Behavioural Approaches to Learning

Classical conditioning was one of the first learning modes to be discovered, and was explored by Ivan Pavlov in the 1920’s. Pavlov’s theory was based on the observation that unconditioned stimuli (US) produce unconditioned responses (UR), but that neutral stimuli (NS) did not. ‘Unconditioned’ refers to the fact that the stimulus and response are naturally connected. In his experiments with dogs, Pavlov began by presenting an unconditioned stimulus, food, to elicit an unconditioned response, salivation. He then associated a neutral stimulus, a tone, with the unconditioned stimulus. The presence of the unconditioned stimulus elicited the unconditioned response, and the US and NS together became a conditioning stimulus. After conditioning, the neutral stimulus became a conditioned stimulus and, when presented by itself, elicited a conditioned response.

This type of conditioning is evident in many aspects of daily life. An example is the sound of a police siren while you are driving. A very common first reaction is to look at what speed you are driving. A typical second reaction is to pull over to let the emergency vehicles pass. Classical conditioning has associated the siren with guilt in the case of the first reaction, and duty in the second. Another example is the sound of a can opener, almost always drawing a pet to the source of the sound, even though the can being opened may not be pet food. The sound has been associated with food.

Operant conditioning is mainly based on the work of Edward Thorndike, John Watson and B. F. Skinner. Thorndike began with experiments on cats and dogs, putting them into mazes and recording the times it took them to discover the exit. He then extended this research in two ways. First, he observed the effect of creatures solving the same maze many times in succession and, second, he monitored whether allowing the creatures to observe others solving the same puzzle had any impact on the learning time. Watson experimented further, using rats as the subjects. The general outcome of the experiments was the theory that positive and negative reinforcement have a strong influence on behaviour. They divided the general theory into four methods. On the side of improving or increasing behaviour, these include positive reinforcement, in which a stimulus is added, and negative reinforcement, in which a stimulus is removed. On the side of decreasing behaviour, we have response cost, in which a stimulus is removed, and punishment, in which a stimulus is added.

Operant conditioning is different from classical conditioning. In classical conditioning, a neutral stimulus becomes a conditioning stimulus, eliciting an unrelated reaction. In operant conditioning, positive and negative reinforcement is associated with the reaction to improve or degrade the response. A good example of operant conditioning is students being rewarded for timely submission of homework, money for journals and field trips, or finding errors in the teacher’s work. In all of these examples, the reward serves as positive reinforcement, improving the students’ behaviour. They are typically
more willing to do the work, bring in the money, and concentrate on the lesson, because they know they will be rewarded.

Social learning theory, primarily based on the work of Albert Bandera, is based on the principle that people can learn from observing the behaviour of others. This learning may or may not change their behaviour, since learning is a result of observation alone. His model is that a person first notices something in his environment, and remembers it. The person then modifies his behaviour to mimic what he noticed. If this is reinforced by the environment, it increases the chance that the person will repeat the action or behaviour. A good example of this is of a person trying to ‘fit in’ with a pre-existing group. This is very evident in the case of a person joining others of the same gender for a ‘night out.’ The behaviour of that person is quite often influenced by the behaviour of the others, in an attempt to be considered as part of the group. Unfortunately, in this example, the behaviour often tends to slip towards to lowest common denominator, as it is frequently the crude and boisterous individuals who dominate these situations. Another example is of young students entering a new school and trying to infiltrate pre-existing peer groups.

Cognitive-behavioural theory (CBT) is based in behavioural theory, both classical and operative, social learning theory, and cognitive theory. Primarily used in substance abuse cases, CBT fuses the main features of these three theories, and focuses on the ability of people to change their behaviour without necessarily understanding why the changes occur. The key is that some cognition, or thought, is required. An example would be a student wanting to bounce a ball in a classroom. When the student did this before, he was punished by missing recess. Now, when the impulse occurs, the student hesitates, because he knows that he may be punished again if he is caught. In this respect, CBT is very similar to operant conditioning, in that a system of reinforcement has influenced his behaviour. The difference is that, in this case, the student thinks about the impulse, and associates it with the punishment. This process is cognitive, rather than a learned reaction.

All of the learning theories discussed here have similarities, in that all depend on some system of reinforcement. The classical conditioning theory uses positive reinforcement to associate a stimulus with a conditioned response. Operant conditioning extends this to include both positive and negative reinforcement. Social learning makes use of the strong influence of social pressure and needs to ‘belong.’ Finally, cognitive-behavioural theory includes aspects of all three theories, and incorporates the concept of active cognition of the subject. All can be very effective, depending on the application. It is interesting to note that the progression from classical to operant to social learning to CBT seems to correspond quite closely to the level of human thought processes involved. Classical conditioning is quite subconscious, taking place without the subject’s awareness. Operant conditioning, social learning and, finally, cognitive-behavioural theory each required a successively higher level of cognition on the part of the subject, and the subject’s influence over the behavioural change accordingly increases.
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