'You do the math!'

Making sense of gender, mathematics and achievement

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To the pioneering work of Valerie Walkerdine

I think this is valuable because policy has no memory – policy talks about boys' 'underachievement' as if this were an entirely new phenomenon and as if we can learn nothing from the previous feminist interventions, despite startling parallels – single-sex classes, boy/girl-friendly resources etc.

Valerie's work takes us back to a time when gender and education meant girls not boys and that's where my focus is – though that's obviously not to say that there are not issues for boys

It's also important to remember that gender differences in attainment are small compared to class differences and ethnicity differences and perhaps the connections with class and ethnicity are something that we can unpack in the discussion and the rest of the day – which boys and which girls are we talking about when we tell particular stories?

The gender issues in maths are not about attainment so again it's helpful to go back to a time before league tables when achievement was more often understood more broadly than attainment in tests and exams

My hope is that, as the title of the slide suggests, these ideas have something to say about our present and future classrooms – and I will draw on more contemporary material

Storytelling

It's a way of explaining the universe while leaving the universe unexplained, it's a way of keeping it alive, not boxing it into time. Everyone who tells a story tells it differently, just to remind us that everybody sees it differently. Some people say there are true things to be found, some people say there are things to be proved. I don't believe them. The only thing for certain is how complicated it all is, like string full of knots. It's all there but hard to find the beginning and impossible to fathom the end. The best you can do is admire the cat's cradle, and maybe knot it up a bit more.
(Jeanette Winterson, 1985, p.93)

What's important from Valerie's work is that it has never been about what's really going on etc. But about the stories we tell about performance data, the way that we relate these stories to the people we teach and to ourselves and about the stories we tell ourselves about how we should look at performance data.

The just or only phenomenon

By this, we [mean] that whenever a positive remark was made about girls' performance in mathematics, particularly the strong sense that girls performed well in school up until the transfer at eleven, a remark would be brought in which suggested that that performance was to be accounted for by 'something which amounted to nothing'. In other words, no matter how well girls were said to perform, their performance was always downgraded or dismissed in one way or another. These pejorative remarks usually related to the idea that girls' performance was based on hard work and rule-following rather than brains or brilliance (in other words, what was supposed to underlie real mathematical performance).

(Valerie Walkerdine and Rosie Walden, 1982)

I am going to focus on a few interlocked stories and begin with this one …

In the 1980s research this manifested in the way that although on most test items there were no differences between girls and boys there were a few consistent differences – some areas girls did better in (e.g. computation) and some boys did better in (e.g. ratio and proportion) – the areas that girls did better in were associated with rule following and rote learning and the areas boys did better in were associated with real understanding and flair. Thus even girls better performance was seen as indicating there lack of brilliance.

It's striking to me how often this story is used: show from 0:42-1:53 of this extract: http://www.youtube.com/watch?v=-93MpfS5ptc

I found it useful in understanding some research that I did …

Peter

I chose double maths and computing because I want to be a computer programmer. And because maths is what computers do, it's all they really do. And it's just, so maths is really, and I'm quite good at maths, so. And computing, obviously, coz I want to be a computer programmer. And I did physics because I need another subject and I'm really good at physics, so it's what I did.

This and the next quote come from 2 people I interviewed for the Telling Choices research. They were 16-17, in their first year of post compulsory education in England and doing maths. These two had chosen to pursue qualifications in maths and further maths as 2 of their 4 subject choices.

Saldon

What I found most interesting though was when we had to do investigations or courseworks. Those were the things I really liked because then it was my own work, and I could work it out myself. That's the main part I like about maths is I can work it out and figure it and it's like a challenge for me to do. I'm very good at investigations coz I can sort of imagine the shapes or the puzzles in my head and then see what will fit in well.

So now, Saldon and Peter were 2 of only 4 of the 43 I spoke to who clearly self-identified as good at maths, all 4 were male and 3 were in the double maths group. Their positioning as good at maths and so, given the social stories that circulate in and through maths, as de facto clever, contrasts with the girls in the group (there were only 2 compared with 18 boys).

Rachel

Rachel: Dad thought I should do accountancy or law, but I haven't got, I'm not going to get the A-levels for law, so. Because you need, like, history, and I'm doing English, but I think you need history and stuff for law. And I wouldn't like it anyway, because it's too difficult.

Heather: What, what would make it difficult?

Rachel: Coz it is. All the people that I know that do law are really, really, really clever.

Heather: And so why aren't you really, really, really clever?

Rachel: Coz I'm not. I'm me.

Heather: How do you know?

Rachel: Because I just aren't.

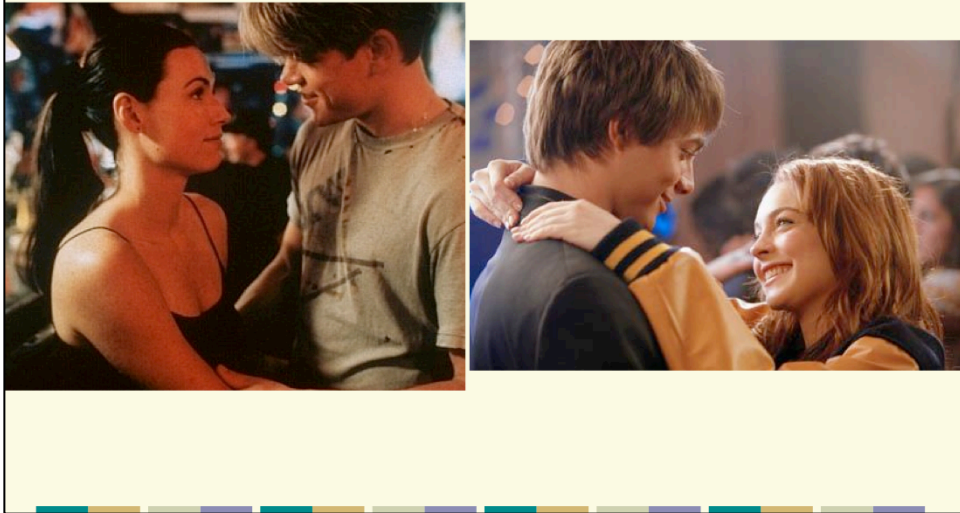This is one extract where Rachel insists she's not clever.

These are two extracts where Ling insists she's not clever. In the first, she is responding to my asking for her GCSE (exam at the end of compulsory schooling in England) grade. She tells me she got the top grade but then tells me why that wasn't really good. It's amazing actually she was entered for the exam a year early got an A grade after only months earlier having moved to England from Portugal, the year after she gets the top grade possible. In the second quote we see the 'spectre of mathematical genius' that serves to render her own efforts as inadequate and unable. The second extract is her response to the question: what do other people who are not doing maths think about the subject? This turned out to be a very useful question for my purposes because it required students to define themselves against others.

How good are you at maths?

	Female	Male
Very good	7	33
Good	79	119
OK	116	137
Bad	12	16
Very bad	9	3
	223	308

So having noticed this gendered contrast, in the next project, Maths Images and Identities, we asked people directly whether they were good at maths. This is the results for over 500 15-year-old students in South of England. Most of them, male or female, did not identify as very good at maths but the starkness of the contrast between the number of girls and boys in this group did shock me. I wanted to explore this shock.

Why is this story so powerful?

The film is about an untutored working-class maths genius. And the scene is him and his girlfreind Skylar siting in a café in Harvard. He looks on as she does her organic chemistry homework for her medical studies.

GOOD WILL HUNTING CLIP: http://www.youtube.com/watch?v=bqPXxLSrNOM: 2:33

This segues into the way that gender and sexuality are closely tied together

This scene beautifully encapsulates this gendered opposition with Skylar embodying the hard working woman and Will the naturally able man, reproducing effortful and effortless achievement respectively. An interesting thing is how attractive and appealing to her is his ability and also how intimate a moment this is for them (probably their most intimate in the film) suggesting this is a moment where Will, who often lies to Skyla, reveals a truth about himself.

What is invested in these stories of the naturally clever man and the plodding woman are in part how we see our bodies, our sexualities – it's very clear that what she finds attractive about him is connected to his flair, we see this frequently and it contrasts wit the situation for girls c.f. Mean Girls

The central character Cady hides her mathematical capabilities to appeal to the best looking boy in her calculus class (24:28-25:45; 44:34-45:37). It is her feigned ignorance that precedes their first kiss.

'I do worry what people think of me ...
I try really hard not to seem clever'

These stories have real effects cf. the recent treatment of Gail Trimble – it's not easy to be a clever girl, and being good at maths, given the stories we tell about the subject, is being clever

They affect all of us and it is important to understand our own relationship with maths when we teach it