	Behaviorism	Cognitivism	Constructivism
How does learning occur?	Learning is accomplished when a proper response is demonstrated following the presentation of a specific environmental stimulus. The key elements are the stimulus, the response and the association between the two.	-Learning is concerned not so much with what learners do but with what they know and how they come t o acquire it. -Knowledge acquisition is described as a mental activity that entails internal coding and structuring by the learner. The learner is viewed as a very active participant in the learning process.	-Theory that equates learning with creating meaning from experience. -Constructivists believe that the mind filters input from the world to produce its own unique reality. They do not deny the existence of the real world but contend that what we know of the world stems from our own interpretations of our experiences. Humans create meaning as opposed to acquiring it. -Learners do not transfer knowledge from the external world into their memories; rather they build personal interpretations of the world based on individual experiences and interactions.
Which factors influence learning?	Behaviorists assess the learners to determine at what point to begin instruction as well as to determine which reinforcers are most effective for a particular student.	-Cognitivism, like behaviorism, emphasizes the role that environmental conditions play in facilitating learning. Cognitive approach focuses on the mental activities of the learner that lead up to a response and acknowledge the processes of mental planning, goal-setting and organizational strategies. They contend that environmental "cues" and instructional components alone cannot account for all the learning that results from an instructional situation. Additional key elements include the way that learners attend to, code, transform, rehearse, store and retrieve information. Learner's thoughts, beliefs, attitudes and values are also considered. The real focus of the cognitive approach is on changing the learner by encouraging him to use appropriate learning strategies.	-Learner and environmental factors are critical, as well as the specific interaction between these two variables that creates knowledge. Constructivists argue that behavior is situationally determined. -Every action is viewed as an interpretation of the current situation based on an entire history of previous interactions. Just as shades of meanings of given words are constantly changing a learner's current understanding of a word, so too will concepts continually evolve with each new use. For this reason, it is critical that learning occur in realistic settings and that the selected learning tasks be relevant to the students' lived experience.
What is the role of memory?	Memory is not typically addressed by behaviorist. Forgetting is attributed to the "nonuse" of a response over time. The use of periodic practice or review serves to maintain a learner's readiness to respond.	Memory is given a prominent role in the learning process. Learning results when information is stored in memory in an organized, meaningful manner. Forgetting is the inability to retrieve information from memory because of interference, memory loss or missing or inadequate cues needed to access information.	-The goal of instruction is not to ensure that individuals know particular facts but rather those they elaborate on and interpret information. -Understanding is developed through continued, situated use and does not crystallize into a categorical definition. -"Memory" is always under construction as a cumulative history of interactions. -The emphasis is not on retrieving intact knowledge structures, but on providing learners with the means to create novel and situation-specific understandings by "assembling" prior knowledge from diverse sources appropriate to the problem at hand. -Constructivists emphasize the flexible use of pre-existing knowledge rather than the recall of prepackaged schemas. -Clearly the focus of constructivism is on creating cognitive tools which reflect the wisdom of the culture in which they are used as well as the insights and experiences of individuals. -to be successful, meaningful, and lasting, learning must include all three of these crucial factors: activity (practice), concept (knowledge) and culture (context).
How does transfer occur?	Transfer is the result of generalization. Situations involving identical or similar features allow behaviors to transfer across common elements. Know how to classify elm trees, use same technique to ID oaks	When a learner understands how to apply knowledge in different contexts, then transfer has occurred. Not only must the knowledge itself be stored in memory but the uses of that knowledge as well. The learner must believe that the knowledge is useful in a given situation before he will activate it.	-Transfer can be facilitated by involvement in authentic tasks anchored in meaningful contexts. Understanding is "indexed" by experience. The authenticity of the experience becomes critical to the individual's ability to use ideas. -If learning is decontexturalized, there is little hope for transfer to occur. One does not learn to use a set of tools simply by following a list of rules. Appropriate and effective uses comes from engaging the learner in the actual use of the tools in real-world situations.
What types of learning are best explained by this position?	-Strategies include use of instructional cues, practice and reinforcement. Effective in learning that involves: Discriminations (recalling facts) Generalizations (defining and illustrating concepts) Associations (applying explanations) Chaining (automatically performing a specified procedure)	-Cognitive theories are usually considered more appropriate for explaining complex forms of learning (reasoning, problem-solving, information-processing) than are those of a more behavioral perspective. -Simplification and standardization – efficient effective transfer -Knowledge should be analyzed, decomposed and simplified into basic building blocks. Irrelevant information should be eliminated. -Information is "sized" and "chunked" so that learners can assimilate the new	-Constructive learning environments are most effective for the stage of advanced knowledge acquisition where initial misconceptions and biases acquired during the introductory stage can be discovered, negotiated and if necessary, modified and/or removed. -Introductory knowledge acquisition is better supported by more objectivistic approaches (behavioral and or cognitive) but suggest a transition to constructivistic approaches as learners acquire more knowledge which provides them with the conceptual power needed to deal with complex and ill-structured problems.

	Behaviorism	Cognitivism	Constructivism
	-Behavioral principles cannot adequately explain the acquisition of higher level skills or those that require a greater depth of processing (language developing, problem solving, inference generating, critical thinking)	information as quickly and as easily as possible. -Behaviorists would focus on the design of the environment to optimize transfer; cognitivists would stress efficient processing strategies.	
What basic assumptions / principles of this theory are relevant to instructional design?	-Emphasis on producing observable and measurable outcomes in students -Pre-assessment of students to determine where instruction should begin -Emphasis on mastering early steps before progressing to more complex levels of performance -Use of reinforcement to impact performance (tangible rewards) -Use of cues, shaping and practice to ensure strong stimulus-response association	-Use of feedback - behaviorist uses feedback (reinforcement) to modify behavior in the desired direction, while cognitivists make use of feedback (knowledge of results) to guide and support accurate mental connections. -Cognitivists examine the learner to determine how to design instruction so that it can be readily assimilated. Behaviorists look at the learner to determine where the lesson should begin. (what level are they performing currently) -Relevant cognitivism theories include: Emphasis on the active involvement of the learner in the learning process Emphasis on structuring, organizing and sequencing information to facilitate optimal processing. Creation of learning environments that allow and encourage students to make connections with previously learned material	-Focus on how to use information, rather than teaching straight facts -Specific strategies include situating tasks in real world contexts, use of cognitive apprenticeships(modeling and coaching a student toward expert performance), presentation of multiple perspectives, social negotiation (debate, discussion, evidence-giving) use of examples of real "slices of life," reflective awareness and providing considerable guidance on the use of constructive processes -Emphasis on: - the identification of the context in which the skills will be learned and subsequently applied.(anchoring learning in meaningful context) - learner control and the capability of the learner to manipulate information(actively using what is learned) - need for information to be presented in a ariety of different ways - supporting the use of problem-solving skills that allow the learners to go "beyond the information presented," - assessment focused on transfer of knowledge and skills (presenting new problems and situations that differ from the conditions of the initial instruction)
How should instruction be structured?	Instruction is structured around target stimulus (so it elicits desired response) and the provision of opportunities for the learner to practice making the proper response. Teacher's job is to: -determine which cues can elicit the desired response, -arrange practice situations in which prompts are parried with the target stimuli that initially have no eliciting power but which will be expected to elicit the responses in the "natural" environment -and arrange environmental conditions so that students can make the correct responses in the presence of those target stimuli and receive reinforcement for those responses.	Cognitive theories emphasize making knowledge meaningful and helping learners organize and relate new information to existing knowledge in memory. Instruction must be based on a student's existing mental structures, or schema, to be effective. It should be organized in such a way that learners can connect new information with existing knowledge. Teacher's job is to: -understand that individuals bring various learning experiences to the learning situation which can impact learning outcomes -determine the most effective manner in which to organize and structure new information to tap the learners' previously acquired knowledge, abilities and experiences -arrange practice with feedback so that the new information is effectively and efficiently assimilated. Use familiar procedures to help put the unfamiliar information within a familiar context.	- "The role of instruction in the constructivist view is to show students how to construct knowledge, to promote collaboration with others to show the multiple perspectives that can be brought to bear on a particular problem, and to arrive at self-chosen positions to which they can commit themselves, while realizing the basis of other views with which they may disagree." - Apprenticeship concepts used frequently. Lawyers, doctors, architects, businessman, TCs
	Train a dog to do tricks Teach someone to start a computer. Push buttons in sequence	Procedure involving several tasks, each impacted by current conditions.	Qualifying a manufacturing operator to manage a full manufacturing process, not just one piece of equipment. Interaction of the parts need to be understood. Previous events factored into current situation.