

ZMATH 2014b.00179

Tabach, Michal; Hershkowitz, Rina; Rasmussen, Chris; Dreyfus, Tommy

Knowledge shifts and knowledge agents in the classroom.

J. Math. Behav. 33, 192-208 (2014).

Summary: We investigate students' knowledge construction and shifts of the constructed knowledge in a mathematical classroom. An early lesson of a differential equations course serves as a paradigmatic example. We use existing methodological tools for analyzing construction of knowledge by individuals and groups (abstraction in context) and for analyzing whole class discussions (documenting collective activity). We offer a way to adapt these methodological tools in order to coordinate analyses of the individual, the group and the collective in a mathematical classroom. The combination of both analyses allows us to follow the evolution of ideas from their construction in small groups to their becoming a normative way of reasoning during whole class discussion, or vice versa. Our overall goal is to exhibit the role played by individuals and groups in the class as well as by the class as a whole, in the knowledge constructing process.

Classification: C35 C75 I75

Keywords: abstraction in context; documenting collective activity; knowledge construction; normative way of reasoning; knowledge shifts; knowledge agents

doi:10.1016/j.jmathb.2013.12.001