

# Module: Psychological Foundations of Mental Health

## Week 1

### Introduction to cognitive psychology

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#### Topic 2

#### The heyday of behaviourism: operant learning – Part 2 of 3

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#### Lecture transcript

##### Slide 3

Building on the foundations of Thorndike and the seminal writing of Watson, behaviourism's most famous proponent was BF Skinner. More than any other psychologist, Skinner defined and codified both the conceptual and theoretical framework of behaviourism, standardised the tools to investigate it, and defined its language. Building on Thorndike's law of effect, he identified as critical the consequences of behaviour in determining whether that behaviour increased or decreased. In keeping with Watson's views, he considered that there was no fundamental distinction between the process that shapes the learning and execution of simple acts and the most complex behaviours that early cognitivists ascribed to such things as free will and consciousness.

It is worth noting that Skinner was far more than an experimental psychologist. He took the principles of behaviourism and considered their influence on child development and differences between individuals, on education and the criminal justice system and its wider impact in shaping society and culture, both positively and negatively. In addition to many hundreds of scientific papers, he authored philosophical works, such as *Beyond Freedom and Dignity* and *Walden Two*, a work of fiction that imagines a utopia based on the principles of behaviourism.

##### Slide 4

Skinner developed a detailed categorisation system to describe different types of consequences depending on one, whether they increased or decreased behaviour, and two, whether they were positively added or they were something that was taken away. Although all reinforcers strengthen behaviour change, to avoid confusion of terminology, the term "reinforcement" was and is still limited to a consequence that increases future behaviour, while an outcome that decreases a future behaviour is termed a "punisher" or "punishment."

Within each of these two broad categories, he defined both positive and negative instances. We are all familiar with the giving or obtaining of a reinforcer to increase behaviour, such as a child who tidies their room to earn extra pocket money, so-called positive reinforcement, or more commonly a reward. However, a behaviour may also be increased when a negative outcome is removed or avoided as a consequence of that behaviour. For example, the child may be told that they will not be allowed to watch their favourite TV programme if they don't tidy their room. Here, the threat of being denied something is the stimulus that is removed by the increased behaviour, and can be considered a negative reinforcer.

Note that the everyday usage of negative reinforcer is the same as punishment. That is, if the child is prevented from watching TV because they failed to tidy their room, this is an application of a negative reinforcer, because the intention is that the behaviour, room tidying, will increase in future. In a technical sense, they are not being punished.

Punishment can also be applied or removed to effect a decrease in behaviour. Although the terminology sounds strange, we can define punishment as positive or negative, just as we can with reinforcement. Remember, positive and negative here refer to whether the punisher is added or taken away, not whether it is good or bad, pleasant or unpleasant. So a positive punishment is something that is added and leads to a decrease in behaviour, typically something unpleasant, such as denying a privilege in an effort to decrease an unwanted behaviour such as being rude.

Finally, we can punish to reduce behaviour by taking away something pleasant, such as fining for breaking a rule or a law. In this example, the everyday use of the fine as punishment is different for the behaviourists. The fine as retribution for a crime is seen as a punishment. However, the behaviourist would only define it as a punishment if the fine led to a reduction in the offending behaviour in the future.

This raises an important point in much of psychology. We always have to be careful how we understand and use terms, such as “reinforcement” and “punishment,” that have both precise technical meanings and also have a similar but often subtly different everyday usage. We will make sure that we give you the definitions that you need and encourage you to think about those and use the terms more precisely.

#### **Slide 6**

One more thing to consider is the nature of the reinforcer or punisher. I will use the term “reinforce” here in a broad sense to include both reinforcers and punishers for simplicity. Some things seem to have the ability to influence and change behaviour on a universal basis, in humans of all ages, and in animals from the simplest to the most complex.

These are so-called primary, natural, or unconditioned reinforcers, using the term “reinforcer” here in the broadest sense, as something that changes behaviour. Many of these relate to basic biological needs, driven by evolution and necessary for the survival of the individual or species. These include food, drink, and sex, which the animal will typically approach and work to obtain. These are sometimes called appetitive stimuli, i.e., we have an appetite for them and a biological drive to satisfy that appetite.

In contrast, there are consequences, such as pain, loud noise, or bitter tastes, the animal will seek to either avoid or to withdraw from, that is, to escape. These are sometimes called aversive outcomes, and the stimuli associated with them aversive stimuli. Adding or taking away any of these is a powerful determinant of learning and future behaviour in accordance with our definitions of reinforcers.

With most reinforcers, their power depends on the state of the organism at the time. The same food will influence behaviour more if the animal has been deprived beforehand, that is, it's hungry, than if presented after it had eaten a large meal, that is, it is satiated. The strength of the reinforcer is not absolute. We can talk of its value to that individual depending on the state at the time. Other less obvious reinforcers can be more species-specific. For example, for social animals, physical proximity to others of their same species can be considered as a primary reinforcer.

Other reinforcers can be considered secondary, or conditioned, reinforcers. These are stimuli that have acquired reinforcing properties by association with another, often primary, reinforcer. Thus, when a light is paired with food, the light itself acquires the ability to initiate approach behaviour and to influence subsequent behaviour. We saw an example of this in the Little Albert video as the

white rat induced an avoidance response after being paired with an aversive stimulus, the loud noise. In animal behaviour studies, secondary reinforcers have similar properties to primary reinforcers, and show the same effects of deprivation and satiety.

### **Slide 7**

We humans seemingly have a vast range of things that change our behaviour, and working out whether they are primary or secondary is complex. Some, such as money, would seem to be a classic secondary reinforcer. It has no intrinsic biological or survival value, but we find it intensely pleasurable to receive even in small amounts, such as finding a coin on the floor, and painful when we lose. We work to earn money and do things to avoid losing it.

Some of the reinforcing value of money will come through its association with primary reinforcers, such as food or drink. However, it also seems to have an intrinsic value in itself. We like having money even when we don't spend it. Also, intriguingly, we never seem to have too much money. Normal satiety processes do not seem to apply. Money is strange in behavioural terms.

Other human reinforcers include social factors, such as love and friendship, praise and approval, or indicators of social status, such as a new pair of trainers or a flash car. Others can include such abstract concepts as self-respect, self-worth, or satisfaction. Working out what is influencing human behaviour in the real world is often a major challenge. It is typically multi-factorial, layered, and complex, with a competing set of drivers, both reinforcers and punishers, both positive and negative.

Typically, we are unaware of what drives our own behaviour, something that psychotherapy often aims to help people understand in order to help them change. We will return to this later in the module when we consider the techniques of applied behavioural analysis in the context of behaviour modification and behaviour therapy. Meanwhile, it's interesting to reflect about the things in our own lives that influence our behaviour, things that increase or sustain a particular behaviour, or which decrease it and maintain that decrease. Some may be common and obvious, but others may be particular to you. We will return to this and address it in more detail later in the week.

### **Slide 8**

Let's check our understanding of these technical terms by a quick quiz. Work through the following slides to work out whether we are looking at reinforcement or punishment, and whether it is positive or negative. Remember the definitions. Think carefully about what is the behaviour that is changing and whether it is increasing or decreasing. Also, is something being applied or taken away, and if so, what?

### **Slide 10**

This short quiz shows how we can classify different ways in which an outcome can change behaviour during learning. While it sounds like an easy application of definition, you may have found the exercise required some thought. For example, was the behaviour in the classroom that changed a decrease in disruptiveness or an increase in attentiveness? One would define punishment and the other reinforcement.

In a similar way, was the imposition of detention the adding of solitude, positive, or the removal of social contact, negative? In practical terms, the outcomes in terms of behaviour may be the same. Also, supposing being detained or caned actually led to an increase in disruptiveness, rather than a decrease, what does that say about the consequence? While the intention of the teacher may have been to punish by withholding social contact or inflicting pain, the student's behaviour may have been reinforced by the subsequent gain in respect or sympathy from their classmates.

This makes an important point. We cannot say a priori whether something that is added or taken away is going to increase or decrease behaviour until we have observed its impact. This is a key element of Skinner's operant theory.

Further, when behaviour does change, whether on an individual, a group, or societal level, we have to be careful to check that the things we assume are causing the change are actually the things which do so. The real drivers may be very different.

Finally, we need to be aware of unintended consequences, such as the effect of driving up unwanted behaviour when the intention is to reduce it. One example is a health campaign that emphasises the danger or social unacceptability of smoking. These can actually increase the behaviour in groups such as young people who enjoy the sense of risk and rebellion that smoking provides.

In later weeks, we will see the importance of this when behavioural principles of reinforcement are used to analyse and understand what causes particular behaviours to emerge and persist, and the techniques of behaviour modification treatment designed to change them. In practice, such approaches almost always use reinforcement as the means to change, increasing a desired behaviour as a means to reduce an undesired one, rather than using punishment to achieve the reduction. The same is true in animal training, such as getting a dog to walk to heel, rather than pull on the lead. This is typically achieved by positively rewarding the walking to heel rather than punishing the pulling.

### **Slide 11**

Skinner believed that this same principle would also apply to humans. He said a person who has been punished is not less inclined to behave in a given way. At best, he learns how to avoid punishment. Is this always true, particularly in people? What happens when we compare the impact of a positive reward and a positive punishment on behaviour? You may want to reflect on this in your own time.

There's been a multitude of studies that have sought to examine the question experimentally across a wide range of settings and different behaviours, from behaviour therapy to education to promotion of healthy living. Both approaches can bring about change, but no consistent pattern emerges on which is more effective. We will not go into detail here. Instead, we will just look at one experiment as an example of an attempt to investigate the question.

One of your tasks this week will be to read this paper that you'll find on KEATS and answer the questions posed. This paper will also introduce you to what is known as one factor theory, that suggests that in operant terms, reinforcement and punishment lie at different ends of a single continuum, while two-factor theory suggests that they are distinct and operate on behaviour in fundamentally different ways. Remember, though, the specific findings of the study should not be assumed to generalise to all forms of behaviour or to every situation.