

# Learning theories

## WHAT IS THIS RESOURCE?

An overview of fundamental aspects of the leading learning theories. University instructors use these theories to inform the decisions they make about their teaching/instruction with the goal of making it more effective.

## HOW DO I USE IT?

Review the learning theories before planning course activities, and/or identify a certain course activity already in use and improve its effectiveness by incorporating more theory-based aspects. For assistance, contact CET (cet.usc.edu).

### Learning theories

The four leading learning theories, Behaviorism, Cognitivism, Constructivism, and Andragogy, are well-supported by empirical research and form the basis of best practices in teaching.

### Behaviorism

According to Behaviorism, humans (and other animals) act in response to environmental influences, or stimuli. Just as dogs can be trained to sit for a treat, humans can be trained to exhibit desired behaviors to gain stimuli such as rewards (grades, salary, awards, praise) or avoid punishments (pain, fines, incarceration, condemnation).

Some conclusions of Behaviorism relevant to university teaching:

* Specific behaviors can be reinforced or discouraged by rewards and punishments.
  + Students are more likely to work on an assignment if there is course credit attached.
* Rewards are more effective at altering behavior than punishments.
  + Students are motivated more by praise than by criticism.
* Stimuli on an unpredictable time schedule are more effective than those on a predictable schedule.
  + Pop quizzes build better study skills than scheduled exams.
* Behaviors are more strongly reinforced if the reward closely follows the behavior.
  + Feedback on assignments is most effective when delivered to the student soon after they complete the work.
* Learning can be lost with time, in a process called extinction. It can be prevented by additional exposure to the stimulus.
  + Students benefit from frequent practice.

### Cognitivism

According to Cognitivism, human learning is controlled by specific characteristics of the human brain. Behaviorism is an incomplete theory because human behavior is more complex than simple thoughtless reactions to external stimuli. The human learning process involves multiple steps, which must all be successful in order to achieve long-term learning.

Some conclusions of Cognitivism relevant to university teaching:

* Humans are conscious of only a small fraction of the sensory inputs they experience. Most of what we see or hear is not consciously recognized.
  + Effective presentation slides for a lecture contain only necessary items, as extraneous images distract from essential content.
* Sensory inputs that are recognized are stored in short-term memory for only a short time and must be transferred to long-term memory quickly or be lost.
  + Short lectures are much more effective at promoting learning than longer lectures. Students should have an opportunity to engage with new information frequently.
* Short-term memory can only hold approximately seven new pieces of information. Attempting to add more new information results in cognitive overload.
  + Students benefit from learning activities after a few bits of new information have been introduced.
* Transfer of new knowledge into long-term memory is encouraged by linking the new knowledge to other knowledge already stored in long-term memory.
  + Effective instruction connects new information to information, theories, models, and paradigms that with which students are already familiar. It is also very effective to connect new information to students’ remembered experiences.
* Learning is an active process, rather than passive. Learning is made to happen by the learner, not the teacher.
  + Effective instruction involves active-learning experiences for students.
* Humans can learn through observation of others.
  + Students learn by watching a teacher modeling a new skill or behavior.

### Constructivism

According to Constructivism, humans learn by creating meaning from the experiences and knowledge to which they are exposed. Contrary to Behaviorism and Cognitivism, Constructivism maintains that each learner creates their own understanding of the world based on their experiences and their individual interpretation of their experiences. Since knowledge and experience are inextricably entwined, learning cannot happen effectively in the abstract. Learning should be situated, or occurring in a relevant context.

Some conclusions of Constructivism relevant to university teaching:

* Students learn best when they are provided context, such as realistic situations where the learning would be relevant.
  + Realistic assignments such as case studies or real-world applications are effective strategies for situating learning.
* Real-world experience produces effective learning.
  + Experiences such as internships, apprenticeships, and field trips can promote real-world learning.
* Learning is the product of students’ engagement with the learning experience.
  + The teacher’s role is to design productive learning experiences, and guide learners through them.
* Humans, as social beings, construct meaning within a social context.
  + Group work is an effective strategy at improving long-term learning.

### Andragogy

According to Andragogy, adult humans learn differently from children, as a consequence of their greater lived experience. More specifically, in contrast to children, adult learners tend to be autonomous and self-driven, intrinsically motivated to learn, focused on practical applications, and more knowledgeable about the world. We consider university students, undergraduates and up, to be adult learners.

Some conclusions of Andragogy relevant to university teaching:

* Adults want to understand the practical value of what they are learning.
  + Adults learn better from assignments involving authentic tasks that mirror tasks that might be done in the workplace.
* Adults are accustomed to making decisions about their lives.
  + Adult students can make some decisions about classroom policies, their assignments, and assessment practices. For example, the instructor can collaborate with students to produce classroom norms or an assignment rubric.
* Adults have work experience.
  + Adult students can be asked to produce original case studies based on their own experiences.

### Further reading

Gredler, M. (1997). Learning and instruction : Theory into practice / Margaret E. Gredler.(3rd ed.). Upper Saddle River, N.J.: Merrill.

Schunk, D. (2000). Learning theories : An educational perspective / Dale H. Schunk. (3rd ed.). Upper Saddle River, N.J.: Merrill.