

Introduction

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Since the results of the Third International Mathematics and Science Study (TIMSS) were published in 1996, international comparisons of student performance in mathematics have gained more and more importance as a consequence of public and political discussions. The discussions recently have been fueled by the results published in 2001 of the Programme for International Student Assessment (PISA). Nevertheless it has to be considered that comparative education has a long tradition going back to oral reports, as exemplified by Greeks and Romans. With the beginning of the 19th century, approaches were developed seeking to identify forces influencing the development of systems of education. In the 1960s and 1970s, the use of social science methods became common in order to examine the effect of various factors on educational development accompanied by a debate on the relative merits of quantitative versus qualitative studies.

If we look for the goals of comparative education, history shows us that comparative education serves a variety of goals. It can deepen our understanding of our own education and society, be of assistance to policymakers and administrators, and be a valuable component of teacher education programmes. These contributions can be made through work that is primarily descriptive as well as through work that seeks to be analytic or explanatory, through work that is limited to just one or a few nations, and through work that relies on nonquantitative as well as quantitative data and methods.

In mathematics education, there have been a remarkable number of international comparative studies carried out in the last 30 years. Robitaille (1994, p. 41) believed that the reason for this might be that—

Studies that cross national boundaries provide participating countries with a broader context within which to examine their own implicit theories, values and practices. As well, comparative studies provide an opportunity to examine a variety of teaching practices, curriculum goals and structures, school organisational patterns, and other arrangements for education that might not exist in a single jurisdiction.

Stigler and Perry [1988, p. 199] emphasized the better understanding of one's own culture gained through comparative studies:

Cross cultural comparison also leads researchers and educators to a more explicit understanding of their own implicit theories about how children learn mathematics. Without comparison, we tend not to question our own traditional teaching practices, and we may not even be aware of the choices we have made in constructing the educational process.

Since the First International Mathematics Study (FIMS) in 1964, it seems that the same questions have repeatedly been asked in large-scale studies, and that qualitative strategies are still not well considered, although as a

result of the criticism of FIMS, the Second International Mathematics Study (SIMS) was conceptualised as an in-depth-study of the curriculum. For the first time, issues such as those related to student and teacher beliefs were discussed. TIMSS added to SIMS studies, which aimed to explore the relationships between the intended, implemented, and attained curriculum.

A few TIMSS accompanying studies such as the Case study project or the Survey of mathematics and science opportunities (SMSO) were already at their beginning aiming to combine large-scale surveys and qualitative methods. These in-depth studies of local situations intended to identify the myriad of causal variables that were not recognised in large scale surveys and to allow the development of hypotheses in order to interpret and explain many data gathered in large scale studies

Apart from these qualitatively oriented case studies accompanying TIMSS, there exist many small scale international studies on mathematics education, and many more are coming. This volume of the ZDM contains a few example of such studies, which are characterised by its case study character, their attempt for in-depth-analyses of the data and their focus on a small number of countries considered.

Altogether we can observe in the topical discussion a joint existence of these two kinds of comparative studies. With the present volume of the ZDM I intend to bring these studies to a greater audience arguing that an intensive connection and interplay of both approaches will be highly promising.

References

- Robitaille, D.F. (1994). TIMSS: The Third International Mathematics and Science Study, Beitrage zum Mathematikunterricht, Hildesheim, Franzbecker, 1994, 35-42.
- Stigler, J.W.; Perry, M (1988). Cross Cultural Studies of Mathematics Teaching and Learning: Recent Findings and New Directions, Grouws, D.A. & Cooney, T.J. & Jones, D. & (Eds), Perspectives on Research on Effective Mathematics Teaching, Reston, National Council of Teachers of Mathematics, p. 194-223.

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