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Designing interplay of systematization and minimalism.

Burman, Lars (ed.), Problem solving in mathematics education. Proceedings of the 10th ProMath conference, Vaasa, Finland, August 28–31, 2008. Vaasa: Åbo Akademi University, Faculty of Education (ISBN 978-952-12-2334-1). Report. Faculty of Education. Åbo Akademi University 27, 61-72 (2009).

Summary: To make teachers and students aware of technological developments occurring outside the classroom, it is necessary to take technology-based design processes to be an essential part of teaching and teacher education. This is in accord with emphasizing the genesis of heuristic processes and students' ability to develop intuition and mathematical ideas within constructivist approach. For these goals, empirically tested more or less systematic pedagogical models can be helpful. This article illustrates some results and experiences of the ClassPad project from the viewpoint of problem-solving skills. Emphasizing more the making of informal than formal mathematics within interaction of minimalism and quasi-systematic MODEM-framework seems to promote sophisticated metacognitive skills among students and student teachers, improving also self-confidence among both of those groups.

Classification: D50 U70

Keywords: computer-based learning; conceptual learning; constructivism; heuristics; minimalist instruction; problem solving; procedural learning; self-determined learning; simultaneous activation; technology-based