

## Schema Theory Summary

**1) How do Ausubel and schema theorists believe that cognition and learning should be studied?** Ausubel and other schema theorists believed that cognition and learning should be studied in realistic situations. They felt that by having experiments done in a realistic environment with realistic materials would provide the most accurate results.

**2) Contrast Reception (or Rote) Learning and Discovery (or Meaningful) learning. How do these approaches differ in terms of what the teacher does and what the learner does?** In reception learning, the learner is told information and then required to internalize it. Thus, the instructor is responsible for providing and communicating all of the information. In Discovery learning, learners are given pieces of information and through discovery, connect the pieces together as well as to past knowledge. In addition, the learner is responsible to really understand the information, not just memorize it. The teacher is responsible to provide students with meaningful information and situations. Ausubel felt there was a time and a place for discovery learning, but didn't feel that it was efficient. In rote learning, the information is memorized verbatim and often not transferred or connected to previous knowledge. Rote learning can occur in either reception or discovery learning.

**3) What is a schema, and what kinds of information does it contain?** Schema is the organizational structure in which information about a certain topic is stored in your memory. Schema contains the information to interpret and process events around us. Schema also assists in making predictions about unknown events by connecting it to previously experienced events or knowledge.

**4) According to both Ausubel and schema theorists, how can knowledge stored in LTM be modified?** Anchoring can modify knowledge, using: Correlative subsumptions (*extends* or revises a concept already learned), or Derivative subsumptions (new examples on a concept already learned). It can also be anchored by Superordinate learning (learning a new category or term involving previously learned ideas), or Combinational learning (new idea is derived from another idea). Knowledge can also be modified by Accretion (learn facts associated with a schema), Tuning (where existing schemata evolve), or Restructuring (the creation of an entirely new schemata).

**5) What are the major effects of schemas on comprehension, learning, and memory?** According to schema theory, readers encountering text invoke and evaluate for relevance, the schema or mental model in their memory. If their schema fits, instantiation occurs (their schema is represented in concrete form). When the schema does not fit, the reader must reevaluate and modify which schema to invoke. They must also organize the schemata into complex mental models. If a learner is able to invoke the correct schema, they are better able to remember information from stories that involve that schema. Readers remembered and understood events from a restaurant story when it involved the schema stored in their memory when the story veered from that schema, comprehension and memory were impeded.

**6) In the language of cognitive psychologists, why would retrieval of information taught under Ausubel's approach or a schema theory approach be faster and easier than material taught under a more traditional (receptive learning) approach?** Ausubel's form of effective learning involves constructing conceptual understanding in a meaningful way. We learn more from applying ideas to what we already know and are able to retrieve it easier and faster through his approach rather than through a receptive learning approach.

**7) In terms of applying the concepts from this week to classroom practice, what are the biggest strengths of the schema theory perspective? (You should speak in both general terms and use concrete examples)** Schema theory is concerned with, and helps to account for, how learners bring their prior knowledge to bear when learning new information. Educators can apply the concepts of schema theory directly by employing strategies that help students access and refine their relevant schemata to make sense of new information. Instruction must be designed in a way that helps students activate their prior knowledge to make connections between what they know and the new material to be learned. Content and organization are equally important. Materials must be potentially meaningful and organized in a way that helps students make connections easily. Advance organizers, comparative organizers and elaboration are ways to organize instruction to help students make connections between concepts.

**8) In terms of applying the concepts from this week to classroom practice, what are the biggest weaknesses of the schema theory perspective? (You should speak in both general terms and use concrete examples)** Schema theory and Ausubel's Meaningful Reception Theory fail to determine how learners know when to use their schema (conditional knowledge) and when that knowledge is relevant to a particular learning situation. In one study, subjects performed poorly on tests where the schema was not familiar. Therefore, Schema theory does not help to account for the transfer of knowledge between domains. In addition, schema theory fails when individuals have no background knowledge on a topic. Finally, advance organizers can be time consuming for the teacher to create and may not work well for all students.