



Key Ideas from Theory and Research

Standard 1: New Learning is Connected to Prior Learning and Experience

*Directions: Read the excerpts from the research base for Standard 1.
As you read each paragraph, highlight key words.*

- Learners select and transform information using existing cognitive structures – *schemata* – that enable them to organize knowledge and experiences, and apply their knowledge to new situations (Anderson, 1977; Bruner, 1966; Rumelhart & Norman, 1978, 1982).
- Experts have extensive stores of knowledge and skills, but most importantly they have efficiently organized this knowledge into well-connected schemata (e.g., Chi & Roscoe, 2002; Newell, 1990). It is this “organization of knowledge that underlies experts’ abilities to understand and solve problems” (National Research Council, 2005, p. 15).
- Prior knowledge itself does not guarantee its usefulness in learning new concepts unless it is activated in an appropriate context prior to presentation of new knowledge (Bransford & Johnson, 1972; Chiang & Dunkel, 1992).
- In situations where students’ prior knowledge is not engaged and preconceptions are not revealed, students often retain new information long enough to perform well on tests, and then revert back to their preconceptions, correct or not (National Research Council, 2000).
- To connect new learning with prior knowledge, teachers need to be able to take account of the social and cultural prior knowledge with which students enter schools (Cazden, 2001; Gee, 1989).
- Multiple modes, forms, and methods should be used to get a complete characterization of students’ prior knowledge (Valencia et al., 1991).