MAPPING DISCURSIVE STRUCTURE. WORKING WITH HABITUS, DISCOURSE AND IDEOLOGY TO EXPLORE THE POLITICS OF MATHEMATICS TEACHING.(*)

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Abstract

Much has been written on teacher thinking and teacher education, but which remains locked within an individualistic psychological paradigm and consequent!J draws little from social theory. However, mathematics teaching is an integral component of an education system that seTVes to both produce and reproduce social structures. Consequent!J, to understand mathematics teaching we need to understand how it operates to form and reform pupils into agents. In order to do this we need to grapple with such sociological concepts as agenry, discourse, ideology and power. In this paper I look at how we might identify a teacher's positioning within a set of discursive fields, and structural!J how we might map such discursive stnIctures in a way that integrates habitus, discourse and ideology into a deeper understanding of the political nature of mathematics teaching.

Background

> It is the content and methodology of the mathematics curriculum that provides one of the most effective means for the rulers of our society to maintain class divisions.
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> (Zaslavsky 1981, p 15)

This is a challenging assumption for those of us working in mathematics education. Yet although the divisive nature of mathematics is now hardly contested, we know little about the micro-politics of pedagogy, or the micro-mechanics of social reproduction. In order to know more about this process, we need then to look at just what practices are at work in schools and mathematics teaching that brings this about.

> Dominant culture gains a purchase not in being imposed, as an alien force, on to the cultures of subordinate groups, but by reaching into these cultures, reshaping them, hooking them, and with them, the people whose consciousness and experience is defined in their terms, into an association with the cause and ideologies of the ruling groups in society.
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> (Bennett 1986, P 19)

It is this hooking and reshaping that interests me, and which needs unmasking if we are to have any chance of creating a more socially just society. The paradox here is that such processes remain concealed in the everyday practices of teachers and learners such that practices which serve to reinforce the dominance of powerful groups are recognised as both necessary and natural.

Theoretical Framework

The whole enterprise of education is political. It is about how power is conferred and withheld, about who will succeed and who will fail. In the same way educational research is inherenly political in its scope and purpose. One of my purposes is to unmask the processes of social reproduction - something that is inherenly part of the social and economic structure and operation of society. This means that neutrality in educational research has to be imaginary,

> For it to exist, one would have to assume, as some apparenrly do, that it is indeed possible to do research that is uncontaminated by personal and political sympathies. I propose to that it is not possible and, therefore that the question is not whether we should take sides, since we inevitably will, but rather whose side are we on?
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> (Becker 1967, p 239)

Hence the research I undertake is contaminated (informed, influenced etc.) by my sympathies for the underprivileged and the powerless in society.

Researching

Having located my research and myself, I will now briefly describe a small part of a research study, taking place in a Secondary mathematics department. In this paper, I will be reporting on my analysis of one particular teacher and illustrate how this relates to current dominant discourses as well as to ideological frameworks. In this I draw on three elements of a social framework, habitus, ideology and discourse.

Habitus

Habitus refers to our dispositions and habits, which are created both through the objective social structures and our own personal history and upbringing. Dispositions are acquired through our social positioning(s). The *habitus* allows individual to engage in discourses and in turn, engagement in discourses becomes constitutive of the individual habitus. Habitus operates on the level of structured lived experience, whereas discourse operates more on the level of language. Of course, the habitus is never merely an individual response but is enhanced and routinised through the variety of discursive formulations we engage in as members of the social world. Pierre Bourdieu, describes the nature and importance of the habitus as follows:

> Through our dispositions, the most improbable practices are excluded as unthinkable, which inclines us to be predisposed to act in ways that we have done in the past. The habitus produces practices that reproduce the regularities of experience while slighrly adjusting to the demands of the situation. In practice the habitus is history turned into nature. Our unconscious is therefore the unforgetting of our history turning our actions instead into second nature .... It is through this that objective structures and relations of domination reproduce themselves.
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> (Bourdieu 1977, pps 72 - 83)

Discourse

Discourse comprises linguistic forms that convey ideas and allow the ambiguity of language to create ambiguity of intent and intention. This ambiguity comes from the weak and arbitrary links between signifier and signified. Discourses constitute individuals relationally. That is in our interaction with others. Discourses have a structure that forms a network of communication between us and allow us to talk to each other in agreement or disagreement. We can slip between discourses, which thereby have a degree of flexibility. *Discourse* is the domain of struggle. All interactions, talk, argument take place at the level of discourse. The dependence on linguistic and symbolic forms always open up the possibility for ambiguity and divergence of activity, yet such divergence draws on more stable ideological foundations.

Ideology

Ideology describes the structure of ideas, linked to relations of domination and the nature of human interaction and nature of society. Ideological ideas advantage some at the expense of others. They have an external reference therefore to social organisation and structure. Ideology operates to organise and conceal contradictions by stressing and ignoring; it takes positions which once adopted serve to construct what might be called common sense myths. The ideological component relates habitus and discourse to social norms, social organisation and power. It is the dynamic interaction between these three elements which moulds and position us in a social field, and which consequently inform, create and constrain our activity and interaction. The implication of these ideas is to move our attention away from the observable, local context of the classroom to wider spheres of influence. *"We can alwtrys stry that individuals make choices as long as we do not forget that they do not chose the principals of these choice/' (J'l* acquant 1989, P 45), because *"the truth of the interactzon is never entzrefy contained in the interactzon"* (Bourdieu 1990, p 81). Understanding such 'choices' and interactions thus requires us to grapple with the nature and form of ideology.

Teachers (and mathematics teachers are no different in this respect) have to construct a pedagogy and curriculum from out of available resources. In this way they 'transform' these resources into classroom tasks. Transformation is that process whereby the everyday world is transformed in order to become school mathematics. When teachers 'relate', they 'transform' and in this process of transformation, they select material, examples and tasks, structure the sequencing and control the pacing (Bernstein 1975, pps 116 - 156). It is at this moment of transformation that teachers have a window of opportunity to structure the pedagogical discourse, and it is the window through which ideology enters. The teacher's ideological position then transforms the everyday world and the position pupils take. The discourses they position themselves in determine what can be said and asked, So decorating, planning a room, shopping all become transformed into contexts for mathematics; but not the real everyday mathematics we all do, but the esoteric mathematics of some other world, thereby constructing the 'myth of

reference' (Dowling 1998, p 4 - 7 et seq.) - the myth that mathematics is about something other than itself.

Research design*

So what might inform this ideologic~ transformation, or discursive positioning? To get a better sense of his I have worked with a mathematics Department for a year and here will report on the results of an analysis of a series of in-depth interviews with just one of those teachers, Fran Gregory. The interviews with Fran took up some four hours and produced some 15,000 words. Fran had been the Head of Department, but left as I began my fieldwork. A new Head of Department replaced her and proceeded to change much to which Fran had previously been committed. I continued to work with Fran because of her approach that I would describe (with all the imperfections of such a categorisation) as 'progressive'. Furthermore she described herself as a 'socialist'. The interview data was analysed using the NUDIST Qualitative Research computer software. NUDIST stands for *Nonnumerical Unstructured Data. Indexing, Searching and Theorising.* The themes that evolved from the analysis consisted of a number of embedded themes in which Fran adopted a range of positions:

- Opposition to setting by attainment
- Disinclination to formally assessing pupils
- An open problem solving form of curriculum organisation
- Satisfying children's needs wider social in learning
- My facilitative and democratic role as a teacher
- My open democratic management style
- The importance of working together
- Valuing individuality in staff and pupils
- Involving others in decisions that affect them

One powerful aspect of NUDIST is facility to perform complex searchers and theory formation. What I was looking for in the data was not only the themes with which Fran organised her thinking but also the connections between these themes. Using NUDIST I was able to explore the embeddedness of themes within themes. I constructed a model where themes were organised on three levels.

- Level 1 are Extemalising Discourses and consists of "setting by attainment", "assessing pupils" and "curriculum organisation". These are very much related to how the department operated.
- Level 2 are Influencing Themes and consists of "satisfying children's needs in learning", "my role as a teacher" and "my management style". These are related to influences on Fran's pedagogy in the way she organises and operates with others.
- Level 3 are Evaluative Dispositions and consist of "working together", "valuing individuality" and "involving others". There are related to deeper issues of disposition and human values.

What is particularly noticeable is the interweaving nature of Fran's discursive positioning. So, her preferred curriculwn organisation and her way of seeing the role of the teacher - both of which informed her classroom practice - are connected to much deeper issues and dispositions (i.e. the *habitus).* These deeper issues are related to accepting that pupils can negotiate with the teacher, that pupils have some say in determining their own needs, that learning mathematics involved taking decisions over the direction of one's work. The complex nature in this entwining has some implication for ideology. Take for example Fran's opposition to tests, this is not critical opposition but she opens the possibility that her colleagues can do otherwise. It is perhaps not an issue because of the strength of her commitment to valuing individuality.

The extemalising discourses seem tied to structural orgamsmg, and draw on asswnptions about power and social structure. The influencing themes, are more related to Fran's own mode of operation and activity. The third set of discourses is rooted in Fran's value positions, and would be derived from her dispositions and it is at this level that the *habitus* is more direcdy and deeply influential.

Ideological Framework

Conceptually I perceive of ideology as that set of organising structures from which our discursive positioning is derived .. The analysis of Fran's discursive positioning has been throwing up a nwnber of deeper themes which appear to regulate, underpin and form a bedrock behind Fran's positioning. What I am considering as an ideological framework involve sets of ideas that help us understand the social world and help us organise our action within it. Hence, having mapped out Fran's discursive positioning I now will move down to organise the elements of her ideological framework. This stage is therefore a synthesis of all the previous analysis, which suggests five elements that are fundamental organising principles behind and underpinning Fran's positioning.

- Empowerment incorporates the active empowering of others as well as respecting the importance of the individual.
- Empathy incorporates a sense of understanding and respect for others, children and teachers who may see things differendy and adopt a differing way of acting in the world.
- Community and Relationships incorporates a sense in which action in the world is larger than ourselves, and requiring a need to work with others, to interact and adopt working practices and relationships such that this is possible.
- The importance of individuals is a key issue throughout much of Fran's data. This comes through her image of learning, curriculwn organisation, working with colleagues. It is also potentially in some latent conflict with her commitment to community.

- <u>Weak external controls</u> are important because they allow individual to flourish; they allow empowerment to flourish.

Fran appears then to be especially positioned on what might be described (by me at least) as 'on the left' and I have yet to explore the interconnection, full implications and contradictions inherent in this framework.

The type of analysis I am endeavouring to develop looks to the structured and structuring nature of teachers' understanding of their work .My contention is that this depends much more heavily upon the ideological framework and predispositions a teacher holds - both of which are intimately connected to ideas related to the form and nature of society. In this short paper I can only give a somewhat superficial sense of how a social theory of mathematics teaching can be conceptualised. In future contributions I hope to go much further.

(*) I report more fully on the research process and the analysis in a companion paper "D sing NUDIST to model Mathematics Teacher Perspectives", which can be found in this volume.

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