The practice of grouping students by perceived ability is commonplace in mathematics classrooms. Various terms are used to describe the practice including streaming, setting and tracking, the meanings of which can vary from context to context. The generic term of ability grouping will be used to describe the practice where students of perceived similar achievement levels are placed in the same classroom or group. Mathematics teachers are more likely to support homogeneous grouping than their colleagues in other discipline areas. Cahan and Linchevski (1996) cite figures from the UK where 80% of mathematics teachers believe that it is inappropriate to have mixed ability teaching groups whereas, in contrast, 16% of science teachers and 3% of English teachers held the same view. Ruthven (1987) reported similar trends in primary school where ability grouping was a ‘predominant form of organisation in mathematics… [but] was largely unknown in areas such as science and social studies’ (p. 243). Ruthven also goes on to say that ability grouping remains consistent in mathematics but diminishes in other areas as students move through the year levels. While teachers generally may support practices of ability grouping, there is some evidence that parents also value such practices, particularly middle-class parents (Boaler, 1997). Such studies raise questions as to why mathematics teachers, unlike their peers in other discipline areas, support notions of ability grouping to such an extent. Indeed, if ability were an innate construct, it would seem logical that students would have either generalised or specialised abilities across disciplines and yet this ideology does not seem to be supported by teachers other than in mathematics.

The reasons for mathematics teachers supporting ability grouping are varied, but can be tied to a belief that sees mathematics as a hierarchical discipline where concepts build on previous concepts (Ruthven, 1987).

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Teachers often cite pragmatic reasons for ability grouping, that is, where they can tailor learning to suit the students. Unlike other curriculum areas, mathematics is seen to be less amenable to differentiated planning — that is, where students in the one classroom can be working at different levels on the same task. Most often when students are grouped by ability, the outcomes support the practice — that is, the higher streams perform very well, and the lower streams perform poorly. This can be used as evidence to show that the practice is justified and that the groupings are correct since the outcomes ‘prove’ the effectiveness of the original groupings. However, questions need to be posed as to whether pedagogy is matching the needs of the students or whether the outcomes are a reflection of the pedagogies being used.

Drawing on responses of interviews with ninety-six students from Years 9 and 10 in Queensland schools, questions need to be posed about the effects — social, cognitive and emotional — on students who are placed in ability groups. Six schools serving very different clientele were the basis of the study and relatively equal numbers of boys and girls participated. There is a skewing towards boys since one school was an all-boys school.

A brief description of each school is listed below:
- St Michael’s — all boys, independent, serving middle to upper-class families;
- Huon Pine, Beechwood, and Cottonwood — co-education, government serving upper-working-class and middle-class families;
- Pine Bark and Melaleuca — co-education, government, serving working-class families.

At the end of each interview, the tape was transcribed, entered into a qualitative software program (NVivo) and analysed using a grounded theory model. Categories of comments emerged from the data. The larger themes in the responses centred on teacher quality, classroom ethos, assessment, and pacing of content. There was consistency across all cohorts regardless of the school, the gender or year level. Where differences occurred, it was in the area of the level of ability grouping.

The study relied on students’ perceptions of their experiences. This type of approach is justified since, for the students in the study, their perceptions were their realities, and the consequences real. As such, the purpose of this paper is to document their voices in terms of their perceptions of ability grouping as they live it out in their daily encounters of school mathematics.

**Teacher quality**

Without entering the debate of what is quality or whether the students’ descriptions were true representations of the teachers, the data provided by the students are as they perceived the teachers. Such perceptions may be influenced by the context of the classroom and may not be fair representations of the actual teacher, but this is how the students saw them.

**Higher streams**

*Stephan*: We are lucky in our class: we have the Head of Department and he is really good. We don’t muck around as he is pretty strict but he is a good teacher. He explains things well and if we don’t understand he goes through it again. (Year 10 Cottonwood)

*Sarah*: I think we’re lucky in this class because we get the best teachers. I can see the others in the lower classes and the teachers they get can’t even control them so they get no work done. (Beechwood, Year 10)

**Lower streams**

*Marcus*: Well, we have a teacher who can’t control us and he doesn’t teach us anything so why would you want to be there. I think he might know what he has to teach us, but he doesn’t teach us anything. We muck around and try to get him off the lesson. At least it makes the lesson a bit more fun. (Beechwood, Year 9)

*Jodie*: It’s just boring and stuff, the things we do. He’s just talking the whole time and we’re not doing anything interesting and involved. He’s just telling us the same things over and over again and it’s boring. (Pine Bark, Year 9)

The comments here represent the overall themes in the responses of teaching quality where there was a strong trend for students in the higher streams to feel that they had the best teachers in the school, often citing the
fact that they had the head of department as their teacher. Conversely, students in the lower streams felt that they had teachers who did not care about them, who did not know their content area, and failed to teach them mathematics. As noted by Marcus here and will become more evident in subsequent sections, students also commented that they would deliberately try to get the teacher off task, or misbehave in order to make the lessons interesting.

**Opportunities to learn**

Students commented on the ethos that developed in their classes, which, in turn, enhanced or hindered the opportunities to learn mathematics and to perform well on assessment items. Their comments are represented in those below and indicate that in the higher streams there were greater opportunities to learn whereas the students in the lower streams were more likely to report restricted learning opportunities. More often than not, the comments offered by the students in the lower streams related to misbehaviour and creating diversions to take the teacher away from teaching.

In Amanda’s comment, reference to the lower streams indicates how the upper-stream students also saw the lower-stream classes. Such comments were common in the responses and reinforced the comments of their peers in those lower streams.

**Pacing**

The pacing of content — in both speed of delivery and in the level of content — was seen to have both positive and negative effects in both groups of students. Students in the higher stream most often commented on the pacing as enabling them to cover the content for examinations and be prepared for senior mathematics. The few (4) who commented that the pacing was often too fast for them would add the rider that they would still prefer to be in the higher streams as it provided more opportunities for them. In contrast, the few students in the lower streams who commented positively on the slower pacing similarly recognised that the slower pace may have helped learning particular parts of the curriculum but excluded them from accessing other parts which, in turn, hindered the potential success in the common examination. However, most students in the lower streams commented on the slower pacing as being a problem for them in terms of it was boring and that it reflected a value that the teacher made of them as being ‘really dumb’.

**Higher streams**

*Amanda*: You get more opportunities to work harder and get good marks, but you’re also expected to get really good marks and the other classes don’t have to do as many questions on the extension test and they don’t get as harder work and we probably get more homework or something, but we get to learn more and get more opportunities. (Pine Bark, Year 9)

**Lower streams**

*Evan*: Well in the class that I am in for Maths there’s a lot of noise and distractions and stuff...I mean there’s a few guys that just keep talking, talking and you really can’t get your work done. (Beechwood, Year 10)

*Jasmine*: Well the naughty people usually get really annoying because they keep like doing really stupid stuff to take the teacher away from what she was thinking about and we don’t get taught as much as we should be and all that (Pine Bark, Year 10)

**Higher streams**

*Mike*: It is good that in this class that everyone moves along quite quickly so you’re not slowing down. (But) some of them just lose their way and don’t try too hard and sometimes disrupt the ones that are trying to work quite hard (Pine Bark, Year 10)

*Jenny*: It is good being in this class because you learn so much, but it is hard to keep up with it sometimes. I mean she goes so quickly you often don’t get to understand it. When you ask a question, you feel so dumb. She says, ‘You are supposed to be smart and know this,’ so you don’t want to say anything. I some-
times wish I could be in with the others and have a bludge but most of the time I am glad to be learning. (Melalucca, Year 10).

**Lower streams**

*Laine:* The good thing about this class is the teacher. The teacher explains to us how to do it at the start of the lesson and that, like how to set it out and that, so it’s pretty good. (Pine Bark, Year 9)

*Sophia:* I get a bit angry sometimes because the teacher thinks we are really dumb and goes really slow. We don’t cover everything that we are supposed to so when it comes to the exam, we don’t know much of the stuff that’s on it. (Huon Pine, Year 10)

*Joshua:* The teacher goes really slow. We only do the really easy stuff which is good coz we don’t have to work hard. But we don’t do the stuff on the exam neither so we fail before we get there. (St Michael’s, Year 10)

The comments here are indicative of the four types of responses offered. However, what is disconcerting, and not obvious from the comments here, is the overwhelming response by the students in the lower streams of the restricted curriculum to which they were exposed and their being excluded from future opportunities. Across all schools and year levels, students in the lower streams consistently commented on the reduced content restricting their learning and hence capacity to do well in examinations. This is discussed in more detail in the next section.

**Assessment**

The effects of teacher ‘quality’ classroom ethos and pacing impacted on the overall potential of students to participate in examinations. In all schools, there was a common year level test at given points throughout the year. All students, regardless of level of streaming, had to sit the same exam. The students were consistent in commenting throughout the interviews that many factors worked towards success on these exams.

**Higher streams**

*Sean:* When I go into the exams, I know that we have covered the work and my teacher has already told us we have passed. If we only want to pass, then we just do the process questions. If we want better marks, then we do the harder questions. We have done similar ones in class to prepare for the exams so it is not a big deal. In fact, we focus more the harder questions and don’t do the easy stuff in class. (Beechwood, Year 10)

*Marcus:* I like being in this class as we have covered all of the work that is going to be on the test. I know that I have passed and just have to do the application questions to get an HA or VHA [different grades]. (Melalucca, Year 9)

**Lower streams**

*Byron:* Yeah I can do most of the stuff, except questions 5 and 6, which is for people that are in the higher maths class. I asked our teacher why we didn’t get taught that stuff and he goes because you don’t need to know it because you’re not at a high enough level. (Beechwood, Year 10)

*Mel:* I like doing the easy work, but it is not fair when it comes to the exam coz we don’t even know half the stuff that is on it. We haven’t even covered it so we are lucky just to pass. (Huon Pine Year 10)

*Adrienne:* I get really annoyed because we haven’t done most of the stuff on the exam. We can only get a pass and the others already have got a pass. (Beechwood, Year 9)

Both sets of responses show that the students were acutely aware of the differentiated curriculum to which they were exposed and the implications that this had for subsequent outcomes. When particular content had not been covered in the lower streams, they were effectively locked out of working their way out of the lower streams. The combined effects of the factors discussed so far are evident in the comment offered by Margie:

*I get really upset. I hate being in this class. The teacher can’t control the class, they...*
muck around all the time. I just want to be in another class. My mum got me a tutor to help me at home, but we just don’t do the work that is on the exam so when I get to the exam, I don’t know the stuff. It is not fair. I know that maths is so important but I can’t get out of this class.
(Margie, Beechwood, Year 9)

Margie’s comment summarises the frustration that was in many of the lower-stream students’ comments. Others appear to reject the imposition of the streamed setting and its encompassing practices and engaged in resistant behaviour as evident in the comment offered by Abdullah:

This class is so boring. Me and me mates sit up the back with our books open and do nothing. The teacher doesn’t care so long as we don’t make it hard for him. Sometimes we get a bit bored and will fire him up. It doesn’t matter if he sends me to the time out room — at least it is not as boring there!
(Abdullah, Beechwood, Year 9)

The comments provided by the students indicate their perceptions of their experiences in streamed classrooms. When exposed to such settings for three years or more, and with assessments that position students quite differently, the effects can become internalised so that the student develops certain dispositions towards mathematics and themselves.

Self concept

Throughout the interviews, students made reference to themselves and their peers. The comments below, and those in the earlier sections provide insights into how the students were constructing their sense of self in relation to school mathematics. Students in both types of settings used descriptors such as smart, clever, intelligent, brainy to refer to those in the higher streams. Conversely, terms such as ‘dumb’, ‘stupid’, ‘retard’ [sic] were used to refer to the students in the lower streams. This language provides some insights into how they were positioning themselves and others in relation to mathematics.

The problems of ability grouping

Aside from the comments on pacing by three students in the higher streams, the overall responses by the higher-stream students were positive towards mathematics, and a strong sense of relief of not being in the lower streams. The experiences that they cite augur well with the continuation of the study of mathematics. However, the same could not be said for the students in the lower streams. In their comments, they saw their experiences as being less than positive and where the practices were working against their success. They can be summarised in the following comments:

Higher streams

*Kylie:* Oh, the good thing is we’re all in the Strand 1, meaning we all know, we’re all smart, well not really smart, but we all know. So you don’t have any slow people holding you back. (Pine Bark, Year 9)

*Brendon:* It is good being in with all the smart people. Our teacher tells us how much he likes working with us coz we can get on with the work. (St Michael’s, Year 10)

Lower streams

*Tyler:* I don’t like being in this class coz it is the only one I feel dumb in. I mean in English or workshop, I am doing OK, but in Maths, I feel like a retard. The teacher treats us as if we know nothing.
(St Michael’s, Year 9)

*Justine:* I hate maths, I am so dumb at it. I can never pass the exams so I will get out at the end of the year. That will be the best part of maths! (Beechwood, Year 10)

Furthermore, when students were asked if they would be continuing with mathematics beyond Year 10, all students in the lower streams indicated that they would not be studying beyond Year 10. In contrast, the converse was the case for higher-stream students who would be taking further study in the area. The comments offered here provide insights into why this may occur.
I hate being in this class. The teacher can’t control the class and everyone mucks around. I have been trying to learn my work so I can get a better mark on the exam and get out, but it is impossible. There is no way you can learn anything. (Andrea, Cottonwood, Year 9)

I get so annoyed with the teacher. He listens to the boys and they just try to distract him all the time. We don’t learn any maths. I would like to be in the top classes ‘cause they get the good teachers and they can learn the stuff and then do well in the exams. We are lucky if we can pass. We’re not idiots but the teachers think we are. (Becky, Cottonwood, Year 10)

Anyone who has taught in the lower streams may feel empathy for the teachers working those classes. However, it is more than that. The students recognise that they are implicated in the processes and that as they articulate, many of their behaviours are in response to teacher actions. This supports the longitudinal study conducted in Queensland schools (Education Queensland, 2001) where pedagogies were observed across three years. It was found that the teaching of Mathematics was the lowest ranked across the state. This supports the students’ claims that perhaps pedagogy is problematic, particularly in the lower streams.

The outcomes of this study shed insights into the perceptions of young people in streamed mathematics classrooms. The comments reinforce other studies where the students who are in the upper stream are more likely to benefit from ability grouping (where there are any benefits) but those most at risk in homogeneous settings are those in the lower streams. The students demonstrate ways in which they live this reality in their experiences of contemporary mathematics classes. It raises serious questions as to the effects of ability grouping on those who are exposed to it. In the examples cited here, two key issues arise. In the first, it appears (at least from the students’ perspectives) that ability grouping locks them into particular clusters. This is achieved through a differentiated curriculum that increasingly reifies differences as students progress through school. More critical, is the ways in which such curriculum impacts on how they come to see themselves as learners of mathematics. Collectively, the objective practices of Mathematics Education (differentiated curriculum, assessment, teaching) come to position students differently through what they experience in terms of objective practices, which in turn become internalised as learners of Mathematics. The comments offered by the students in this study provide educators with questions as to the effects of ability on students, as the students live and interpret their experiences.

References

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