



Teaching Toolkit

How Students Learn 1

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Epistemology & Learning Theories

Epistemology basic is a branch of philosophy that investigates the origin, nature, methods, and limits of human knowledge. Such beliefs influence the development of knowledge because they are considered to be the central values or theories that are functionally connected to most other beliefs and knowledge (Hofer & Pintrich, 1997).

Our own personal epistemology influences our own theories of learning, and consequently, how we approach, design, and delivery our classes. The terms used to describe epistemological positions vary, depending on whether it's describing the origin or the acquisition of knowledge.

Psychological Perspectives

The study of learning itself isn't a discipline, it has been approached by researchers from a variety of disciplinary perspectives which has resulted in a large number of theoretical approaches.

Which perspective?

Shulman (1988) suggests that we should adopt the attitude of the 'disciplined eclectic' – view each theory critically for what it can contribute to solving important instructional problems.

Although the different theoretical positions are often presented separately, we have to look for connections, similarities, overlaps, and ways to synthesize theories to offer new insights on learning. For example, situated cognition, a cognitive approach to learning, has incorporated the idea of communities of practice and the importance of social networks.

Theories into models

Models help us to make sense of our world, offering us a way of comprehending an otherwise incomprehensible problem. They help us to visualize a problem and break it down into discrete, manageable units. Like any other instrument, a model assumes a specific intention of its user (Ryder, 2009)

The broad range of theories that can be identified in, and applied to, learning in the classroom reflects the different ways in which epistemological traditions influence the experiences we have and how we feel they impact on learning. While there are a wide range of different psychological theories that have been applied to learning (see <http://tip.psychology.org/theories.html> or <http://www.learning-theories.com/> for a comprehensive overview) this booklet touches very briefly on three: Behaviourism (grounded in Objectivism), Cognitivism (grounded in Pragmatism), and Social

Constructivism (grounded in Interpretivism). Each of these approaches and their main theories)

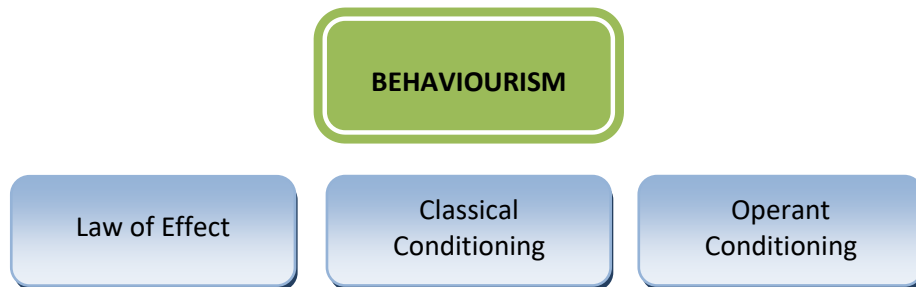


Figure 1: Approaches within Behaviourism

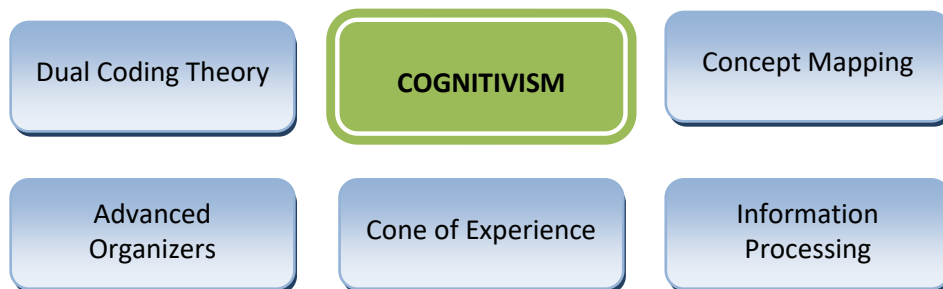


Figure 2: Approaches within Cognitivism

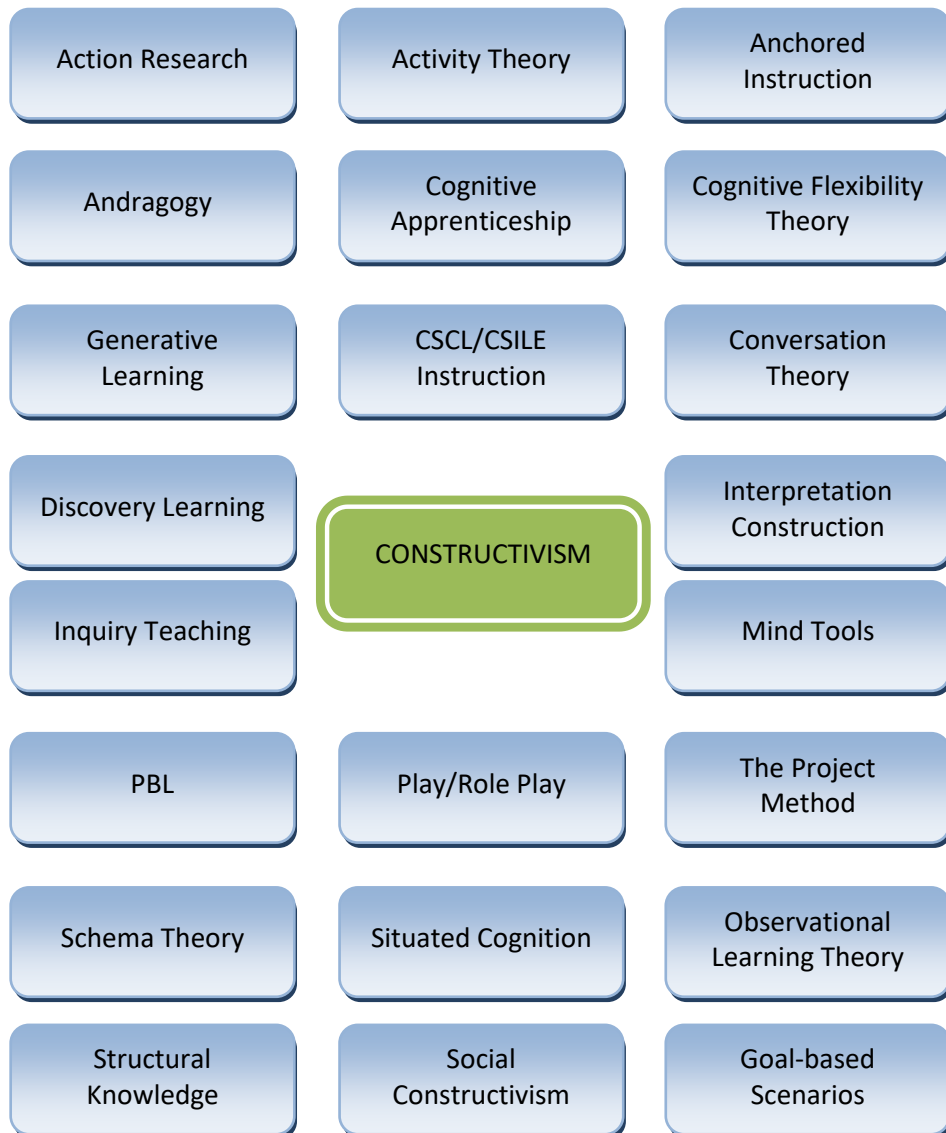


Figure 3: Approaches within Constructivism

Overview of main theories

The table below outlines the main aspects of the dominant three learning theories:

| | Behaviourism | Cognitivism | (Social) Constructivism |
|------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Epistemological basis | Objectivism: knowledge is absolute and true, and is independent from and outside of the individual | Pragmatism: Refers to the acquisition of knowledge and involves active processing where no single truth exists (Brownlee, Boulton-Lewis, & Berthelsen, 2008) | Interpretivism: Knowledge is not uniform, it's constructed at an individual level and exists in multiple formats and varies from person to person (Gill, Ashton, & Algina, 2004) |
| View of the learning process | Involves the transfer of information from teacher to learner | Focus on transfer of information to learner and how this is incorporated with existing information | Information is subjectively interpreted by learner based on personal experience |
| Learning theorists | Thorndike, Watson, Skinner | Paiget, Kohler, Gagne | Bruner, Vygotsky |
| Learner fostered | Surface learning and basic skills | Any deep processing: exploring/organizing content | Collaborative learning |
| Key considerations | Climate for learning: does the environment have the right stimuli to promote learning? | Readiness: students will learn concepts that are maturing. Learners customize their learning: provide a range of learning activities and concepts for core course objectives. | Prior knowledge: design learning to assist students to build on what they know. Opportunity: ZPD = area between what a learner can do individually vs. assisted by peer interaction and teaching. Inquiry learning: teachers are not the sole possessors of knowledge and perspective but co-learners and guides. |
| Role of student | Largely passive, responding to stimuli | Actively process, store, and retrieve information for use. | Learners create their own unique education because learning is based on prior knowledge. |
| Role of teacher | Instructor designs the learning environment. | Instructor manages problem solving and structured search activities, especially with group learning strategies. | Instructor mentors peer interaction and continuity of building on known concepts. |