

## **Report from the Critical Mathematics Education Working Group meeting**

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BSRLM's CME Working Group met for the fifth time for a discussion prompted by the question: 'What are the implications of Bourdieu's ideas for the mathematics classroom?' The meeting provided an opportunity for the 18 delegates attending to discuss how researchers, educators and teachers might draw on Bourdieu's ideas, including 'cultural capital', 'symbolic violence' and 'reflexive sociology', to inform their practice. A series of prompts was used to facilitate discussion and six themes emerged from the responses: the contested nature of the term 'cultural capital'; the relevance of Bourdieu's theories to mathematics teaching; the extent to which the reproductive function of school mathematics is intentional; the relevance of Bourdieu's ideas to an analysis of global inequalities; making sense of the self-perpetuation of conventional approaches to teaching mathematics; and possibilities offered by Bourdieu's analysis for challenging the exploitative nature of school mathematics.

**Keywords: Bourdieu; critical mathematics education; empowerment; equity; social justice.**

### **What are the implications of Bourdieu's ideas for the mathematics classroom?**

Bourdieu's theory of reproduction continues to offer relevance and insight to those operating in the field of mathematics education:

Often with a psychological brutality that nothing can attenuate, the school institution lays down its final judgements and its verdicts, from which there is no appeal, ranking all students in a unique hierarchy of all forms of excellence, nowadays dominated by a single discipline, mathematics. (Bourdieu, 1998, p. 28)

The fifth meeting of the CME Working Group was attended by 18 delegates. The aim of the meeting was for delegates to share ideas and/or to learn more about how Bourdieu's ideas might inform their practice. The discussion was facilitated by Pete Wright (CME Working Group Coordinator), who offered three discussion prompts.

#### ***Discussion prompt 1: Aspects of Bourdieu's theory of reproduction***

Bourdieu's theory proposes that a primary function of schooling is to reproduce power relationships within society, by affording systemic advantage to children from dominant groups (Bourdieu & Passeron, 1990). This function is disguised by presenting schooling as a meritocracy, in which those endowed with natural ability or 'giftedness' are successful. Children from middle-class backgrounds tend to acquire greater levels of 'cultural capital', i.e. cultural resources that are assigned greater value by school. This results in middle-class students being placed in a position where they are better able to take advantage of opportunities offered by the school. They develop a 'mathematical habitus', i.e. a predisposition towards learning mathematics, that more closely aligns with the values of the school. The act of 'symbolic violence'

involves working-class students contributing towards their own exploitation by accepting the myth of meritocracy presented by the school.

### ***Discussion prompt 2: A dilemma and a paradox for teachers***

Bourdieu's theory poses a dilemma for teachers wishing to help working-class students to overcome the disadvantages they face in school. Any success they might have, in helping some disadvantaged students realign their habitus with those values recognized by the school, merely enables those students to join the privileged group in exploiting others, and serves to reinforce the myth that school is a genuine meritocracy (Bourdieu & Passeron, 1990).

Equity-minded teachers also face a paradox in wishing to act on behalf of disadvantaged students, whilst at the same time serving as an agent of the schooling system they are attempting to challenge:

Either you believe I'm not lying when I tell you education is violence and my teaching is legitimate, so you can't believe me; or you believe I'm lying and my teaching is legitimate, so you still can't believe what I say when I tell you it is violence. (Bourdieu & Passeron, 1990, p. 12)

### ***Discussion prompt 3: Bourdieu's notion of 'reflexive sociology'***

Williams and Choudhury (2016) argue that, in 'going beyond Bourdieu', the focus for equity-minded educators should be on drawing attention to the 'use value' of mathematics, whilst exposing the arbitrary nature of its 'exchange value'. This can be done by revealing and challenging common myths that disguise the arbitrary nature of 'symbolic capital', e.g. that mathematical success is attributable to natural ability, or that the mathematics classroom offers equal opportunities to all students. By opening up to scrutiny what it means to be a successful learner, teachers and researchers can expose, and ultimately undermine, the exploitative nature of school mathematics.

## **Responses from delegates**

Delegates were then invited to introduce themselves and to respond to the discussion prompts and to the initial question: "What are the implications of Bourdieu's ideas for the mathematics classroom?" The delegates' responses are reported below and have been organized into six different themes that emerged from the discussion.

### ***Theme 1: 'Cultural capital' is a highly contested term***

*Bourdieu uses the term 'cultural capital' in a specific way and this interpretation is not necessarily shared by others who use the same term:*

Life is different for children from different family backgrounds and it is important to understand how that feeds into their experiences of schooling.

There is a lot of confusion around the term 'cultural capital' and it is often thrown around and used in different ways.

Bourdieu's Marxist analysis of 'cultural capital' contrasts with Ofsted's recent use of the term. Bourdieu views 'cultural capital' as certain cultural resources that are assigned greater value by the school. Whereas Ofsted (2019, p.31) recently referred to 'cultural capital' as any cultural resources **that might help a child achieve success**.

Bourdieu claims that some children are afforded advantage because of their ability to demonstrate cultural knowledge they have acquired.

This relates to the first of the three elements of cultural capital; ‘embodied’, ‘objectified’ and ‘institutionalised’. ‘Embodied cultural capital’ relates more closely to ‘habitus’ and is the most difficult to reproduce.

Anything to do with early programming is likely to be most difficult to reproduce, e.g. propensity towards swearing and knowing when it is appropriate.

There are varying and confusing hypotheses put forward about which elements of cultural capital make the most difference.

‘Cultural capital’ suggests that not all values are equal. Some values may be considered ‘better’ than others, but is it justifiable to impose them on other people?

### ***Theme 2: The relevance of Bourdieu’s theories to mathematics teaching***

*Bourdieu’s notion of ‘symbolic violence’ is highly relevant to whether or not students identify themselves as successful mathematics learners, and explains why some students opt out of learning mathematics altogether:*

Mathematics is often seen as absolute in nature with little relevance to cultural values. However, ‘cultural capital’ is an important consideration in mathematics teaching as it relates to students’ confidence and whether they have the right to argue.

We could learn a great deal from sociological theories in understanding how students behave in mathematics.

Bourdieu’s ideas are relevant to what we think of mathematics as a subject and the values we transmit to students in the classroom.

Bourdieu’s ideas can help to make sense of notions of ability, myths about mathematical ability and the justification for setting.

Bourdieu’s notion of ‘symbolic violence’ explains why people buy into the notion that their lack of success is their own fault, e.g. for not working hard enough, which is supported by the capitalist notion of success. Hence, those who are exploited by the system choose to accept it as they believe it is the only option.

We should look carefully at students’ choices of, and access to, post-16 courses in mathematics from the perspective of ‘symbolic violence’ they experience.

We might want to focus on work that generates understanding of the barriers that exist to accessing the mathematics curriculum for students who don’t necessarily have the pre-requisite ‘cultural capital’.

If you think about the choices people make in what they do, they are largely determined by thinking ‘people like me do this’, i.e. (in Bourdieu’s terms) by their ‘habitus’. We need to develop a greater understanding of that mentality and help students to recognise that ‘there are people like them that do this’, e.g. other girls that opt to study A Level maths.

### ***Theme 3: Reproduction as a primary function of learning school mathematics***

*Bourdieu regards reproducing power relations in society as a primary purpose of mathematics education and there are varying interpretations of the extent to which this function is deliberate or intentional:*

The reproductive function of schooling is not necessarily inevitable, but it is deliberate. People in power, who have an invested interest in maintaining the status quo, so that their own children come out on top, decide how schooling is structured.

It might be inevitable that those who benefit from the current power relations will try and reproduce their advantages in the classroom because of their background, without necessarily intending to do so.

The reproduction of power relationships might be more accidental than deliberate or malicious. Teachers may not be conscious of the choices they are making that have a negative impact on some children's learning. Often teachers may not even be aware of 'cultural capital' or their unconscious bias towards certain groups. However pessimistic Bourdieu's views may be, we may need to become more aware of the current situation before we can look to transform it.

People in positions of power may believe that the system is justified because it has worked for them. They can, therefore, be predisposed towards teaching in the same way they were taught themselves because of the success they experienced.

Teachers may also have worked hard to gain success and therefore perceive their success as deserved, whereas they may not appreciate that others, who are less successful, have worked just as hard.

How do privileged groups retain the capacity to reproduce educational systems that benefit their own children when they are subject to the political society which governs education policy?

Governments have recently promoted more traditional approaches to learning mathematics, which privilege certain aspects of knowledge, such as knowing your times-tables, and which are not necessarily important factors in being successful in mathematics. Privileged children tend to do better in these aspects of knowledge because of their upbringing. Previous governments have tried to address how people can learn in a way that allows them to make more sense of mathematics.

Education can become transformative if the political culture enables it to happen. However, the political culture is unlikely to change so long as we ignore the need for a genuine political education that allows students to explore important issues such as Marxism.

#### ***Theme 4: The relevance of Bourdieu's analysis to the international context***

*Bourdieu's analysis was Marxist in nature and was therefore focused on capitalist economies, although it can be extended to an analysis of global inequalities:*

Colonialism had an invested interest in using schooling to revolutionise, rather than reproduce, power structures existing in pre-colonial societies, by imposing the will of the colonisers on the people they colonised.

This process might be viewed as reproducing the power relationships between the colonisers and the rest of the world.

'Cultural capital' can be seen as relevant to the reproduction of a global system, based on unequal power relations, across different cultures.

Inequality is not only being reproduced, but is actually increasing in some developing countries, with gaps in educational attainment widening.

The 'cultural capital' that is valued in some cultures, e.g. in East Asian countries, is very different to the 'cultural capital' that is valued in England. As an outsider, it can be easier to notice how particular ways of behaving are valued more.

Bourdieu would refer to this process as 'symbolic' and 'arbitrary', i.e. there is no valid reason for why particular ways of behaving are assigned greater value.

The Marxist nature of Bourdieu's analysis means that his focus is on education systems in capitalist countries, and his theory may be less relevant to colonial situations in which a system is being imposed on other countries for different reasons.

The whole basis of a capitalist system is that you need a working class. Somebody has to do the jobs that nobody else wants to do. That's why Bourdieu's theories are based on a Marxist philosophy that aims to get rid of inequality.

It's more about the monetary value, rather than other notions of value, attached to a particular job. An efficient economy would use higher pay to provide an incentive for people to do the less attractive jobs.

Given other structural inequalities existing in society, is it possible to address inequality through education?

### ***Theme 5: Self-perpetuation of conventional approaches to teaching mathematics***

*Bourdieu's theories help to explain why conventional approaches to mathematics teaching persist despite the levels of inequality that are associated with them:*

Some people believe that reintroducing more traditional approaches to mathematics teaching is a way of breaking the reproduction of power relationships, because they believe students with more 'cultural capital' will be further advantaged by more investigative and discovery-based approaches to learning.

In contrast to many teacher educators' notions of 'social justice', Teach First's notion of 'social justice' can be seen as reproducing existing power relations by identifying and nurturing talented children from disadvantaged backgrounds.

In Bourdieu's eyes, Teach First's apparent aim of addressing inequality by helping some disadvantaged children to gain access to Oxbridge universities supports the myth that education is a genuine meritocracy, i.e. anyone can achieve success if they try hard enough.

As a teacher, you are aware of the need to try and help disadvantaged students do well in tests, to enable them to gain the qualifications they need to do well in our society. Therefore, you try and help those students to realign their habitus, by making sure they do all the things a middle-class child would do, e.g. complete their homework and have a good breakfast. Without transforming the existing assessment system, you feel powerless to do anything else.

The assessment 'tail' wags the curriculum 'dog' and it is astonishing that we have a society that allows 4-year old children to be tested in the way that they are.

Teachers do what they think is best for students to succeed in the current system, even if they don't believe in it, hence it self-perpetuates.

Bourdieu refers to this as the 'doxa', i.e. a self-perpetuating system that persists, and everyone accepts as justified, merely because it exists. Some people may challenge the system, but it remains unchanged.

Some people, such as those promoting Charter Schools in the US, may be fully aware that they are buying into other people's values, but they see no other way of enabling disadvantaged children to be successful. Others may not be as aware.

As long as we think of mathematics learning in terms of acquisition, nothing will change and energy will be wasted trying to bring all students up to a certain level.

The absurdity of a meritocracy is that, whichever yardstick is used to measure success, some students will be favoured under that measure. Choosing another yardstick would merely favour a different group, and that would then perpetuate itself.

### ***Theme 6: Challenging inequity and transformative mathematics education***

*Whilst Bourdieu's analysis focuses on exposing the exploitative nature of the current schooling system, it can offer some possibilities for how to go about challenging this:*

The failures of our current education system frames much of the work that we do. Bourdieu's analysis appears to be pessimistic and it can be difficult to see how it can help us to break out of the vicious cycle of reproduction he describes.

Most of the discussion appears to centre around a critique of the current system. What actions can we take to help resolve these issues?

Understanding Bourdieu's notion of the reproductive nature of education is essential in understanding its potentially transformative function.

One suggestion is to make teachers and educators more aware of the exploitative nature of school mathematics and help them to fully understand the processes that are involved in this reproductive cycle. Until people fully understand the extent of the problem, there won't be an incentive to do anything about it.

Bourdieu's ideas can be used to stimulate critical thinking amongst students, e.g. by questioning their beliefs about their own abilities.

Bourdieu himself uses these constructs as a lens, or as tools, to comment on what he sees in front of him. In that spirit, Bourdieu's tools should be used to think critically about what we see in front of us. So, rather than drawing attention to a problem, we should use a Bourdieusian lens to view that problem in a different way to normal, to make people realise there is something else to see below the surface.

Comparisons between the status afforded to core mathematics and A Level mathematics courses lends itself to a Bourdieusian analysis.

There is some evidence, from the Visible Maths Pedagogy project (Wright, 2019), to suggest that making investigative, collaborative, problem-solving pedagogies more visible to learners results in higher levels of engagement of students with these pedagogies, particularly those from disadvantaged backgrounds. This can be achieved by using strategies such as holding periodic discussions with students that focus on the teacher's reasons for the pedagogical choices that they make.

### **Acknowledgements:**

Thank you to all 18 delegates who contributed towards such a stimulating and engaging discussion, and whose views are represented above.

### **CME Working Group Terms of reference:**

The CME Working Group (launched in November 2015) is open to all and aims to promote research that brings about positive social change through mathematics education. CME aims to identify and challenge ways in which mathematics is commonly used to maintain the status quo and reproduce inequities in society. It proposes an alternative and empowering conceptualisation of mathematics, which enables people to better understand their social, political and economic situations, and to advocate and bring about changes leading to a more just and equitable society.

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