Chapter 1

Introduction

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In the 1970s and 1980s, mathematics education was established as a scientific discipline in German-speaking countries through a process of institutionalization at universities, the foundation of scientific media, and a scientific society. This raised the question of how far the didactics of mathematics had been developed as a scientific discipline. This question was discussed intensely in the 1980s, with both appreciative and critical reference to Kuhn and Masterman. In 1984, Hans-Georg Steiner inaugurated a series of international conferences on Theories of Mathematics Education (TME), pursuing a scientific program aimed at founding and developing the didactics of mathematics as a scientific discipline. Chapter 2 will show how this discussion was related to a discourse on theories. Chapters 3 and 4 will present two theory strands from German-speaking countries: with reference to Peirce and Wittgenstein, semiotic approaches are presented by Willi Dörfler and a contribution to activity theory in the work of Joachim Lompscher is presented by Regina Bruder and Oliver Schmitt.

Addressing some TME issues, a more bottom-up meta-theoretical approach is investigated in the networking of theories approach today. Chapter 5 will expound this approach and its relation to the TME program. In this chapter, the reader is also invited to take up this line of thought and pursue the networking of the two presented theoretical views (from Chaps. 3 and 4) in the analysis of an empirical case study of learning fractions and in an examination of how meta-theoretical reflections may result in comprehending the relation of the two theories and the complexity of teaching and learning better. In Chap. 6, we will look back in a short summary and look ahead, proposing some general issues for a future discourse in the field.

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Finally, a list of references and a specific list for further reading are offered. Since this survey focuses mainly on the German community of mathematics education, the references encompass many German publications.

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