

SYMPOSIUM PROPOSAL: TELLING CHOICES: MATHEMATICS, IDENTITY AND SOCIAL JUSTICE

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In this symposium we are interested in exploring ways of conceptualising identity in mathematics education and the social justice implications of different approaches. Each presentation analyses the choices in relation to mathematics of one or two individuals, drawing on a range of theoretical tools across sociocultural, discursive and psychoanalytic perspectives. We aim to challenge the dominant neoliberal constructions of choice as an unproblematic and individual act and to open out discussion of the possibilities and constraints of different understandings of choice.

RATIONALE, AIMS AND PLAN OF THE SYMPOSIUM

In this symposium we will explore the use of different theoretical lenses to understand why some people choose to study mathematics and others choose not to, and how they make sense of these choices. In the current neoliberal context, choices are not simply acts of consumption; they are a means of making one's-self: 'Individuals are to become, as it were, entrepreneurs of themselves, shaping their own lives through the choices they make among the forms of life available to them' (Rose, 1999: 230). However, although choices are presented as individual acts, they are constrained by conditions of social class, 'race'/ethnicity and gender. We want to understand choices in relation to mathematics so as to disrupt the neoliberal idealization and individualization of choice. We thus have three aims:

- To explore the nature of choice generally and in relation to mathematics.
- To reflect on the role of theories of identity in our understandings of choice, and the possibilities and constraints of particular approaches.
- To examine the social justice implications indicated by taking different theoretical approaches to choice and identity.

We will use a mixture of presentation and discussion in this symposium. Each of the five presentations will draw on a range of theoretical approaches to identity that can be broadly classified as socio-cultural, discursive and psychoanalytic (Black et al., 2009), using them as toolkits with which to unpack the complexities of particular individuals' choices as they are constructed within interview data. The symposium will be spread across two conference sessions. The first will involve three presentations followed by collective discussion of the issues raised. Two further presentations follow in the second session, with an extended discussion of how we can theorise and understand choice in mathematical relationships. The presentations are outlined below.

SESSION ONE: NARRATIVES OF CHOICE

‘Whose choice? Self-positioning in the interface between discourses of value/ability in mathematics and family narratives’ by Yvette Solomon

Drawing on ideas from Sfard and Prusak (2005) and Holland et al (1998), this paper *explores how two young women position themselves with respect to the discourses of value and ability that pervade school mathematics as they explain their choices* (in Becca’s case) to keep on studying mathematics and (in Gerry’s case) to stop doing so. It appears that Becca’s choice to take mathematics at A-level is underpinned by her subscription to these discourses: she expounds the value of mathematics as an important marker of her intelligence and her future employability. Gerry’s choice, on the other hand, is based on resistance to these dominant discourses: instead she takes up a position of autonomous ‘real’ choice in her creative ‘project of the self’. While both are at pains to say that they have made their choices independently of their parents, their accounts indicate that family narratives play an important role in their positioning of self. A closer inspection raises questions about the interweaving forces of parent-child identification and reparation narratives and the respective parts played by parents and children in them. It also raises issues about the role of cultural and economic capital in ‘choice’ and its filtering through the family narrative.

‘The role of post hoc rationalisation in narrating choice across time’ by Laura Black & Valerie Farnsworth

In this paper we utilise narrative inquiry to analyse the ‘choices’ made by two students, David and Christopher, in relation to mathematics and their future aspirations. We draw on socio-cultural theory which argues that narrative is central to the way in which we understand ourselves in the world and the reality in which we operate (Bruner 1996, Sfard & Prusak 2005, Gee 1999). Using longitudinal interview data, we look for evidence of post hoc rationalisations where the same ‘choice’ or event is told differently by the student at different points in time. We have interviewed both students on five occasions ranging from the start of their post compulsory studies in college (aged 16) to the end of their first year at university (aged 19). Evidence of ‘post hoc rationalisation’ appears in both students’ accounts – David changes the way he describes an early aspiration to study Physics at university and subsequently, his motive for studying mathematics, whereas Christopher changes his description of the role of family influence in his ‘choice’ to study mathematics. The paper will explore what motivates these students to re-frame their ‘choices’ in this way and how this then affects their relationship with mathematics.

‘Social class and identity: how free is anyone to choose?’ by Steve Lerman

Marxist sociologists of education demonstrate how the distribution of social goods is strongly determined by social class. Bernstein (2004) shows how disadvantage, in relation to children from middle classes, has its origins in the home, in restricted as compared to elaborated language, and is reproduced at an early stage of primary schooling. Thus the option to choose to study mathematics at the upper levels of

schooling appears to have been taken away from students from working classes. But this is not the whole story. Students can and do find ways to resist these restrictions and make choices that may appear surprising to teachers and researchers, and indeed the students' families. Identity is multiple and a student apparently powerless in one discourse may see themselves as powerful in another. As researchers we need rich descriptive tools for analysing identity and the resources potentially available through shifts in discourses. I will exemplify this through the retrospective account of Jane, a woman successful in mathematics from a working class background.

SESSION TWO: DISCOURSES OF CHOICE

'Choosing mathematics for choosing life: identity-work through discursive rationales' by Anna Chronaki

Alexis, a male undergraduate, studies architecture and has an interest into programming for engineering design. This interest confronted him with the need to learn more advanced mathematics – an option that is not formally offered in his course. His choice for learning mathematics is enveloped with his choice for professional involvement with programming and architectural design – opening up for him a novel career path. Contrary to predominant stereotypic images of mathematics as a 'boring' subject 'disconnected from real life' – a view shared by many young male and female students, Alexis invests in mathematics and gets passionately involved in it. His choice is rationalised by encountering the discourse of mathematics as a tool-kit for solving engineering problems. Further, his choice for mathematics is also enveloped within the need for gaining control and autonomy over his future job and life as architect/programmer. Walkerdine (2003) and Rose (1999), amongst others, explain that discourses related to an impetus for governing modern life are based on the virtue of self-reliance (autonomy, self-regulation, self-efficacy, and so on) and reflect mainstream and conservative psychology (i.e. cognitivism) or sociology (i.e. neoliberalism). Rose (1999), in particular, argues that the burden of 'choice' conceals the broader social context in which jobs for life have disappeared leaving instead the fiction of life-long learning. Simultaneously, inability to choose signifies inability to perform as an 'autonomous subject of choice' which then results in indecision and lack of success.

'Alice Through a Psychosocial Looking Glass: gender, control and mathematics' by Heather Mendick

The focus of this presentation will be Alice, a Turkish woman, who took part in a focus group and interview as part of a wider study of the role of popular culture in learners' relationships with mathematics (Mendick et al., 2008). She originally studied history of art but, at the time of the focus group was nearing the end of a mathematics degree at a London university, and at the time of the interview was waiting to begin a one year postgraduate course of teacher training. The presentation will explore psychosocial approaches by using these to make sense of Alice's choices. A psychosocial account understands her relationship with mathematics as

psychic *and* social, without reducing one to the other, and explores how she ‘invest[s] in discourses when these offer positions which provide protections against anxiety and therefore supports to identity’(Hollway and Jefferson, 2000: 21). In particular, the presentation will look at how Alice’s desire for control over her life leads her to invest in mathematics and its discourses of mastery and at some of the gendered implications of this that play out in her rejection of a position as a productive mathematician and her take-up of a supportive role as a reproductive teacher of mathematics (Walkerdine, 1988).

REFERENCES

- Bernstein, B. (2004). Social class and pedagogic practice. In S.J. Ball (Ed.) *The RoutledgeFalmer reader in sociology of education*. London: RoutledgeFalmer.
- Black, L., Mendick, H., & Solomon, Y. (Eds.) (2009). *Mathematical relationships in education: identities & participation*. New York: Routledge.
- Bruner, J. (1996). *The culture of education*. Cambridge, Massachusetts: Harvard Univ. Press.
- Gee, J. P. (1999). *An introduction to discourse analysis: theory and method*. London: Routledge.
- Holland, D., Lachicotte Jr, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds*. Cambridge, Massachusetts: Harvard University Press.
- Hollway, W., & Jefferson, T. (2000). *Doing qualitative research differently: free association, narrative and the interview method*. London: Sage.
- Mendick, H., Epstein, D., & Moreau, M.-P. (2008). *End of award report: mathematical images and identities: education, entertainment, social justice*. Swindon: Economic and Social Research Council.
- Rose, N. (1999). *Governing the soul*. London: Free Association Books.
- Sfard, A., & Prusak, A. (2005). Telling identities: in search of an analytic tool for investigating learning as a culturally shaped activity. *Educational Researcher*, 34(4), 14-22.
- Walkerdine, V. (2003). Reclassifying upward mobility: femininity and the neo-liberal subject. *Gender and Education*, 15(3), 237-48.
- Walkerdine, V. (1988). *The mastery of reason: cognitive development and the production of rationality*. London: Routledge.