MINISTERIAL MUDDLING OVER MIXED-ABILITY

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The secondary school where I taught was, as I see it, almost 40 years ahead of its time; as the technical school in the tripartite (tripartheid) system of grammar, technical and secondary modern schools, my school was the closest thing to a comprehensive school. It also met the desired aim of a statement in the government White Paper, *Excellence in Schools* (July 1997) of 'setting pupils according to ability' as one way of 'modernising the comprehensive principle' [1]. As someone who was classified as of *low ability* and placed in the bottom set in mathematics for the first three years of my secondary education, I should be grateful that my teachers were so progressive, although, as that is not a word that trips easily off the lips of our educational leaders, I should perhaps say: *'modern'*.

Whenever I find myself in discussions with fellow professionals about the 'best' way to group children, the phrase *low-ability children* is frequently used, and it seems to be accepted without question that there is a common understanding of what a low-ability child is. Furthermore, within the pages of the consultative report, *Numeracy matters* [2], and the final report, *The implementation of the National Numeracy Strategy* [3], the debate over the way teachers ought to teach and group children has gathered pace.

In this article I suggest that it is this preoccupation with separating children into different attainment groups in order to teach them, which is one of the fundamental reasons for children's underachievement. I therefore invite readers to consider assumptions which are made about children and their 'measured' abilities, and to consider the following questions: *How is a low ability child recognised? How is a low ability child defined?*

Is a low-ability child someone who:

- doesn't usually get to the end of an exercise?
- doesn't hand in homework very often?
- disrupts the smooth progress of others?
- is given a lot of detentions?
- doesn't often put their hand up to answer questions?
- is at least 5 cm below the average height of the year group?
- doesn't usually have a pen, ruler or protractor?
- usually comes near the bottom in tests?
- twitches at the very sound of words like fractions and decimals?
- is more likely to be born between May and August than at another time of the year?

Some of the above may appear glib. However, on the final point regarding children's date of birth, I offer the following information which I find both interesting and disturbing. In 1994 I carried out a small-scale survey across nine Shropshire secondary schools, gathering information on sex and the date of birth of pupils in the highest and lowest sets in years 10 and 11.

Information about 643 pupils (311 female, 332 male) was gathered; of these 455 were taught in the highest sets (234 female, 221 male) and 188 in the lowest sets (77 female, 111 male). The table below is a summary of the results.

	Female		Male	
	Highest set	*Lowest set*	*Highest set*	*Lowest set*
Jan-Apr	33%	36%	31%	29%
May-Aug	32%	40%	32%	48%
Sep-Dec	35%	23%	37%	22%

This survey indicates a higher proportion of children born between May and August were placed in the lowest sets, and raises a question for me about whether date of birth was a criterion which was unwittingly applied when decisions about setting were made. As this was only a small sample, it would be imprudent to over-generalise. However, these results are in agreement with concerns raised thirty years ago by Plowden [4]:

> *The lower the stream, the younger the average age, and the higher the proportion of children who will only have had six terms in the infant school. Conversely, the higher the stream, the older the average age and the higher the proportion of children who will have spent nine terms in infant classes.* (para. 814).

More recently this issue has been researched by the NFER, studying the impact of season of birth on attainment [5]; the report is unequivocal about the influence that age has upon children's achievements:

> *This research has provided strong evidence that results are*

influenced by age differences: all responding authorities that had investigated this at KS1 or GCSE level found evidence of age-related effects. These findings raise two key questions. What is causing the underachievement of children born in the summer months, and what might be done to reduce the inequalities between children born at different times of the year?

If date of birth is an unwittingly applied criterion, then could it be possible that other criterion are also being applied? I wonder, for instance, how the average height of children in 'lowest' sets compares with the average height of children in 'highest' sets.

Turning to *Numeracy matters* [2], the section sub-headed *Group work*, (para 45) reads:

One purpose of group work is to allow a manageable degree of differentiation around a common theme. Groups can be organised by attainment, and while the main body of the class works on the set task, a more challenging task can be set to challenge the most able, with a simplified task for those who would benefit from this.

At the time of publication it appeared there existed an over-simplified model, of the teacher being able to conveniently divide a class into three groups: *the most able*, the *main body of the class*, and *those who would benefit...*, signifying a quality of thinking which assumes it is necessary, desirable and feasible to split a class into three distinct groups. However, turning to the final report I notice a remarkable and most encouraging change in thinking; indeed, rather than suggesting teachers should group children by ability it appears the task force are challenging schools to explain and justify their rationale for setting children:

When considering the scope for setting pupils, it is important for schools to remember that setting does not necessarily help close the overall range in attainment across sets over time. Some pupils may become discouraged when they are placed in a lower set, so schools that decide to place children in sets need to monitor the arrangement carefully and continuously. Schools should ensure that parents understand the reasons why a school has decided to set pupils for mathematics, especially if this is not happening in other subjects. (para 120)

In reality there is a whole spectrum of levels of cognition and there exists as many different levels of understanding as there are children in a class; the depth to which a child understands something will depend upon a whole host of factors such as: interest; motivation; alertness; their relationship with mathematics; their relationship with the teacher; and how much they have eaten for breakfast. Seeking to separate children into attainment groups in order to enhance their learning is a falsehood and reminiscent of the slogan from the Bero flour advert: "*Graded grains make finer flour*".

The act of pre-determining achievement, particularly in order to compare one child's achievement with another's, is both problematic and wholly unnecessary. It is the desirability of attempting to predict learning outcomes, the messages received from information gathered, and the validity of the methods used to create ability groups for which I see no rationale.

My main concern is to ask who benefits from grouping by ability. Are decisions taken to fit an over-simplified model of teaching and learning based upon providing specifically different tasks to different groups of children, and is this done in children's best interests? If, alternatively, children's learning is seen as an ever-changing continuum which rarely progresses in an ordered or linear fashion, then the model of creating three (or however many) categories of different learning groups cannot be sustained. I again return to the notion that there are as many different ability 'groups' as there are children in a class.

Defining future achievement and acting upon this to create attainment groups is, I contend, the root cause of under-achievement; it is aligned to Donaldson's description of 'definers' [6, page 114]:

If the child is defined as a failure he will almost certainly fail, at any rate in the things which the definers (people who define others) value; and perhaps later he will hit out very hard against those who so defined him. So we know at least something to avoid. But we must contrive to avoid it not merely at the surface of our behaviour. If we do not genuinely respect and value the children, I am afraid they will come to know.

or in the words of David Bowie:

"*...they're quite aware of what they're going thru*". [7]

As an alternative to defining children's future attainment through the process of setting, I offer a model which does not require any of this. My model is based initially upon whole-class teaching, where a common starting point is offered. Devising an appropriate starting point requires careful thought: a variety of strategies and resources might be used, including practical work, discussion and mind-imagery. The purpose of this approach is to offer students a problem they will be able to work on. Outcomes may be to define terminology, extract specific language and begin to determine foci for further explorations. The problem must, by nature, be rich enough to support a range of extension tasks; this means that some students, whom I am not prepared to predict at the outset, yet for whom I must prepare more complex ideas to work on, will quickly develop an understanding of, and a solution to, the problem. As students' work develops I make in-the-moment decisions and offer different suggestions to different students; such decisions will depend upon how students are progressing and responding to the initial stimuli, what they say, and the nature of ensuing conversations. In this way, I do not need to decide, beforehand, who will need devel-

opment, consolidation or support tasks, and I do not, therefore, need to allocate children into distinct attainment groups. Planning a range of extension tasks for future use is an important element for teaching per se.

The effectiveness of this style of teaching has advantages both for students' learning of mathematics and my teaching of mathematics. It requires me to construct a number of common starting tasks, and that for each of these tasks I have a range of extension ideas. This approach forces me to apply myself to short-term lesson plans and long-term curriculum development.

References

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MATHEMATICAL BINGO

Last week I played a game of mathematical bingo with my year 9 pupils.
In this game two ordinary six-sided dice are thrown, the sum of the two numbers shouted out and the players cross out that number from their card. Players are allowed to design their own 3 x 3 bingo card. Numbers can be repeated but only one number is crossed out at a time. The winner is the first person to cross out all nine numbers. The bingo cards shown below were used by four of the pupils.

A			B			C			D		
7	7	7	6	3	5	6	7	9	6	6	6
7	7	7	10	7	11	8	4	5	6	6	6
7	7	7	9	4	8	8	7	6	6	6	6

We played the game and player C won.
There was a lot of classroom discussion as to why the cards of players A and D were not good cards. All agreed that players C and B had good cards. After further discussion we agreed that card C was the best because it bore some resemblance to the sample space of possibilities when two dice are thrown.
With just a few minutes of the lesson left I asked the pupils to design their cards but this time the first player to have a line vertically, horizontally or diagonally would be the winner.
The numbers I shouted out were 9 8 7 and then someone shouted bingo.
This winner had the card on the right.
However, when I checked his card it was clear that he had crossed out the 9 in the bottom left hand corner first and later rubbed this out, changing it to the other 9.
In this way he then had the right-hand line of the card crossed out. After heated discussion we agreed that this was not cheating as I had not specified that this could not be done.

6	8	7
5	7	9
9	5	8

An interesting question then arose. If one is allowed to retrospectively cross out numbers on one's card, does it make any difference to the way in which one should design it?
Readers are invited to design their 'best' bingo card.

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