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Effects of reflection prompts on learning outcomes and learning behaviour in statistics education.

Learn. Environ. Res. 12, No. 3, 209-223 (2009).

Summary: Starting from difficulties that students display when they deal with correlation analysis, an e-learning environment (“Koralle”) was developed. The design was inspired by principles of situated and example-based learning. In order to facilitate reflective processes and thus enhance learning outcomes, reflection prompts were integrated into the learning environment. A total of 57 university students were randomly assigned to two experimental conditions: 28 students were prompted to give reasons for their decisions while working within the learning environment (EG 1); and 29 students dealt with Koralle without being prompted (EG 2). The control group consisted of 67 students who had already attended regular statistics lectures but had no access to the e-learning environment. EG 1 scored significantly higher in the posttest than EG 2, and the effect was practically relevant and sustainable. Reflection prompts did not influence time on task, task choices and motivational outcomes. Both experimental groups clearly outperformed the control group.

Classification: U54 U55 C74 C75

Keywords: experimental groups; control groups; computer assisted instruction; correlation; time on task; educational environment; statistics; learning processes; reflection; mathematics achievement; prompting; college students; computer software; electronic learning; outcomes of education; instructional effectiveness; student motivation; metacognition

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