Ability Grouping and the Construction of Different Types of Learner in Mathematics Classrooms

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This paper is concerned with the implications that being placed in a particular group has for the range of student identities available to individuals. I begin by discussing some factors that lead schools to group students according to their 'ability' and consider how these policies play out in practice. I then consider the ways in which students in different groups experience mathematics in very different ways. Finally, I consider the ways in which individual students are positioned in mathematics lessons.

The introduction of a market structure in education in many industrialised western societies over the last decade has set schools up in competition with each other. One consequence of this is that discourses around 'standards' and 'excellence' are replacing those around equality of opportunity which were previously dominant, and this shift in emphasis has had an impact on the distribution of resources within and between schools (Gewirtz, Ball, & Bowe, 1995; Gillborn & Youdell, 2000; House, 1998; Lauder, Hughes, & Watson, 1999). In the UK, reforms of the past fifteen years have eroded or reversed many of the changes that comprehensivisation brought about, and under the guise of widening parental choice many schools have introduced a degree of selection into their admissions procedures (Ball, Bowe, & Gewirtz, 1996). In particular, schools are increasingly seeking to present themselves in ways that they believe will appeal to middle class parents, whose offspring are likely to attain high grades in public examinations (Gewirtz, Ball, & Bowe, 1993; Power, Halpin, & Fitz, 1994). These factors mean that, barely a decade after many schools abandoned ability grouping because of evidence of its social divisiveness (see for example Ball, 1981), it is being re-introduced as part of a new drive to raise standards (Reay, 1998). Concerns about the negative impact that ability grouping may have on students placed in lower groups have been set aside as the prevailing focus on excellence means that it is the performance of the highest attaining students that matters most.

This shift in emphasis is all the more remarkable given the absence of research evidence demonstrating the benefits of grouping students by ability. Indeed, a number of recent reviews of existing research on the effects of ability grouping have all reached similar conclusions (Harlen & Malcolm, 1997; Slavin, 1990; Sukhnandan & Lee, 1998). Slavin (1990) wrote, in his synthesis of all the research carried out in English and meeting certain criteria:

> Across the 15 studies from which effect sizes could be computed, the median effect size was +0.01 for high achievers, -0.08 for average achievers and –0,02 for low achievers. Effects of this size are indistinguishable from zero, and if all the non-significant differences from studies from which effect sizes could not be computed are counted as effect sizes of 0.00, the median effect size for each level of student becomes 0.00. (p. 496)

Likewise, Harlen and Malcolm's (1997) research review concludes:

> There is no consistent reliable evidence of positive effects of setting and streaming in any subjects or for students of particular ability levels. … [What] seems to be of critical importance is what takes place inside classrooms. (p. 40)

In this paper it is the question of "what takes place inside classrooms" which is my principal focus. In particular, I am concerned with the ways in which students' are shaped by their experiences in lessons and are constructed as different types of learner. Thus I am less directly concerned with the mathematical development of these students than with the mathematics classroom as a social setting in which actions take on particular meanings, and individuals are positioned in particular ways.

The Study

The data on which this paper draw are from a study in which I explored the experiences of students in two secondary schools in London, England, learning maths through an individualised scheme (SMILE). Although both schools share a commitment to the SMILE scheme, which emphasises investigational and problem solving activities, they differ in many other respects. South Park, an all girls school, remained committed to the principles of comprehensive education serving the local community at a time when this was an increasingly untenable position for schools to adopt (Gewirtz et al., 1995), and students here were grouped in mixed ability classes throughout the school. Springfield, on the other hand, was a high profile school that had experienced considerable success in the newly formed local education market. The year I began my fieldwork Springfield went part selective, with half of the available places being allocated on the basis of performance in an entrance examination. Here students were grouped according to their 'ability' throughout their time at the school.

At each school I visited approximately 80 lessons, focusing in particular on students in two year groups, whom I followed over three years. I administered a questionnaire asking these students for their feelings about mathematics (n=600), and interviewed approximately 25 students in each school. In addition to this I collected data on the levels at which students were working, their performance in both school and national examinations and copies of reports sent home to parents. I also asked students in the 'target' year groups about their parents' occupations, an indication of their social class background. During the data collection period I spent a considerable amount of time in each school, talking to teachers, attending school assemblies, and getting 'under the skin' of the two settings; many of my most valuable data were obtained simply by being there, and seeing things happen on a daily basis.

The study focused on the ways in which individuals are positioned (and position themselves) in mathematics lessons, and the implications that this has for their experiences in lessons. I adopted a grounded approach to research design and data analysis (Glaser & Strauss, 1967), and so began the study not with a set of well-formed hypotheses that I wanted to test, but rather with an area of interest and some loosely framed questions. I allowed specific themes to emerge through a process of progressive focusing, and the differences between the schools meant that the focus of my research in the two settings diverged as the study progressed. In this paper I am concerned with the experiences of students at Springfield school. During the course of my work there it became apparent that the grouping policy at Springfield (and a wider school ethos out of which this policy grew) was significant in shaping and structuring the experiences of different groups of students in mathematics lessons. Here I shall discuss some of the ways that the group in to which a student is placed helps shape their experiences in mathematics, and limits the range of student identities available to them.

Ability Grouping at Springfield

As noted above, students in all years at Springfield are grouped according to their 'ability'. On entering the school in year 7 (age 11) students are placed into one of four broad ability bands, and are taught all subjects in banded form groups for their first three years at the school. In years 10 and 11 students are grouped separately for individual subjects, and the specific arrangements vary from subject to subject. In mathematics, students are placed into one of 10 sets on the basis of their performance in the Key Stage 3 exam (a national test taken at the end of year nine). However the banding structure is retained so that students in sets 1-6 are drawn from bands 1 and 2 (referred to collectively as the 'upper band') and those in sets 7-10 are drawn from bands 3 and 4 (the 'lower band').

At Springfield, ability grouping is seen as the most practical way of providing appropriate experiences in lessons for the wide range of students attending the school, and most teachers are broadly supportive of the school's grouping arrangements. However, although this policy is presented as a response to the very different educational needs of the children that come to the school, one doesn't have to scratch far beneath the surface to find evidence that it is also informed by a concern not to alienate the most powerful (and highly valued) constituencies of parents. One of the consequences of the grouping policy at Springfield is to sharply polarise the intake by social class, and, in keeping with the results of other studies (e.g., Ball, 1981; Oakes, 1990), there is some evidence to support the suggestion that, particularly in the banded from groups in which students are taught for their first three years, there is a tendency for working class students to be placed in a lower group than would be expected on the basis of their attainment alone (Bartholomew, 2001). However, perhaps more telling than these numerical data is anecdotal evidence concerning a number of individual cases, which betrays something of the concerns and priorities of those allocating students into particular groups. For example while taking down students' marks from their mathematics records I came across the note 'move up to keep parents happy' beside the name of a child in set three. The other side of this coin is that I was, on a number of occasions, aware of students being 'demoted' into very low sets on the basis of their behaviour rather than their attainment.

These anomalies hint at the ways in which students' "presentation of self" (Goffman, 1959) is likely to influence teachers' judgements in such a way that the characteristics taken to signify high ability coincide with those associated with being middle class (Carey, 1992; Lucey & Reay, 2002). Gillborn and Youdell (2000) have noted the way in which 'ability' and 'motivation' can merge in teachers' minds. It seems likely that not only do teachers make judgements about students' abilities on the basis of their behaviour, but also that they are reluctant to let disruptive students disrupt the education of the most valued students. Thus one function of ability grouping, and banding in particular, seems to be to ensure that middle class students are taught in classes with other middle class students, and those who might 'spoil' things for them are kept at a distance.

Banded Identities.

Because students at Springfield are taught only with others in their own band from day one, they are likely to have little contact with those in other bands. This isolation seems to increase the sense in students that those in other groups are fundamentally different. For many band one students, those in band 4 are demonised, and seen as a threat to their own

education; for students in band 4 it can lead to resentment of those in more privileged positions. These perceptions are reinforced by the signals students receive from teachers.

There were numerous examples in my day to day interactions with teachers at the school during the course of my fieldwork that illustrated the extent to which upper band students were more highly valued than those in the lower band, and these messages were communicated to students in many subtle ways. Describing the first day with a new year seven form, a maths teacher referred to the induction pack which students received, containing information about who's who around the school and so on. He then added that the band 4 induction pack was different, containing only the prospectus for Prince's Road School (an under-subscribed local school). This was followed up the next day, I was told, by the teacher greeting the form with "are you still here?" This was clearly a joke, yet these sentiments were echoed in an exchange between students in a band one group and their teacher that was later reported to me. The group was complaining that their class was too big, and the teacher replied that this was the penalty for going to such a popular school; several students immediately suggested that a solution to this problem would be to get rid of band 4 so that there would be more room for everyone else.

TwoYear Seven Lessons

In lessons too, there are notable differences in the ways teachers interact with different groups, and these can seem to have more to do with a teacher's expectations of their members than with any real differences, either in behaviour or attainment. A particularly striking example was provided by two lessons taught on the same day, by the same teacher to two year seven classes, one a band 1 class and one a band 3 class. In both cases, this was the first time that this teacher (Peter Crawford, a long-term supply teacher) had met the class, and the SMILE scheme was being introduced to students for the first time. However, despite these similarities, the differences between the lessons were considerable. In the band three lesson Peter immediately adopted an authoritarian tone, insisting that students queued outside the room in absolute silence, and eventually counting them in and seating them in alphabetical order. Throughout the lesson Peter insisted that students remain in their seats in absolute silence, and they were given no opportunities to ask questions, with the result that many students were extremely confused as to what they were meant to be doing. A feature of the SMILE scheme is that resources and equipment are kept in the classroom for students to use as needed, but in this lesson students were forbidden from leaving their seats to find equipment. In the band one lesson Peter adopted a much friendlier tone, at times joking with students, and gave them opportunities to ask questions. Neither were students in this class were not forbidden from asking each other for help or from leaving their seats to fetch equipment. At one point during the lesson Peter came over to me and said, "You can tease this class a bit. This is what gives me the greatest pleasure". He surveyed the scene of students getting busily on and continued, "You have to be more serious with the low ability classes. I don't enjoy that. Some people do. I feel sorry for them for finding it all so hard, and I do it because it is part of the job, but I don't *enjoy* it".

Peter clearly came to the two lessons with a totally different set of expectations, and the extent to which he saw the band three group as containing a completely different *kind* of student is apparent from his reluctance to show any kind of 'human face' to them for fear that they would take advantage; these were not students he expected to relate to on a personal level. While his interactions with the band one group indicated a concern with their *learning*, in the case of the band three group his overriding concern was with their *behaviour*.

My own impression was that students in the two groups behaved very similarly, and that those differences that did occur were a direct consequence of the differential treatment they received. The scene that Peter had so admired, of band one students working busily, came immediately after he had stopped the class to clarify the procedure when they finished their first piece of work—a response to the fact that many students were finishing their first card and didn't know what to do next (no such clarification was offered to band three students at a similar point in their lesson). The atmosphere in the class at this point was busy, and students were working, but the room was by no means silent. This 'active hum' was clearly regarded as a positive feature of the band one lesson, indicating students' engagement with their work. In the band three lesson, where the assumption was that students would try to avoid work if at all possible, any talking simply provided further evidence of this. Thus Peter's very different constructions of the two groups meant that their actions were interpreted very differently. Whatever the band three students did in this lesson, and regardless of how much enthusiasm, ability or interest they displayed, the best they could hope for was that they wouldn't be seen as too much of a problem; they could never earn the respect or admiration that Peter seemed to have for the band 1 students, simply by virtue of the fact that they were in a band 1 class.

At the beginning of both lessons I helped students find their first card and there was considerable overlap in the work being done by students in the two classes. Yet while band 1 students were apparently all 'star pupils', band three students were objects of pity "for finding it all so hard". I do not have complete data on the levels at which students in these two classes were working, as this was not one of my 'target cohorts', but of the band 3 students in the younger of my two target cohorts, 73% were working at or above the level of the lowest attaining band 1 student when they were in year 9, and 79% of band 1 students were working at or below the level of the highest attaining band 3 student.

The Construction of Mathematical Ability

The notion of ability is seen to be particularly salient in relation to mathematics, and an individual's ability is generally taken to be both measurable and stable over time (Ruthven, 1987). Because of this perception, and the belief that many students will not progress beyond 'the basics', mixed ability grouping has never been widespread in mathematics (Harlen & Malcolm, 1997). Yet as the example above indicates, the allocation of students to different ability groups, though it can have a profound effect on their experiences in lessons and their subsequent attainment (Linchevski & Kutscher, 1998), can at times seem somewhat arbitrary; many of the differences between Peter Crawford's band one and band three groups were created *with* the different labels that were attached to them. In this section I shall draw on data concerning students in the older of my two focus cohorts, whom I traced through years 10 and 11 (the final two years of compulsory schooling in England, during which students prepare for General Certificate of Secondary Education (GCSE) examinations) in order to argue that, far from being an objective reflection of a student's 'true' ability, the labels ascribed to particular students arise through a complex interaction of their actual attainment with their behaviour, the set into which they are placed, their gender and their social class.

One peculiarity of the grouping structure at Springfield, where setting in years 10 and 11 is superimposed over an existing banding structure, is that in some senses there are two 'top sets': set 1, the top set of the upper band and set 7, the top set of the lower band. These sets have in common the fact that students can't be promoted out of them, with the consequence that the range of attainment within these groups is greater than in other

groups. Indeed, the eventual GCSE grades of students in set 7 ranged from B to G, far wider than the range in any other group. But although the marks of the highest attaining students in set 7 were equivalent to those of many set 1 students, there were substantial differences between the two classes in the ways this success was produced and how it was understood.

The atmosphere in set 1 was unlike that in any other maths group. Students here were very aware of their place in the pecking order, and those who were regarded as the best in this group were able to derive considerable status from this position. These students were predominantly middle class, and of the 25 members of set 1, only 7 were female. Rob Sharpe, who taught the group, had an unusually informal and 'pally' relationship with them; when I asked if he would be willing to record one of their lessons for me he summed up what I would be likely to hear on the tape as follows:

> There are two or three pupils who I kind of banter with all lesson—I'll say something then quick as a flash, they'll be back with a response, and this goes on all lesson.

Some students too referred this light-hearted side to lessons, and their comments, as well as their actions in lessons, spoke to a distinctive 'top set culture', which valued high achievement for minimal effort. Thus although this group was highly academically oriented, to attain a really high status within it, it was important not to be seen to work too hard.

Many boys appeared to thrive in this environment, but in keeping with Boaler's findings (Boaler, 1997), most girls in the group did not. Of the 7 girls in the class, 5 expressed to me their wish to move into a lower set, or their belief that they were not coping in the class, saying things like, "if my sister hadn't helped me prepare for my [Key Stage 3 tests] I wouldn't have got a level 7 and ended up in a class I don't understand". These girls were not doing any less well than the majority of boys in the class—their attainment spanned the full range of attainment for the group—but they *felt* as though they were struggling, and furthermore, they were seen by others to be struggling. While many boys would compete loudly with each other in lessons, and were keen to demonstrate the speed with which they could reach answers, the girls tended to sit quietly together and made few contributions to class discussions. Rhiannon, one of the two girls in the class who displayed more confidence in lessons, captures something of this in the quote below:

> R The boys in my class are really competitive about maths, and the girls aren't so much … [The boys are] always trying to get one up on each other as far as maths is concerned. The girls are more like working together to try to help each other.
>
> HB Why do you think that is?
>
> R I don't know. I think, um, well, I think boys are generally more competitive, but, I don't know what it is about maths, it's just, it's just one of the few subjects where they're being—for some reason in our class, being good at maths is really important. And that everyone else sees it.

In this class, judgements about a student's mathematical ability appear to be closely tied to the extent to which they enter into both the competitive one-upmanship which Rhiannon describes (where speed, rather than depth of understanding, is what counts), and the pally banter to which Rob Sharpe refers. Central to the culture of this class was the basic assumption that all students were on course to do well and, with this as the starting point, the students who were regarded as being best at maths were those for whom this success appeared to come most easily. Hence one of the most highly regarded students in the group, Ben, got the second lowest mark (18%) in the exam the class took at the end of

year 10—the fact that he 'mucked about' in lessons appeared to confer considerable status (this point is expanded in Bartholomew, 2001).

It is no coincidence that the students who are deemed most successful in this class are almost all middle class boys; the balance that these students manage to strike, between being interested in their work while also having fun in lessons and sometimes messing around, is likely to be affirming of both their ability and their social identities (Barnes, 2000). For girls in the class succeeding on these terms is somewhat more complex, and Griffiths (1995) talks of feelings of unauthenticity experienced by people who, in order to belong in one group are required to suppress aspects of their identity. Rhiannon, quoted above, was careful to distance herself from the more competitive elements of lessons.

So what of students in set 7? Although sharing some characteristics with set 1, this is also very much a lower band group, and in this class there is no assumption that all students are committed to succeeding in mathematics. One of the highest attaining students in set 7 was Yusuf, but despite his similar attainment he was not considered to have the same 'flair' as the boys in set 1 (Walkerdine, 1998), and he presented himself very differently, attributing the special treatment he felt he received from Jim Makepeace, his teacher, to his serious attitude:

HB Any idea why [he helps you more quickly than others]?

Y I take more interest. Other people don't, they just muck about. I think that's the reason.

HB Are there other people like you who get helped quickly?

Y The ones who study hard. One or two others.

For Yusuf success came about through distancing himself from the rest of the group to some extent, and so evading the construction of the group as a whole as lacking interest in their work—something that *their* mucking about in lessons was seen to signify. In presenting himself as a hardworking and serious student, who wouldn't allow himself to become distracted by others, he was able to secure certain privileges for himself in lessons and was encouraged to enter the higher tier at GCSE (providing access to the highest grades). But his success was understood as reflecting his hard work, and unusually good 'attitude' for a student in set 7, as much as his ability. Had he behaved like many of the boys in the top set, he would most probably have been regarded as a typical set 7 boy: reasonable at maths, maybe, but nothing special and not very motivated. Thus although he was able to attain some status within his group, the particular kind of status that set 1 boys enjoyed, and their characterisation as star pupils within the school as a whole, was an impossibility for him.

Conclusions

I began this paper by arguing that market pressures, and in particular a concern to appeal to middle class parents, is driving the grouping policies of many schools, and I hope that I have begun to illustrate some of the ways in which these concerns play out in mathematics lessons at Springfield. Students here, by virtue of their membership of a particular group, are constructed as a particular kind of learner. The ways in which their behaviour is interpreted, and their mathematical ability understood, are all influenced by the different expectations that teachers have about the 'type' of student in a given class, and these expectations appear to be influenced by the social class compositions of the different groups. In predominantly middle class groups in the upper band, students are

assumed to have not only the ability but also the commitment to succeed academically, and teachers appear to feel that they can afford to have a relatively informal relationship with these students. Although this does not straightforwardly benefit all students in these groups, it offers some (and most notably, a group of middle class boys in set 1) considerable social and academic status. However, in predominantly working class groups, teachers are liable to take a much more heavy handed approach to 'discipline'—presumably believing these students to be incapable of drawing an appropriate line for themselves. This cuts off the possibility for students in these groups to display interest in and commitment to their work whilst also having fun in lessons, and academic success is likely to come at a much greater cost socially.

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