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# CONCEPTUAL DATABASE MODELING SKILL ACQUISITION: IMPACT OF COOPERATIVE VERSUS INDIVIDUAL LEARNING

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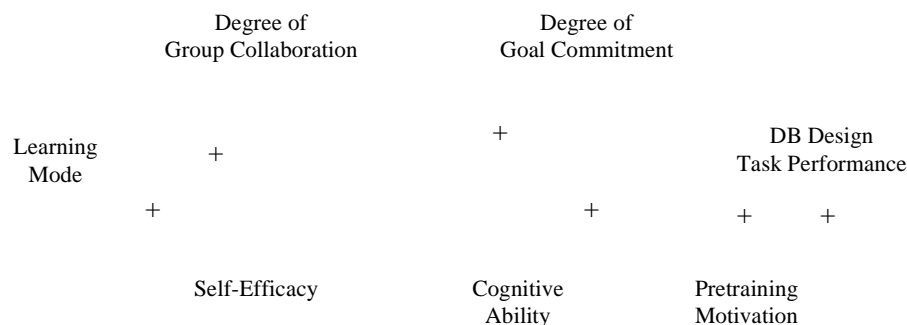
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Conceptual database design has been defined as a complex task for designers (Storey and Goldstein 1988). To facilitate a more rapid progression through the stages of database design expertise, studies have focused on the similarities and differences between expert and novice designers in constructing conceptual database models (Batra and Davis 1992), the improvement of conceptual database design through feedback (Batra and Sein 1994), and the usage of heuristics in the modeling process (Srinivasan and Te'eni 1995). Despite the advances that have been made, there continues to be a call for addition research on the pedagogy of training novices effectively and efficiently (Batra and Antony 1994).

This study draws from the domains of social psychology and organizational behavior in examining the training of novices in conceptual database modeling. A theoretical model, based upon prior research support, was developed to guide this empirical investigation. The model proposes that database design task performance is a function of self-efficacy and either group or individual learning mode. The model also posits that DB design task performance in the group learning mode is moderated by the degree of group collaboration and the degree of goal commitment. Cognitive ability and pretraining motivation are used as control variables.



An experiment was conducted to determine what effects cooperative, team based participation has on self-efficacy and learning outcomes in a complex database modeling task. Specifically, 109 information systems students enrolled in four sections of database management at a southwestern university were participants in this study. A quasi-experimental design, which is common for cooperative learning research (Noddings 1989), was used.

Currently, the database design task has been graded. The results of the analysis will be available at the presentation.

**REFERENCES**

Batra, D., and Antony, S. R. "Novice Errors in Conceptual Database Design," *European Journal of Information Systems* (3:1), 1994, pp. 57-69.

Batra, D., and Davis J. G. "Conceptual Data Modeling in Database Design: Similarities and Differences Between Expert and Novice Designers," *International Journal of Man-Machine Studies* (37), 1992, pp. 83-101.

Batra, D., and Sein, M. K. "Improving Conceptual Database Design Through Feedback," *International Journal of Human-Computer Studies*, (40), 1994, pp. 653-676.

Noddings, N. "Theoretical and Practical Concerns About Small Groups in Mathematics," *Elementary School Journal* (90), 1989, pp. 607-623.

Srinivansan, A., and Te'eni, D. "Modeling as Constrained Problem Solving: An Empirical Study of the Data Modeling Process," *Management Science* (41:3), 1995, pp. 419-434.

Storey, V. C., and Goldstein, R. C. "A Methodology for Creating User Views in Database Design," *ACM Transactions on Database Systems* (13), 1988, pp. 305-338.