<table>
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<th>Decade(^1)</th>
<th>Theory</th>
<th>Key concepts</th>
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| (Connectionism)\(^2\) | 1880 - 1900   | **Connectionism** (Thorndike)    | - learning is incremental strengthening of the S-R association  
- **S-R associations** are strengthened through repetition  
- outcome of a S-R event can strengthen or weaken the connection  
- potential to learn leads to frustration if not satisfied |
| Behaviorism  | 1900 - 1910   | **Classical conditioning** (Pavlov) | - learning is a *visible change* in one's behavior  
- learning is manifested in a *natural reflex* reaction on an associated environmental stimulus  
- emotional response can also be learned or conditioned |
|              | 1920 - 1930   | **Contiguity theory** (Guthrie)  | - behavior is formed by a *series of movements* which are learned through S-R associations  
- a close *temporal relationship* between S and R is necessary for learning to occur  
- learning occurs on *first experienced instance* of the stimulus  
- reinforcements (reward or punishment) do not influence the strength of this connection |
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| Neo-behaviorism   | 1930 - 1940 | Sign learning (Tolman)       | - suggests studying behavior on the molar level (whole, purposeful, goal-directed behaviors)  
- learning is acquisition of knowledge through **meaningful behavior**, not mechanical moves  
- rewards or punishments can only be used as motivators for performance, not learning  
- animals are not simple mechanisms, but intelligent organisms capable of **cognitive processes** |
|                   |         | Drive reduction theory (Hull)  | - **mathematical formulas** attempting to explain behavior and the likelihood of its appearance  
- **drive** (a stimulus in form of a biological need) results in behavior in order to **satisfy** it  
- reinforced S-R learning through the reduction of a biological drive  
- **cognitive factors** need to be taken into account when explaining human learning |
|                   | 1950 - 1960 | Operant conditioning (Skinner) | - **reinforced learning** of **new behaviors**, not just shaping reflexes  
- different reinforcement intervals have different effect  
- complex behaviors are learned through more simple ones |
|                   |         | Stimulus sampling theory (Estes) | - a **statistical learning theory**; set of formulas and axioms  
- S-R association is learned in a **single trial**; learning results in accumulated S-R associations  
- reinforcement has to do with the performance, not with learning  
- later included **memory** as a factor in his theory |

1) Approximate decade in which the theory was introduced  
2) Connectionism is not considered a learning paradigm, but is mentioned due to its influence on behaviorist ideas  
3) Stimulus-Response  

From: [https://www.learning-theories.org/](https://www.learning-theories.org/) - Learning Theories  
Last update: 2013/09/30 16:36