The aim of the study is to investigate the influence of two representation aspects of simulation environments on the way of interacting with a simulation and on resulting test performance.

The researchers expected that by means of the “dashboard interface” they would be able to stimulate the exploratory behavior of learners and thus help to surmount the problem of passiveness. The researchers also expected better learning results with the “dashboard interface” based on direct, task-embedded feedback and also higher efficiency in learning with such interface.

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53 first year psychology students were assigned to the five different conditions. The participants of each condition ranged between 8 to 14.

The study was designed as an experimental design. The log files were used for assessing the exploratory behavior of the subjects. Students were assessed in a performance measure by means of two questions. A test of 17 multiple choice questions was also used.

The representation aspects are: a) giving learners additional navigation support by providing them with separate overviews of input and output, and b) the type of interface: a conversational vs. a direct manipulation interface. Four treatment configurations were formed in addition to a control group. Students received a brief introduction and instruction and the participants spent 45 minutes working in a tutorial plus a simulation.

Providing navigation support in the form of overviews did not raise the participants’ scores. To the contrary, subjects in the experimental conditions showed a tendency to have a lower score at the test as well as made fewer iterations in the simulation. Researchers found that overall the number of participants’ iterations was related to test performance. In addition, overviews did not influence the interaction pattern of learners. However, the “dashboard interface” group displayed a higher rate of manipulation (i.e. about ten times as high as in the conversational group).