. [Pete]

Me and Philippa worked really well together, it sort of put that heart in the faculty ... if I'd been just me, I'm not sure we'd have sustained it. [Pete]

Before I joined Lena [the head of mathematics at Duckworth Community School said] they wanted to go mixed 'ability' ... Well, I'm well up for it ... and everyone was willing to give it [mixed-attainment] a try despite not having done it before ... Lena, Mark and Shaun were very keen, and Jack and Sam had reservations but were willing to give it a try. [Adara]

Having, or creating, a core committed team is an important factor in resisting the dominant 'common-sense' culture and makes an important contribution toward success. Teachers who were engaged in moving to all-attainment were always on the

lookout for supportive teachers. A potential good source of sympathetic teachers is created through involvement in initial teacher education:

I know at [my college] we were really encouraged to teach in a way that was similar to what Brierley Grove does ... I definitely realised how much of a different experience I was having in my placement [at Brierley Grove] than what other PGCE students were having on their placements ... so I knew this was a school I definitely wanted to sort of keep connected to. [Akhila]

We've had a very deliberate policy ... we're taking lots of PGCE students and the ones that we like, if there's somebody about to leave, ... we ... give them jobs. [Pete]

Everyone that currently works here was recruited by Bob and myself. Two of them ... came here as PGCEs and they made a decision to work in this school because they were behind both mixed-attainment and inquiry.[Sarah]

Convincing others

Unsurprisingly, convincing other colleagues in the mathematics department is regarded as a longer term essential:

You have to convince, persuade, show... that can involve some quite sharp arguments ... but ... there isn't a short-cut. It will only work if people want to work here ... feel that they're .. valued [Pete]

We had to go through some training [at Shortvalley]. And ensure the staff were comfortable teaching mixed-attainment. So, we had a core team of five teachers ... three people were very committed to mixed-attainment teaching and two were prepared to give it a go ... And other people ... needed to see it could work. I understand that, because I'm new ... and I'm saying ... "we're doing this". [Bob]

Some teachers, Adara is an example, may come across all-attainment or indeed have even worked in a school where there is some all-attainment. But in general, convincing other colleagues was a fundamental aspect to its successful implementation. The teachers approached this in two main ways: convincing by example and by data and research.

Convincing by example

All-attainment in mathematics is so infrequent nowadays that telling other teachers that it improves engagement of all students and that it improves attainment at all levels does not usually work as virtually the only classrooms they come across are organised by 'ability': they have no experience of all-attainment and their opinions reflect this. Many mathematics teachers are so immersed in their own situation that they effectively have no horizon beyond the status quo; they think students have fixed 'abilities' and cannot see that things could be different (Gadamer, 1960/1975). There is nothing that can be done to change this (Stobart, 2008; Syed, 2011; Francis et al., 2017; Jones, 2016; Marks, 2016). But the teachers behind the introduction of all-attainment have every expectation that both observing and experiencing the change in practice will encourage others to join them. Though teachers are encouraged to use the new schemes of work and lesson plans they are not compelled to use them, they can still teach in a way that works for them. Pete expresses this expectation most clearly:

Most of the staff weren't convinced at all. ... there was big opposition. So, what we started it with was in Year 7, basically I ... did all the resources, all the lesson plans ... My attitude was ... the best way to convince teachers is to say (a) you

come and watch what I'm doing, and (b) here are lots of resources and lesson plans you can use – I've saved you a pile of work. ... Give it a go. Over time, slowly people started doing that ... [At first] in a minority of lessons with a minority of teachers something else did begin to happen. But ... there was enough movement to allow it to go into Year 8. [Pete]

Convincing by data and research

Even the most supportive data is sometimes not enough to convince people committed to the prevalent educational discourse. Nevertheless, the power of argument, of using locally produced data (hard and soft), was also recognised:

You know, reasons need to be put, and evidence needs to be delivered. [Bob]

As long as the results are okay, we get through things like OfSTED ... as long as ... we tick all the right boxes as well, they basically leave us alone. ... there's a game you have to play ... the evidence might be ... both in terms of the engagement and happiness of the kids doing mathematics, but also the hard measures of attainment and tests and things like that. [Pete]

This has particular resonance when addressing the issue of the currently highest attaining students: despite the research evidence (Ireson, et al., 2005), as is common with some parents, (Francis et al., 2017) most teachers believe high attainers will be disadvantaged in all-attainment groups. With this in mind, Pete set up a small piece of action research with another local comprehensive which set. He wrote a detailed exposition of the data including the fact that, as many expected, the middle and lower attaining students did better in the mixed-attainment groups. What came as a surprise to his colleagues was that the performance of the higher attainers improved even more.

The effect it had ... was to convince people ... people were shocked when they saw it. I'd say about half the department at that time were convinced this would show the opposite. ... So [it] shifted people to the point where OK this is how we want to do things now. [Pete]

The interviewees are willing and able to engage in the debate about 'ability' grouping and know the importance of doing so.

Difficulties and failure to convince

Despite all this, however, some existing staff found changing from 'ability' grouping to all-attainment difficult or impossible: they were firmly located within the current policy discourse. Unfortunately, extraneous factors, such as difficulty in replacing staff who leave, may affect the introduction of all-attainment teaching, undermining attempts to convince. Thus both Bob and Pete knew they had to make changes gradually. Bob in particular needed to make some concessions to those staff who did not want to change to all-attainment.

A collaborative approach to curriculum planning and resources

The need for continued professional development was, in general, recognised as essential not just in introducing all-attainment but also in developing and maintaining it. Collaborative planning was seen as a key element in this. Teaching against the grain (Cochran-Smith, 1991) is not an easy undertaking and the skills and understanding to do this successfully require the active participation of those teachers

engaged in it including engagement with the curriculum. This is fundamental to developing an ethos where all teachers are committed to making all-attainment work.

Among many reasons given for not adopting all-attainment is believing that as a teacher you have to work harder (Oakes, 2005). These teachers acknowledge that teaching all-attainment is different. They seek ways to deal with this including sharing the workload, an important aspect of which is to collaborate on producing suitable tasks.

Although in the short term the teacher/s introducing all-attainment may have to produce the teaching materials, as some teachers may feel a lack of expertise, the medium-term aim is to involve all teachers in collaborative planning to reduce workload, to contribute to the professional development of all involved and to ensure they are fully committed to making all-attainment work so that all students can learn without limits (Hart, 2004).

Conclusion

Thus, my small-scale study suggests that some support from above and from at least one colleague in the mathematics department is necessary when introducing and developing all-attainment mathematics and for its continued maintenance. In addition it is important in the long run in developing and maintaining support for all-attainment to convince other colleagues that all-attainment is the right approach through example, data and research and to ensure professional development through a collaborative approach to curriculum planning.

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