

Problems learners encounter in the inquiry process

- Learners have difficulty choosing the right variables to work with
- Learners find it difficult to state testable hypotheses
- Do not necessarily draw the correct conclusions from experiments
- Learners may have difficulty linking experimental data hypothesis
- Learners find it difficult to translate theoretical variables from their hypothesis into manipulable and observable variables in the experiment
- They design ineffective experiments
- They may use an engineering approach where they try to achieve a certain state in the simulation instead of trying to test a hypothesis
- They fail to make predictions and make mistakes when interpreting data
- They tend to do only short-term planning and do not adequately monitor what they have done

Research issues and challenges

- The introduction of cognitive tools may lead to overly complex learning environments that hinder learning due to cognitive overload
- Adaptation of the learning environment to respond to differences between learners and to the developing knowledge and skills
- Find ways to combine collaborative learning and inquiry learning
- Find the right balance between inquiry learning and direct instruction

de Jong, T.
 Computer Simulations: Technological Advances in Inquiry Learning
Science, 2006, 312, 532-533

Potential supporting for the learners in the inquiry process

