Different kinds of maths learners: mathematical identity in relation to classroom pedagogic culture

Pauline Davis

This short briefing paper addresses the research question 'in what ways can classroom pedagogic culture mediate students' relation with mathematics, (their mathematics learner identities)?

'From a social practice perspective it is through cultural practices as people 'do life' that social identities are constructed (Nasir and Saxe, 2003). We take the view that people's identity work is never 'done', it is always on-going' (Holland et al, op. cit.). We assume that identity is mediated by the discourses and practices of people's social activity systems. Thus, talk about identity in social terms does not deny individuality but views the very definition as something that is part of the practices of specific communities.

Data comes from observation of AS mathematics classroom pedagogic practice and interviews with students, which focused on their interpretation of the classroom activity and biographical accounts of their past, present and future education as mediated or not by their identification with mathematics. To inform our analysis of classroom talk we draw on Bernstein and Systemic Functional Linguistics SFL (Halliday and Hasan). To inform our analysis of mathematical identity we analysis the texts for cultural models (Gee, 1999) of mathematics.

Our case studies reveal two key elements. First, pedagogy can provide a narrow or a broader range of models and Discourses of 'being a mathematician'. Thus, as well as a dominant view if maths as hard, individualistic and fixed, we have examples where students say of their experience of mathematics that they find it fun, sociable, and negotiable. We can say that this pedagogy associated with such alternative ways of thinking about maths involves a relatively flexible classification (Bernstein) of mathematics. Second, we can say that the way the classroom activities are organised can encourage different kinds of mathematics classroom talk. When students work together engaged in common/joint activity this can encourage their normative, everyday, peer Discourses. In this way we believe that some students can come to talk mathematics and be more active and sociable 'mathematicians'. We will illustrate this with an example of group talk that seamlessly switched from 'pooh talk' to 'mathematics' and back again – it is seemless in the sense that consistency of the tenor (Halliday and Hasan, 1976) of the discourse is maintained. Thus mathematical- and peer-identity work reciprocally to legitimise each other within the classroom.

We raise the possibility that when mathematics can be talked about in teenagers everyday way rather than the traditional discourse of teacher-student talk that this may act to engage in mathematics students from a greater diversity of social and educational backgrounds.

References

Gee, J.P. (1999) *An introduction to discourse analysis: Theory and method*. London Routledge.

Halliday, M.A.K. & Hasan, R. (1976) *Cohesion in English*. Harlow: Pearson Education Limited.

Holland, D., Lachicotte, W., Skinner, D., & Cain, C. (1998). *Identity and agency in cultural worlds.* Cambridge: Harvard University Press.

Nasir, N. S. and Saxe, G.B. (2003) Ethnic and Academic Identities: A Cultural Practice Perspective on Emerging Tensions and Their Management in the Lives of Minority Students, *Educational Researcher*, Vol. 32, No. 5, pp. 14-18.