

The role of problems in the mathematics lessons of the TIMSS-Video-Study

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The TIMSS- Video-Study revealed great differences in the teaching of eighth-Grade mathematics classes in the three countries involved, Japan, US, and Germany. Stigler & al. (1999) showed the existence of different cultural scripts in the teaching of mathematics. The reanalysis in this paper is based on the mathematical problems themselves and focusses therefore directly on the content related issues in the videotaped lessons.

Method: From the sample of the lessons in the TIMSS-Video-Study, 22 lessons in each country were selected. So, a sample of 1153 problems, some further divided into related subproblems, were analysed. The instrument used for this analysis is a classification system for mathematical problems, developed for this purpose.

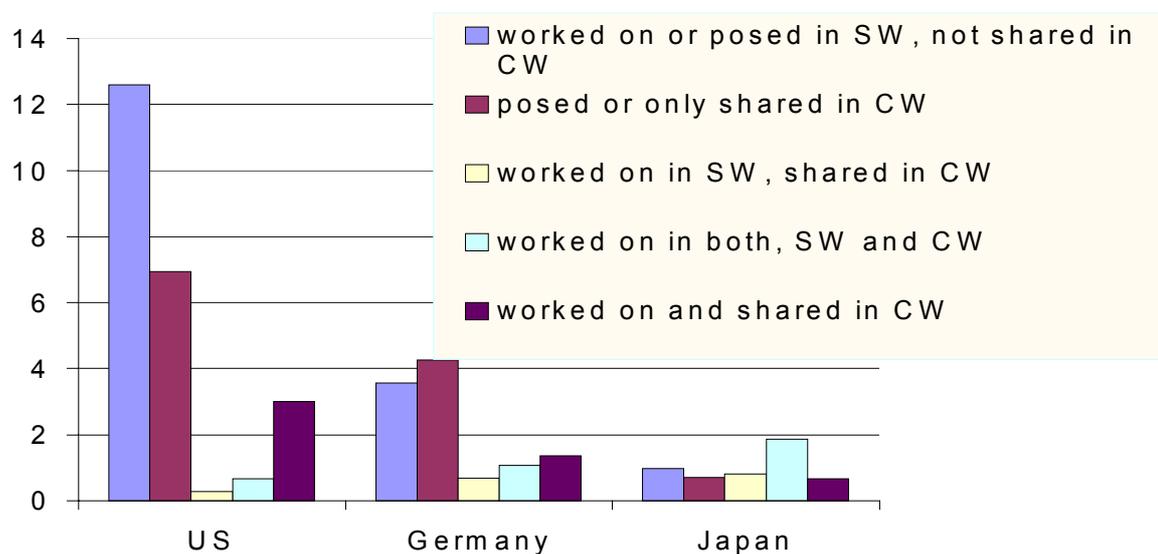


Figure: Number of problems per lesson (means) in different situations (SW=Seatwork, CW=Classwork)

Results and discussion: The most important results from this reanalysis will be presented graphically. The results capitalize the assertion „Teaching is a cultural activity“ (Stigler & al. 1999) from an additional point of view. „Cultural“ does already apply to the content itself. Mathematical problems play - as means to organize the construction of mathematical knowledge - different roles in the three nations' classrooms, not only in their number but also in the selection of the problem characteristics and their implementation in the lesson.

Stigler, J.W. & al.. (1999). *The TIMSS Video Tape Classroom Study: Methods and findings from an explanatory research project on eighth-grade mathematics instruction in Germany, Japan and the United States*. Washington D.C.: National Center for Education Statistics (NCES).

Neubrand, J. (2001). Eine Klassifikation mathematischer Aufgaben zur Analyse von Unterrichtssituationen in den Stunden der TIMSS-Video-Studie. - Dissertation: Freie Universität Berlin - Hildesheim: Franzbecker (to appear)