Well-meant intentions: ability-grouping in primary mathematics

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INTRODUCTION

Ability-grouping has a complex history in the primary classroom, particularly in primary mathematics. It is clear that its usage has increased substantially, to the point where ability-grouping practices – both within and between class grouping – are common place in the primary school, particularly in mathematics. Many surges in the use of ability-grouping can be traced to specific policy changes, for instance the inception of the National Curriculum and the National Numeracy Strategy. Schools feel under increased accountability pressures to ensure that as many of their pupils as possible reach specific Government laid down targets, particularly for the end of primary school. These pressures have brought with them an increase in ability-grouping and related practices as a perceived logical response in which pupils can be supported towards these targets and receive teaching experiences appropriate to their needs. However, these practices are being enacted with a lack of evidence as to their impacts at the primary level. This short paper, part of a wider study into ability-grouping in primary mathematics, examines some of the impacts of these practices for pupils' learning in primary mathematics.

AWARENESS AND LABELLING

A key feature that came through in this study was pupils' awareness of the groups they were assigned to and their understanding of group labels. Whether they were grouped within class by common recourse to colours, shapes or animals, or between classes with set numbers, pupils readily identified themselves and peers by their group label and understood the meanings and implications of the different labels:

> "Table 1, that's clever, really really clever, table 2 is very clever, table 3 is very clever, number 4 is just clever, I'm on 1." (*Peter, Riverside Primary, Year 4*)[1]

> "I'm a green person" (*Jessica, Parkview Primary, Year 4*)

Pupils tended to talk in terms of group identifiers, rather than in terms of individual pupils. Further, pupils showed a strong awareness of the linkage between group placement and National Curriculum identifiers, demonstrating the impact of practices enacted in response to targets:

> "All the 3Bs go to the side of us, the 3Cs go in the middle and the 2As, they go to the end." (*William, Riverside Primary, Year 4*)

[1] All names in this paper are pseudonyms

CARE AND PROTECTION

In using ability-grouping to support all pupils and provide appropriate learning experiences, teachers often talked about wanting to protect the lowest attainers from what they regarded as 'frightening' mathematics. Enacted from a position of care, teachers used practices with the well-meant intention of ensuring pupils experienced success in the mathematics classroom. Lessons in the lowest sets were predominantly built on concrete work, using cubes to complete tasks with small numbers. Logically it can be understood how this approach could be thought of as supportive, yet it had a number of unintended impacts, restricting pupils' mathematical development.

In being required to use cubes, pupils could, practically, only work with small numbers. To work with larger numbers would be too time and resource consuming. This had the unintended consequence of the pupils never having to learn strategies for dealing with larger numbers, and as such being severely restricted in their opportunities for mathematical development. These pupils experienced success, as was the teachers' intention, but this was a restricted success, and was seen to result in frustration for many pupils who wanted to explore and experiment with more advanced mathematics. Pupils demonstrated that they could cope with more advanced mathematics, as in this lesson observation where pupils were counting backwards in tens:

Mrs Jerrett:	Right Charlie, I want you to start from…
Charlie:	[interrupts the teacher]…Two thousand, six hundred and ninety eight
Mrs Jerrett:	Oh no, we'll keep it to the hundreds, I think 541
Charlie:	I want to do thousands. 2698, 2688, 2678, 2668…
Mrs Jerrett:	No, that's too difficult.

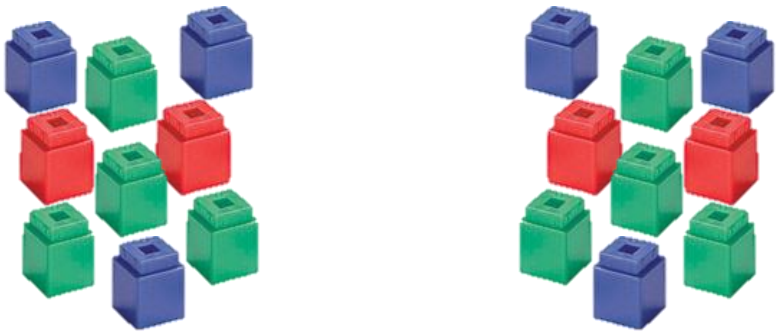
Charlie demonstrates, through counting backwards correctly, that he could deal with larger numbers, yet he was stopped in his endeavours by the teacher who felt that numbers in the thousands were too large for the lowest set and would lead to the pupils being frightened by the mathematics. In addition to restricting their access to interesting mathematics, such practices may also carry the unintended consequence of negatively impacting on pupils' attitudes, stifling their natural curiosity.

ACTING MATHEMATICALLY

A further assumption many teachers held of the lowest attainers was that these pupils were unable to act in a mathematical way, such as engaging in mathematical discussion or collaborative work. This extended their intention to act in a caring manner, reducing the mathematical requirements of the lesson. However, these assumptions were played out simultaneously with a long-held belief that the lowest attainers and lowest sets would exhibit the poorest classroom behaviours and as such required the strongest teacher control. Assumptions that pupils' classroom interactions could not have a mathematical basis resulted in missed opportunities for pupils to act mathematically and extend their learning. This is illustrated in the following Year 6 bottom set lesson observation at Avenue Primary:

The class are completing a worksheet on division by two (i.e. 10 ÷ 2 =). They are expected to work individually and are using cubes to get the answers before completing these on their sheets. Working on the question 18 ÷ 2 = Samuel is taking 18 cubes and placing them into groups of two, counting the nine groups produced to obtain his answer:

Samuel is sitting close to his friend Saul. He notices that Saul, working on the same question, has taken his 18 cubes and split them into two equal groups, counting up the nine cubes in each group to obtain his answer:



Samuel tells Saul that he is doing it wrong, which leads to an animated and mathematically interesting discussion between the boys as they compare their methods and answers, attempting to understand why they have the same answers from different methods. Very quickly, their discussion is interrupted by the teacher who admonishes them for the noise they are making and tells them they must work individually.

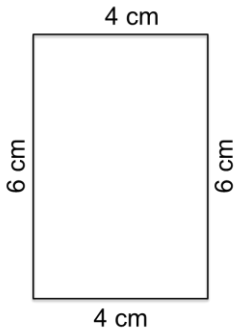
In this interaction, representative of observations in other lower sets where a strong behavioural focus dominated, the opportunity for an interesting mathematical discussion on models of division was lost. It was assumed that the disagreement between the boys must have had an off-topic poor classroom behavioural focus rather than a mathematical one. Where such interactions become the normal experience of mathematics learning for these pupils, pupils lose interest in attempting to interact mathematically, additionally showing an understanding of the impact of such restrictions on their mathematics learning:

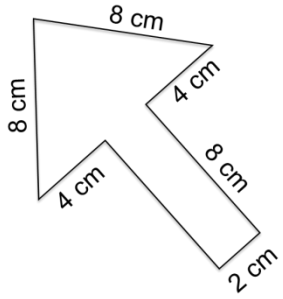
> That affects my maths, because if I was going to ask a question, he [the teacher] wouldn't allow if, if the question is part of my work then he still won't allow it. (*Samuel, Avenue Primary, Year 6*)

LIMITING IMPROVEMENT

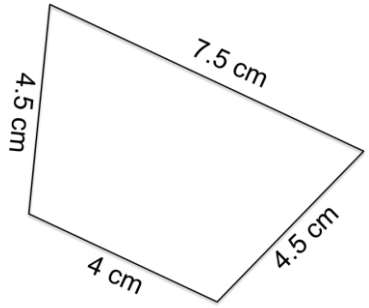
In combination, teachers' protective actions and behavioural assumptions enacted within the use of setting, result in restrictions to pupils' mathematical access. With limited curricular access, pupils have very limited opportunities to improve. This is illustrated through the case of Rhiannon in my study, a Year 6 pupil who was moved from the lowest Set, Set 4, into Set 3. I observed her working in a Set 3 lesson about a month after her move:

The lesson is on perimeter. The pupils are copying a variety of 2D shapes into their workbooks and calculating the perimeter through adding up the given sides:





All pupils, including Rhiannon, appear to be coping well with the task, including when working with shapes with missing values. After about 15 minutes of individual work, I notice that Rhiannon has stopped working, which is unusual for her. She has copied the question:



I ask Rhiannon if she is okay and if I can help her. She replies: "I don't know what the dots between the numbers mean."

Whilst she had been in the bottom set, her placement since Year 2 (aged 6), Rhiannon had received a very restricted curriculum, during which she had not covered decimals. On moving to Set 3, understanding decimal notation was a pre-requisite to accessing the tasks. Although the lesson objective was to calculate perimeter, Rhiannon was unable to fully access the lesson or demonstrate her knowledge due to gaps in her previous learning. Through attempting to support and protect pupils, teachers may inadvertently be setting pupils' place in mathematics.

THOUGHTS AND QUESTIONS

In this short paper, I have highlighted a few of the unintended outcomes of a common practice – ability-grouping – often enacted by schools and teachers under the premise of care and / or accountability. It is clear that this is an area in need of greater research so that we can understand:

→ What are the broader impacts of such practices?

→ What alternatives are there to ability-grouping?

→ Should we be giving pupils different curricular access and seek to protect pupils?