

parenthood, and (f.) changing parenting attitude and practice. The first three, focused on the control of children's behavior, were associated with surface learning, and the last three, focused on the development of the parent-child relationship, and the meaning of parenting, with deep learning (Go, 2013). A recent parental learning scheme integrated the case study methodology, case study moderation by parent education practitioners, and peer learning discussion groups on a mobile phone application platform to make parent education accessible to parents from economically disadvantaged families. This mobile learning platform incorporated pedagogical techniques that facilitates reflexive learning. This mobile learning platform also allows parent education practitioners and researchers to monitor the learning of parents. Using the framework proposed by research on conceptions of parental learning (Go & Pang, in progress), this study aimed to evaluate the learning of parents in this new and innovative learning platform. Through phenomenographic interviews with the participants and parent education practitioners, and through the analyses of transcriptions of the interventions in the case discussion modules, the study found parent learners acquiring and adapting increasingly deep and reflexive learning approaches over the progression of the program.

### **Internet-based development of thinking skills in young schoolchildren**

Comparative studies, Quantitative methods, Instructional design, Reasoning, Primary education, Game-based learning

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In this paper we compare face-to-face and Internet-based development of inductive reasoning under various conditions and research designs to compare the efficacy of using the same training tasks in various gaming environments. In the first, computer-based scenario, children were able to communicate with each other and share their opinions. In the second case, they were only able to ask a supervisor. In the third case, the playful training material was embedded in a Pac-Man-like frame game. The fourth situation included avatar-based feedback as well. The samples for the study were drawn from children in Years 1 and 2 ( $N_{exp\_FF}=90$ ,  $N_{exp\_CB}=121$ ,  $N_{control}=128$ ). The effectiveness of the training was measured with an inductive reasoning test (Cronbach's  $\alpha=.84$ ). The main structure of the training was based on Klauer's model of inductive reasoning. Results indicated that both face-to-face and computer-based training environments increased participants' learning outcomes by more than one standard deviation. The effect size for the training in comparison with the performance of the control groups was  $d=1.2$  ( $p.01$ ) in the face-to-face environment and  $d=.9$  ( $p.01$ ) in the computer-based setting. The training was more effective for children with lower skills if they had the opportunity to discuss any problems arising during the training and/or if the training tasks were embedded in an extra motivating frame game environment. The research results and analyses confirmed the premise that inductive reasoning skills can significantly and effectively develop in a gaming environment between the ages of 6 and 8 independent of the scenarios used.

### **Learning analytics: Theoretical mechanisms and first empirical results**