LEARNING

As discussed previously, animals have an inborn or instinctive response to stimuli. However, animals may have a relatively permanent change in their response to a stimulus that occurs as a result of experience. This is called learning or conditioning.

It is a behaviour that is interpreted by an individual animal to be beneficial to them.

Learning enables animals to respond to their continuously changing environment, it allows them to avoid danger, pain and discomfort; and may help them find food. We are able to utilize this when we train animals by using different experiences to encourage desirable behaviour or to reduce the incidence of undesirable behaviour.

BEHAVIOURAL EXAMPLE

Figure 4.1: Learning. In urban environments, seagulls have learnt that humans are associated with food. The gulls will observe people from a distance and will quickly gather around people who are eating. This is a familiar sight when people are eating fish and chips at the beach.
There are a number of types of learning. But we will restrict our discussion to the following types, since they relate more to animals rather than some types of higher learning that are used by humans:

- Imprinting
- Habituation
- Sensitization
- Associative learning: including classical and operant conditioning

**Imprinting**

*It is a form of behaviour usually seen soon after birth, and is induced by some type of stimulus such as a visual signal.*

The classic example is that of a young duckling (in the first one or two days of life) that will follow the first moving thing that it sees - thinking it is its mother. This could be anything from a person, a different type of bird or even a pair of old shoes being dragged in front of the baby bird. Once imprinted or attached to the object, the bird will follow this item
anywhere. This form of learning aids in the survival of the offspring because by staying close to its mother it has a greater chance of being protected from danger. A similar imprinting is seen in newly born foals following any large object that moves. If the mare has not risen after foaling then a foal may follow a moving person who enters the area.

Imprinting has a number of characteristics that distinguish it from normal learning:

- A short critical period when the learning must take place (e.g. first 24-48 hours of life in some animals);
- it is irreversible;
- the learning is restricted to a specific signal (e.g. visual stimulus) and not others
- no reward is necessary to ensure that the animal remembers;
- imprinting establishes an individual animal’s preference to a particular species. This may result in the duckling, if imprinted on a human, having a preference to people rather than other ducks. This may progress to preferring sexual activity toward a human rather than another duck.

Imprinting seems to be more important in those species that are quite developed at birth or hatching and are able to stand up and follow their mother, (i.e. precocial species, e.g. ducklings, foals) than in those species in which young stay in a nest or den for some time (i.e. altricial species, e.g. kittens and puppies). In precocial species, once imprinting has occurred any subsequent visual stimuli may be seen as a potential threat. Altricial animals, such as puppies and kittens, will stay in a nest environment for some weeks. In altricial species, lessons are learned later in life in so-called “socialisation periods” which we shall discuss later.

**Habituation**

_Habituation is a simple form of learning whereby an animal progressively decreases its response to a stimulus that has minimal significance to its life._

Or put another way the animal’s behavioural response to the stimulus wanes because there is a lack of reinforcement when continually exposed to the stimulus. It is a form of learning involving the elimination of behaviours that are not needed by the animal
Sensitization

*Sensitization is an increase in the response to an innocuous stimulus when that stimulus occurs after a punishing or negative stimulus.*

**BEHAVIOURAL EXAMPLE: SENSITIZATION**

An example of sensitization is that of a dog becoming more frightened of traffic due to a car back-firing. This initial scare then becomes associated with all cars and the dog becomes frightened of traffic generally.
Associative learning

Associative learning is when a learned response is associated with a particular stimulus.

There are two types of associative learning

1. Classical conditioning
2. Operant conditioning

Classical conditioning

*Is a form of learning in which a reaction or behaviour occurs in response to a new stimulus by association with an old stimulus.*

The classic example is of Pavlov’s dogs where after a number of occasions of ringing a bell at the same time as feeding, the dogs would salivate. The dogs’ normal response to food is to salivate. By ringing a bell every time the dogs were fed they subsequently associate the bell with food and therefore start to salivate.

In classical conditioning the rewards (e.g. food) become associated with the stimulus (e.g. the bell).

BEHAVIOURAL EXAMPLE: CLASSICAL CONDITIONING

Some animals that may exhibit a fear response to the odours in a vet practice. The animal associates the odour with a painful procedure previously performed in the clinic and the response is fear or avoidance. Of course we can exploit this type of learning in puppy schools to help the animal associate the smell of the clinic with something positive, e.g receiving a food treat so that the response also becomes positive.
**Operant conditioning**

*Is when an animal learns to perform a voluntary action or behaviour in order to get a reward or to avoid a punishment.*

Operant conditioning was first described by B.F. Skinner. There are 4 types of operant conditioning:

- Positive Reinforcement,
- Negative Reinforcement,
- Punishment, and
- Extinction.

Both positive and negative reinforcement strengthen behaviour, i.e. will help increase the likelihood of the behaviour being repeated. So a reinforcer is something that increases the occurrence of the particular behaviour that it follows, while both punishment and extinction weaken behaviour. **Positive reinforcement** is providing a reward to an animal after a particular behaviour in order to increase the likelihood of that specific behaviour occurring subsequently. That is the animal relates the behaviour with a positive of pleasurable experience. A classic example is giving a food treat to a dog after it has performed a particular behaviour such as sitting on command.

**BEHAVIOURAL EXAMPLE - POSITIVE REINFORCEMENT**

*Figure 4.4: A food treat (the positive reinforcement) is given to a dog when it sits after being given the verbal command of “sit”. The dog then associates the word and action of sit with a tasty food reward and is more likely to sit at the next command of sit than if no reward had been given.*
Negative reinforcement is an increase in the future likelihood of a behaviour when the consequence is the removal of a negative or unpleasant stimulus. Negative reinforcement strengthens a behaviour because a negative condition is stopped or avoided as a consequence of the behaviour.

**BEHAVIOURAL EXAMPLE - NEGATIVE REINFORCEMENT**

A rat is placed in a cage and immediately receives a mild electrical shock to its feet. The shock is a negative condition for the rat. The rat presses a lever and the shock stops. The rat receives another shock, presses the lever again, and again the shock stops. The rat’s behaviour of pressing the lever is reinforced by the outcome of the stopping of the shock.

**Punishment.** It is important to differentiate between negative reinforcement and punishment. Punishment weakens a behaviour because a negative action is introduced or experienced as a consequence of the behaviour. Using punishment in training may actually result in the animal fearing the trainer or training area rather than correctly associating an undesirable behaviour with a painful consequence.

**BEHAVIOURAL EXAMPLE: PUNISHMENT**

Figure 4.5: A dog who barks can be punished by spraying the animal with a water pistol. The negative condition (a water pistol spray) weakens or decreases the behaviour (barking). Another example is the use of citronella collars to reduce barking. These collars are placed around the dog’s neck and have an attached canister containing strong-smelling citronella. Each time the dog barks the collar is activated and squirts highly pressurized citronella gas close to the dog’s face. Most dogs find citronella unpleasant and they associate barking with this unpleasant experience. The theory is that the dogs will decrease barking frequency due to the association with the unpleasant stimulus.

Extinction is when a specific behaviour is weakened or diminished by the result of not experiencing a positive condition or stopping a negative condition. That is the behaviour gradually disappears over time since there is no reinforcement to encourage the behaviour. It is important to note the difference between extinction and habituation.
**Extinction** = trained response  ➔  No responses anymore (i.e. extinction: when an animal loses an acquired behaviour)

**Habituation** = natural response  ➔  No responses anymore (i.e. habituation involves a previously novel stimulus, which eventually fails to elicit a response)

---

**BEHAVIOURAL EXAMPLE - EXTINCTION**
This time a rat presses a lever in its cage and nothing happens. Neither a positive nor a negative condition exists for the animal. The rat presses the lever again and again nothing happens. The rat's behaviour of pressing the lever is weakened by the consequence of not experiencing anything positive or stopping anything negative.

---

Operant conditioning enables an animal to associate events over which it has control. In addition the rewards (e.g. food) become associated with the responses (e.g. sitting).

Operant conditioning and positive reinforcement are used frequently in animal training. Learning occurs most quickly when
- The reward immediately follows the response
- The reward is very desirable
- The response is rewarded every time

**Chaining.** Another term that may be encountered is chaining. This is when a series of operant responses or behaviours occurs in a sequence. That is a behaviour chain is a series of related behaviours, each of which provides the signal for the next and the last that produces a reinforcer. Each step serves as a cue for the next step; a chain is really a series of signals and behaviours. The completion of one behaviour in a chain produces the signal for the next action. For instance, an owner may give certain commands in a specific order, e.g. sit, lies down, rolls over, and the dog responds in the same order.
**Flooding.** This is a technique used to treat fears of innocuous stimuli by forcing the animal to stay in the presence of the stimulus until the fear has receded. For example, a cat in a cage at a cattery may initially be very fearful but over time the animal learns that there is no real threat and becomes used to the environment.

**Counter conditioning and Desensitization**

These are techniques used to treat fears or phobias, and anxieties.

**Counter conditioning** is teaching an animal a behaviour or response which is incompatible with the pre-existing response to a given stimulus. For instance, a dog may be taught to sit instead of lunging forward on a lead. The dog cannot lunge whilst it is in a sit position.

In other words it is an attempt to reverse the previous learning of an animal.

**Desensitization** is the process of slowly exposing an animal to low levels of stimuli in order to not evoke an undesirable response but to evoke learned relaxation responses instead. It is important to start at very low or non-threatening levels of stimuli and slowly work up.

**TRAINING**

*Training is the process through which we attempt to either:*

1. **Increase a desirable behaviour OR**
2. **Decrease an undesirable behaviour**

1. **To train an animal to perform a desirable behaviour we must:**
   - Communicate to the animal what it is that we desire
   - Motivate the animal to perform the behaviour

2. **To decrease an undesirable behaviour we must:**
   - Communicate to the animal what it is that we do not want the dog to do
   - Motivate the animal not to do it

We communicate with an animal by:
- visual communication, i.e. body posture, hand signals or facial expression
- tactile communication, i.e. touching or moving the animal into certain positions
- vocal communication, i.e. using words or whistles

**Basic Dog Commands**

Dog obedience training establishes a set of rules or boundaries that encourage a dog to become a responsible member of society by enabling the dog to relate to other dogs, animals and people, and teach basic manners and good behaviour.

Benefits of obedience training include:

- establishing a groundwork which assists in prevention of unacceptable problem behaviour - such as jumping up, barking, chewing, digging etc
- it is a fun activity for the dog which provides both mental and physical stimulation.
- a safer dog- by being able to recall the dog from danger
- a more relaxed and calm dog - since the dog is given more freedom due to a greater trustworthiness

It is easier to train a dog from a young age, some commands can be taught from 6 or 7 weeks of age.

Some key items to remember for training sessions are:

- To keep training sessions short, initially of about ten minutes duration.
- The training sessions should be fun for both the dog and the handler.
- Positive reinforcement and treats are very effective. That is training the dog to perform a task then receive a reward. Positive reinforcement may be verbal, patting, or food treats such as liver treats.
- Be repetitive with training, practice over and over. Maybe 5-6 times a day
- Train the dog in different areas such as the garden, on a driveway, then as the dogs skills improve move to public places with distractions
- When using verbal commands use a single word, and use it once, otherwise the dog will learn to ignore you if you use the term over and over
- Before giving a command attract the dog’s attention by using its name once.
• If an animal does not obey a command once it has been taught, then look for the cause. Maybe the dog is not paying attention, or not in earshot, or are you giving a confusing command.
• Dogs will observe our body language when we are issuing commands
• Dogs learn fastest when they are initially rewarded all the time. Once the dog knows what the command means the treat is then given intermittently. Continuing to give a reward periodically will keep the dog focussed
• Training should be lifelong, as constant reinforcement is necessary
• Never punish a dog for not doing something it has not been properly taught to do. Be realistic in your expectations of what the dog can do.
• The dog’s owner is the best person to train a dog since the dog lives with them, and the owner is part of the ‘pack’.

**Clicker training** is the process of training an animal using a clicker as an indicator for behaviour that will earn positive reinforcement. This is of course a form of operant conditioning. The clicker is a small mechanical noisemaker and is used only when a new command is being trained. It makes a small clicking sound once a behaviour is performed to indicate to the dog that it has satisfactorily completed the command, its advantage is that it is much quicker, and therefore more effective than using a verbal command such as sit. Once the behaviour is sufficiently reliable, a verbal command is then added. At this point the clicker is no longer needed for training.

Basic dog commands include:

• Sit
• Stay
• Come
• Drop
• Walking on a lead

**Training a dog to ‘Sit’**

Before a dog receives anything it wants it should sit. There are a number of techniques used to achieve the ‘sit’ command, here are two techniques that can be used.
1. **Small dogs or puppies:** the handler stands in front of the pup, a food treat is guided over the head of the pup, as the pup follows the food treat he lifts his nose and as a result the pup lowers his rump into a sitting position. As the pup sits say the command “sit” and praise and reward the pup. After a short time only the verbal command will be given.

2. **Larger dogs:** a lead is used. Stand next to the dog, both facing the same direction. Hold the lead straight up tightly and at the same time push the dog down on the rump and say sit. As soon as the dog sits, reward and praise him.

**Training a dog to ‘Stay’**

Place the dog in the sit position. Next raise the hand up palm forwards in front of the dog. And firmly say, “stay”, then take one step back. If the dog stays in the position then immediately praise and reward him. After the praise say, “release”, to release the dog from the position. Over time you can increase the time and distance between getting your dog to sit and then releasing him from it. If the dog comes forward instead of staying then gently move him back into position and start again. The dog should not need to be in the sit position for more than 2-3 minutes during training. Of course the duration of time at the commencement of training this command may only be for a few seconds.

**Training a dog to ‘Come’**

This is one of the most important commands to teach a dog from a safety point of view. This will allow the handler to recall a dog from a dangerous position. The command is given once the dog looks up at the handler. The command “come” should be given in a firm but inviting manner, bend down and as the dog comes to the handler a foot treat is given to reward the behaviour. Then repeat the activity again. It is important to remember that the command should only be issued once. Initially it may be necessary to attract the dog’s attention with your hands. A dog should never be punished when it returns to the owner. The ‘come’ command should be practiced daily. It is also a good idea to use the ‘come’ command immediately on arriving at a park or other area where the dog is to be off-lead.
**Training a dog to ‘Drop’**

This command teaches the dog to drop into a position where it is lying flat with its abdomen on the ground and front legs extended in front. This is easier to teach if the dog already knows how to sit. Teaching the down command provides the foundation for many more advanced commands as well as establishing the trainer as the leader in the relationship with the dog. This is because the lying down position is a submissive position with the dog being much lower than the trainer.

Two techniques for teaching a dog to drop are outlined below:

1. **Off-lead.** Place the dog into a sit position. Hold a food treat a few cm in front of the dog’s nose then move the treat straight down to the ground. The dog should follow it, reward him with praise as it follows the treat. Once the dog is in the dropped position, with legs in front, give the treat. The verbal ‘drop’ can be added as the dog drops into position.