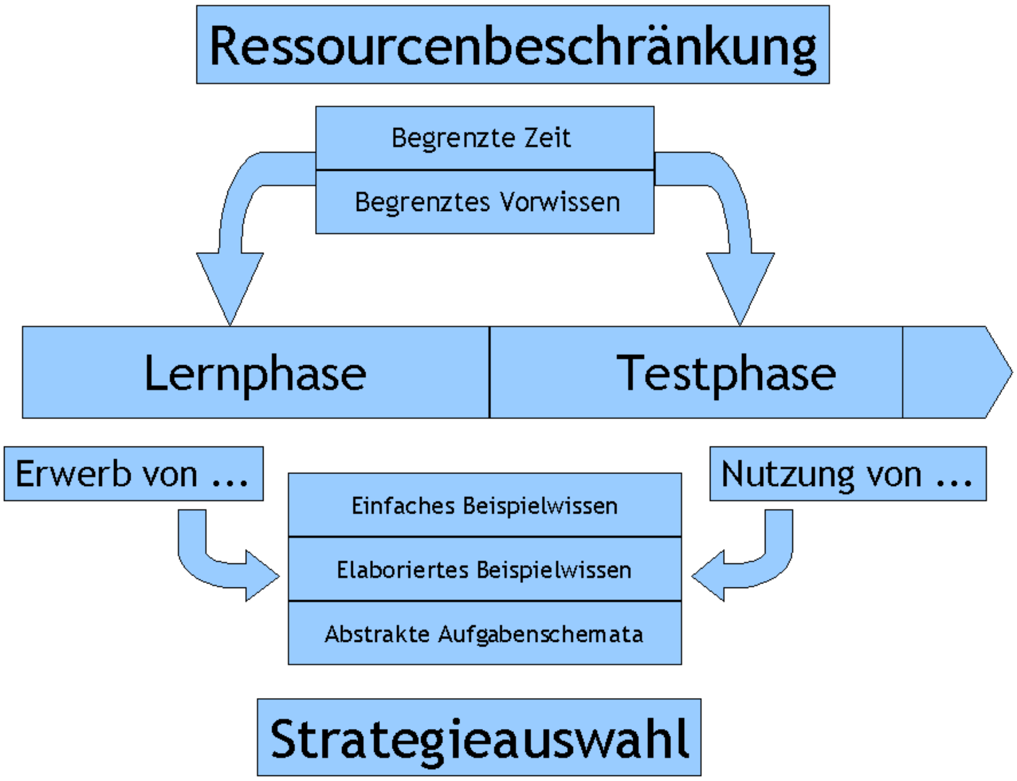
KnAc: Knowledge Acquisition and Knowledge Use



How do resources (especially time available and prior knowledge) influence learning strategies (knowledge acquisition) and later application use of that knowledge (knowledge use)?
We could show that subjects learning with worked out examples are superior to subjects learning by active problem solving. This effect can be traced back to difference in the allocation of resources during learning.
In the next step we want to investigate how differences in prior knowledge and time available influence the selection of learning strategies and problem solving strategies.
For running appropriate experiments we use a hypertext learning system especially designed for our purposes that deals with the mathematical field of combinatorics. There is a learning phase using different kinds of example problems and a test phase presenting word problems that subjects have to solve for themselves.
We apply knowledge assessment methods developed for investigating subjects cognitive control processes underlying strategy selection in the learning phase and the test phase. We want to find out in which order subjects work on different test problems and how they manage task shifts from one problem to another. Other strategies of interest to us concern the acquisition and use of simple or elaborated example knowledge and the acquisition and use of abstract problem solving schemas.
Our results will be modeled using the cognitive architecture ACT-R. This allows us to demonstrate how different aspects and regularities of human learning behavior can be realized in computers.

Prof. Dr. Werner H. Tack
SFB 378 – der Sprecher
Universität des Saarlandes
Postfach 151150
D-66041 Saarbrücken

URL: http://www.cops.uni-sb.de/chris/knac.htm
Contact: Prof. Dr. Werner H. Tack
Telephone: +49-681-302-3338
Telefax: +49-681-302-4791
email: tack@cops.uni-sb.de