Knowledge Tracing: Modeling the Acquisition of Procedural Knowledge

Abstract

1. The ACT Programming Tutor
2. The Cognitive Model
   1. EVALUATING ACT-R PROCEDURAL KNOWLEDGE ASSUMPTIONS
3. Knowledge Tracing and Mastery Learning
4. Empirical Evaluations of Knowledge Tracing
   1. GENERAL EXPERIMENTAL PROCEDURE
   2. INTERNAL VALIDITY: PREDICTING TUTOR PERFORMANCE
      1. Experiment 1: Internal Validity
   3. EXTERNAL VALIDITY: PREDICTING TEST PERFORMANCE
      1. Experiment 2: External Validity
   4. INDIVIDUAL DIFFERENCES IN LEARNING AND PERFORMANCE
      1. Experiment 3: Dynamic Estimation of Individual Differences
      2. Experiment 4: Current Assessment of Knowledge Tracing
5. Future Directions
6. Conclusion