

CHAPTER 2

METHODOLOGICAL “THEORETICAL TOOLS” FOR RESEARCHING A SOCIAL, CULTURAL, POLITICAL APPROACH

1. A RESEARCH JOURNEY

The story that I tell is about a student teacher, and it is told through her attempt to give meaning to a particular approach to teaching and learning mathematics in a classroom. A second underlying hidden story that often remains largely untold is the researcher’s journey and her struggle in all that comprises the research endeavour. It is the “messiness” of classrooms and the successes and failures of teachers’ and learners’ lives in those classrooms that is usually revealed but seldom the parallel scenarios played out in the work and lives of researchers. Just as the theoretical landscape developed through the research, so too did the methodology. As I write this chapter, I do not want to present what I did and why I did it in a way that implies that it was all clearly thought out methodologically and theoretically. What I know now is so different from what I knew when I planned and produced the data. So in this chapter, I try to chart my own growth and journey as a researcher with respect to this emergent methodology, as I work through the many conflicts and dilemmas of doing research in South Africa and try to ground the methodology theoretically.

Like most researchers I attended research methodology courses and seminars. Moreover, I was involved in developing an education masters programme in the faculty, and I was centrally involved in its research training component while I was involved in conducting the main part of this study (for e.g. Jansen and Vithal 1997; Vithal and Jansen, 1997). Yet when asked what research methodology was I using (Is it a case study, an action research, or an ethnography?), I struggled to answer. When I tried to think of the way in which I had planned and was doing the research in terms of specific methodological criteria, I experienced a disjuncture from the research questions and felt constrained. My research simply did not make sense to me when I tried to follow guidelines set in the different methodologies. Besides, the methodologies are not clearly demarcated themselves as the underlying theoretical debates rage not only across different research paradigms but also within a single methodology, such as, for example, ethnography.

Advised and encouraged to be creative and to go with my best judgement and thoughts, I took this to mean that I could use my intuition and common sense. This

did not always feel comfortable, I did want to do rigorous and scholarly research that was methodologically and theoretically sound and supported. My fears about approaching research this way were assuaged by fellow researchers who pointed out that since I was reading and thinking about what I was doing in the research that my intuition was in fact methodologically and theoretically informed. Much of my experience of education and research was in terms of being a consumer of the ideas of others. It was not easy to feel comfortable with simultaneously trying to produce theoretical and methodological ideas relevant to my own context and concerns.

Developing a research design and producing data raised several methodological questions: What is an appropriate research *methodology for researching a critical perspective in mathematics education*? Does one exist, could it be appropriated or was there a need to invent a methodology? The problem of methodology from the perspective of theory is two fold: the first was that of finding a research design and process that allows one to investigate theory-practice relations, in contexts in which practices associated with particular theoretical ideas are not widespread in the current mathematics education system; and the second is the question of requiring an appropriate methodology for researching an approach that embeds a critical perspective. This chapter addresses the first of these two questions. I offer a way of examining a theory and related practices by constructing a set of relationships between three “situations” – *the actual current situation, the imagined hypothetical situation and the arranged situation*. The description of the methodology developed in the study is outlined and contextualised in terms of these situations. In the next chapter, I address the second question as I locate this description in terms of existing research paradigms, methodology, methods and criteria.

A main underlying concern in this study is the theory-practice relation in mathematics education (see Chapter 4), but for now I focus on that relation in research. I have used the term theory rather broadly to refer to several ideas and concepts pulled together in a theoretical landscape which in particular, refers to and explains an approach to the school mathematics curriculum that focuses on social, cultural and political aspects and integrates a critical perspective. The problem essentially is, what are the means for one to say anything – critical or supportive – to this approach and its theoretical basis, and to any related practices, especially when these do not exist widely in the system?ⁱ Once produced, what are the sources for developing any theory and associated practices further? To discuss this problem, especially with specific reference to my study, I develop these three “situations” to describe and clarify a process of researching innovative theoretical ideas and related practices in mathematics education, particularly in seeking to emphasize and retain a critical perspective in the research in resonance with the theoretical landscapeⁱⁱ:

I take these situations to offer “theoretical tools” for thinking and talking about researching a theory-practice relation when a particular theoretical landscape and associated practices are deliberately introduced into a context because these are not dominant in the mainstream educational setting. The following visual representation in Figure 1 assists in the discussion.

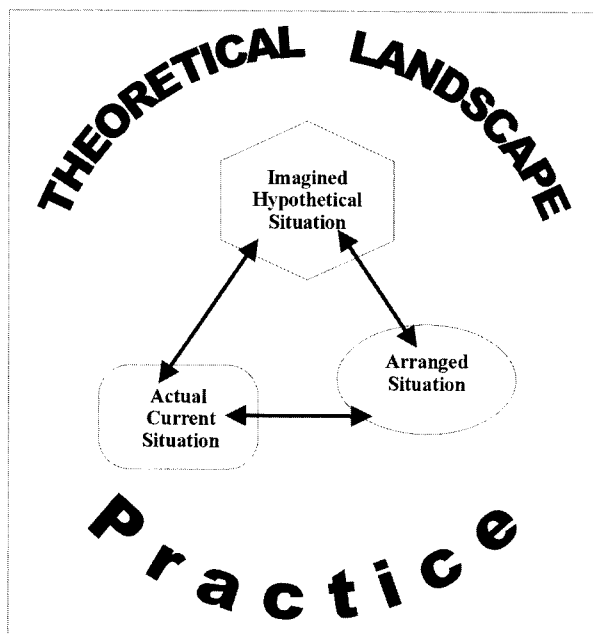


Figure 1. The actual current, imagined hypothetical and arranged situations.

2. THE ACTUAL CURRENT SITUATION

This is the situation that actually exists: in a classroom, a school, a teacher education institution or even the educational system as a whole. It represents the current situation in which the research is taking place. In a significant amount of research in mathematics education, some aspect of the current actual situation is researched: the learners, the teachers, the curriculum and so on.

There are at least two ways in which the theory-practice relation in this research could have been investigated by referring to the current actual situation, different from the approach I took. First, I could have searched for an existing actual situation in which, for example, teachers are working with the curriculum approach I am interested in studying (for e.g. Boaler, 1997). This would have been quite a challenge given the dominant mode of “traditional” mathematics teaching and learning in South African classrooms. A second approach may be to study and interpret the actual current situation as it occurs, through the lens or theoretical framework of a critical perspective in mathematics education (for e.g. Cotton, 1998; Valero, 2003). In this latter approach to the research I could consider issues of democracy, equity, social justice, etc. in actual situations as they are currently played out in mathematics classrooms.

The focus in my study is not on the existing actual situation per se but rather on some new and different situation that is organised and created with ideas from a particular theoretical landscape. My research interest lies in making a concerted effort to introduce prospective teachers to this theoretical landscape and its associated practices and then to examine collaboratively its recontextualisation when

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