ABSTRACT. This article discusses an approach to teacher belief systems which casts an eye away from cognitive constructs toward sociological constructs to complement existing ideas about the nature and genesis of beliefs. I offer some theoretical ideas for extending the notion of beliefs and describe two contrasting senior mathematics teachers, conceptualising the basis for their differences. These differences move away from beliefs about mathematics, toward ideological and discursive positions which in turn construct the nature of beliefs about teaching and learning.

KEY WORDS: teacher beliefs, ideology, social theory, teacher change

1. INTRODUCTION

Research into the structuring of mathematics teacher beliefs is considerably rich with research into the structure of beliefs and the relationship between belief and pedagogical practice to name but two. I do not develop these existing strands here (see Leder et al., 2002b), but explore a different perspective drawing on social theory to understand some of the enduring problems of mathematics teacher change. I examine teacher differences by contextualising existing research, and look at a different contextualisation by drawing on social theory.

However, whilst studies of beliefs and belief systems have been very rich, we are left with many questions unanswered. I would argue that by drawing on a literature base outside of mathematics education, we might see beyond some of the current horizons. Mathematics teacher beliefs and belief systems rest upon something and have their genesis in the trajectories taken by an individual in society. Hence the model I am offering here takes a few steps beyond beliefs into the social constitution of the individual. It is hardly controversial to claim the individual is constituted by the social, but what I go on to describe is a way of seeing how that constitution might be manifested. A problem with going beyond the structure of beliefs as a mathematical system is that it takes us into a wider realm, which in part – and of necessity – takes us beyond mathematics. To claim that studies of mathematics and mathematics teachers can only reside within mathematics itself will fail to address the very foundations upon which
much mathematics and many teacher beliefs rest. This is consistent with
the position that mathematics itself is a social construct constituted by
social forces and social needs and conventions.

This is a different approach because it locates personal action and be-

lief not within the individual, but within the collective, social dimension in
which human activity and interaction takes place. I am not suggesting this is
an alternative approach to understanding mathematics teacher beliefs, but
rather a complementary set of theoretical tools to enhance and help us grapple
with existing tensions and dilemmas in the field. The justification for this
is the theoretical position that sees the social fields in which people operate
as constitutive of the individual.1 By drawing on social constructs and a
Bourdieuian tradition, I am using an approach which sees the logic of prac-
tice as transcending the boundaries between the individual and the social
and between individual agency and social structure. Excavating beyond espoused teachers’ beliefs into their dispositional and ideological tendencies,
allows us to see not just how individuals are socially constituted, but allows
us to get a more robust understanding of their social practices. Such an ap-
proach might not have the direct practical applicability of studies of teacher
beliefs, but does give us a way of understanding how teacher difference is
grounded.

2. NATURE OF MATHEMATICS TEACHER BELIEFS

Cooney summarised many of the themes in the conceptualisation of teachers’ “ways of knowing” (1999) arguing that while a sophisticated math-
ematical knowledge might be necessary for effective teaching, it is not
sufficient for us to understand teaching, teacher change, or even teacher ori-
entation. Leder, Pehkonen and Törner claim mathematics teacher change
is one area where “no consistent pattern has been found” (2002a, p. 2).
This lack of consistency raises questions about the underlying causes of
teacher change and resistance to change and whether, as teacher educators,
we can do anything about it. Chapman (2002) discusses the “challenging
deavour” of teacher change, where change does not always follow even a
desire to change.

Much of existing research focuses on belief systems or structure, and adopts a paradigm that is fundamentally cognitive. A further di-
mension to our understanding of belief and change, might focus upon
the genesis of beliefs as a deeper set of dispositions and in particular on how beliefs tend to pull us together not as one amorphous conglomeration of professionals, but as a collection of potentially conflicting subgroups.