Constructing knowledge via a peer interaction in a CAS environment with tasks designed from a task-technique-theory perspective.

Summary: Our research project aimed at understanding the complexity of the construction of knowledge in a CAS environment. Basing our work on the French instrumental approach, in particular the Task-Technique-Theory (T-T-T) theoretical frame as adapted from Chevallard’s Anthropological Theory of Didactics, we were mindful that a careful task design process was needed in order to promote in students rich and meaningful learning. In this paper, we explore further Lagrange’s (2000) conjecture that the learning of techniques can foster conceptual understanding by investigating at close range the task-based activity of a pair of 10th grade students-activity that illustrates the ways in which the use of symbolic calculators along with appropriate tasks can stimulate the emergence of epistemic actions within technique-oriented algebraic activity.

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