

Introduction

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Since mathematics education has been installed as a scientific discipline empirical studies have always been very important, especially research about learning and teaching processes, about classroom interaction and students' attitudes towards mathematics and their mathematical performances have always been a focus of interest. Depending on research object and research interest a scientist can choose among various empirical methods, e.g. more quantitative and statistical oriented methods or methods that are more based on qualitative paradigms. During the last years especially qualitative methods became increasingly important, e.g. for analyses of classroom interaction and teaching and learning processes.

The high relevance of empirical studies does not go along with an intensive discussion about these methods or the development of methodical generally accepted standards. This leads to the problem that sometimes empirical studies about mathematics education are not accepted by some disciplines which are related to mathematics education. This and the following volume are aimed to provide a contribution to the in my opinion long overdue discussion about empirical methods in mathematics education. The articles of this volume are restricted to qualitative empirical methods. This restriction has not been for content reasons but in order to give a broad overview about the current discussion. However, this can not be done completely for both methodological attempts within only two volumes, but it can not be denied that a discussion of both methodological paradigms is needed within mathematics education. Especially attempts that cover both, qualitative and quantitative elements within a triangular approach should be analysed intensively. Already in 1993 Beck and Maier pleaded for an adequate connection of both research paradigms, if needed even within the same project. Furthermore, they indicated that representative and more broadly aimed results can be obtained more easily from quantitative based studies, while results based on individual phenomena can be received more easily from qualitative oriented studies. This and the following volume is aimed just to highlight some aspects in order to promote a discussion about qualitative methods in mathematics education, especially about the theoretical assumptions the methods are based on and their related implications for the applied methodological procedures.

The contributions of this and the next volume demonstrate that research methods and theoretical attempts basing on a certain world view as well as assumptions about how to approach this world are inseparably connected with each other. At the beginning, these aspects are clearly formulated by Helga Jungwirth in an overview about interpretative research in mathematics education, and then, their consequences for the methodological procedure are explicated. Richard Barwell's contribution about discursive psychology demonstrates how research

methodology for the analysis of psychological aspects of learning mathematics is influenced by the view of interaction as discursive practice, primarily structured by the social action it performs. In Angelika Bikner's contribution a central aspect of interpretative research in mathematics education is examined: the question about the construction of theory for which she refers to the attempt of empirical ideal types construction. The last contribution of this volume, that of Uwe Gellert, describes within the framework of interpretative social research the method of "phenomenological group interviews" that have been developed from the assumption of collective experience, more specific on the assumption that thoughts and action of people are embedded in social relations.

The contributions in the next volume then will reflect further methodological attempts of qualitative or interpretative research (e.g. argumentation analysis). Besides that, it will contain contributions which deal more intensively with theory related questions (e.g. the problem of causality in qualitative research).

Altogether, I hope that through these volumes the discussion about methodological problems in qualitative oriented studies in mathematics education will be stimulated further and that simultaneously, it will help to intensify the discussion about methodical standards to be followed in this kind of studies.

References

- Beck, U. & Maier, H. (1993). Das Interview in der mathematikdidaktischen Forschung. – In: *Journal für Mathematik-Didaktik*, 14, 147-179.

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