

The German addition to the OECD-PISA mathematics assessment: Framework for the supplementary test and its connection to the international framework.

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The OECD-PISA assessment in 2000 (PISA = Program for International Student Assessment) included two parts in Germany: the international test and national supplementary tests. These two parts are intended to complement each other. In this presentation, the reasons for the German national option are described and the framework for the test is explained. We will demonstrate how the national framework relates to, refines, and supplements the international framework for PISA-mathematics.

The basis the national framework is based upon is the international PISA framework (OECD 1999). There are essential differences between former international studies like TIMSS and the general aims of PISA. The most valuable point from a mathematics education viewpoint is that PISA aims to evaluate “mathematical literacy”, mathematization being the central instance. One is therefore forced to define this conception, and the international framework does it while pointing to the competencies necessary for doing mathematics. However, those competencies never occur as single capabilities. They occur in bundles when specific tasks are worked out. So, items should be classified in competency classes, which indicate some qualitative distinction between different modes of mathematical thinking:

Class 1: reproduction, definitions, and computations;

Class 2: connections and integration for problem solving;

Class 3: mathematical thinking, generalization and insight. (OECD 1999)

The German national framework takes the three classes as a starting point, but differentiates it for the reason to describe in more detail the achievements of German students. There were formed five classes, two for each, Class 1 and 2, and Class 3 leaving unchanged. The classification follows what in the German discussion was called “mathematische Grundbildung” (Winter 1995). The differentiated classes allow to distinct between the mastering of purely technical tasks and the various steps towards mathematization, which can be both, intra- and extra-mathematical modeling.

References:

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