Understanding Emotionality

Until relatively recently, it was thought that animals did not experience emotions (fear, frustration, anger, sadness, depression, pleasure etc.) in the same way as humans. Rather, their behaviour was an automatic, instinctive response, void of any of the feelings known so well to humans. It has now been conceded by most psychologists working in the field that animals, like man, also possess an *emotional brain* linked to higher cortical centres that are capable of experiencing a wide range of emotions. The recognition of an emotional brain and the study of emotionality in companion animals has helped to explain and resolve many complex and bizarre behavioural problems in pets.

When investigating a behavioural problem, it is important to consider and try to understand the surge of feelings (emotions) the animal is experiencing during the unwanted behaviour and also its baseline, or average feelings (mood state) during the rest of the day. A human example might help to explain why.

Imagine your 10 year old son is playing football outside the kitchen window and you have already asked him, to no avail, to go and play in the garden so as not to kick the ball through the window. A while later, the ball smashes through the kitchen window. Your initial emotion might be one of anger at your son for not doing as he was asked. Now consider the same scenario, but this time you have flu with a grumbling headache and feel irritable. The ball comes crashing though the kitchen window. What is your emotion to the event this time? Explosive anger, probably. Or maybe resignation because you are too tired to bother.

Everybody has their own particular mood state that fluctuates around the average by a small amount in every direction throughout the day. A person suffering from depression will have a very different mood state from someone who is happy and content with life, and these two people will have a very different emotional reaction to the same event. These feelings can be mixed, for example a person making a parachute jump for the first time might feel pleasure, even elation, along with apprehension or fear.

For an animal with a behavioural problem then, we form an opinion of how it 'feels' from 2 different perspectives:

1. **Emotional Assessment**: a measure of the surge of feelings (good or bad) experienced just before, during and just after engaging in the problem behaviour.
2. **Mood State Assessment**: a measure of how the animal might feel during the rest of the day. Mood state can be defined as the average, day-to-day feelings of wellbeing, or as the feeling that is left after the 'ups and downs' of the day have passed.

In addition, we also consider:

3. **Hedonic Budget**: an investigation of what rewarding things/activities that are important to the animal can be utilised in a behaviour modification programme, and what things/activities that are important might be missing.
4. **Reinforcement Assessment**: an investigation of exactly what factors, external and internal, are maintaining the behaviour problem, often in spite of many varied attempts to remove it.

At the core of this approach to companion animal behavioural problems lies an increased awareness of the individuality and emotionality of the animal and the development of our ability to interpret how it feels. This is a dangerous controversial anthropomorphic venture for some given the absence of hard scientific techniques to quantify emotionality, but it is a logical development, given the highly and essential emotional nature of all mammals.

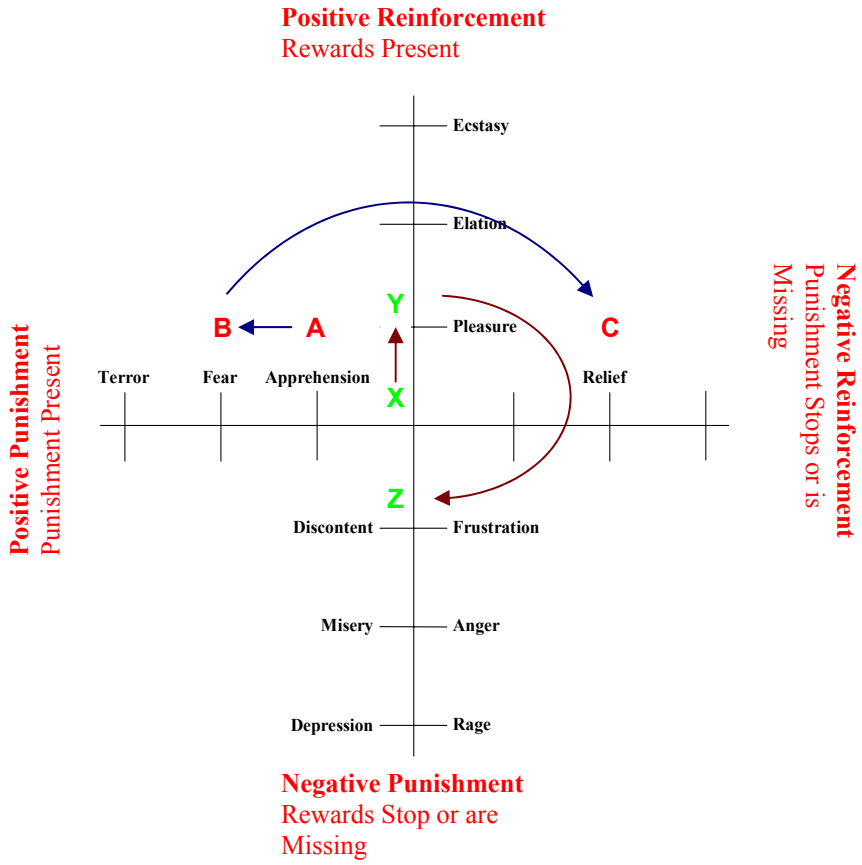
In fact, this is not based on some unscientific flight of fancy. The physical and physiological relationship between the structures of the brain that govern our moments of fear and anger, pleasure and ecstasy has, in the field of human psychiatry, for some years been a subject of great activity in neurobiological research. For example, 'for many, emotional intelligence, ancient, impulsive and highly influential, determines our hopes for success as a species compared with our newer, more easily measured, cognitive intelligence, with its greater awareness and ability to ponder and reflect, and power to over-ride instinctive emotional responses' (Goleman 1996). Others suggest that the interplay between the two seats of intelligence is inseparable and our ability to be sensitive to our emotions but govern them with cognitive analysis holds the key. Yet, the structure of human brains seems very naturally to allow emotionally driven instinctive responses to override cognitive processes and controlled responses at certain times. When decisions and action are required, 'feeling counts every bit as much and, sometimes,

more than thought. Intelligence can come to nothing when emotions hold sway' as one expert neurobiologist wrote (LeDoux 1998).

With this in mind, let's look at these four factors, Emotional Assessment, Mood State Assessment, Hedonic Budget and Reinforcement Assessment, in more detail…

Emotional Assessment

The grid below shows the range of all possible emotions, or feelings, that an animal (or human) can experience. Broadly speaking, the different emotions can be classified as either pleasant or unpleasant. A behaviour that is linked to a pleasant emotion is more likely to be repeated in an attempt to re-experience that emotion, that is - the behaviour is reinforced. Similarly, a behaviour that is linked to an unpleasant emotion is less likely to be repeated in order to avoid that emotion in the future, that is – the behaviour is not reinforced.



This gives rise to scales of reinforcement contingencies (pleasant/unpleasant) related to the degrees of emotionality as shown in the diagram, e.g. pleasure increasing to elation and ecstasy; frustration increasing to anger and rage; apprehension increasing to fear and terror; and discontent increasing to misery and depression. Relief is a bit different – it is the emotion experienced when an unpleasant event has passed.

The Emotional Assessment is an estimation of the surge of emotions that an animal with a behavioural problem might experience just before, during and just after the undesirable behaviour has occurred. Both the type of emotion experienced and its intensity can be plotted on a graph, and can be very helpful in trying to establish exactly what is going on.

For example, there may be several reasons why a dog barks at strangers when out walking with its owner in the park.

1. It may be fearful of strangers and has learned that barking at them causes the stranger to retreat or the owner to walk the dog in another direction. Either way, the result for the dog is that its fear is turned into relief as the distance between it and the stranger is increased. In such a case, when the dog first spots the stranger at a distance, its first emotion may be apprehension (point A). As the stranger approaches, the dog might then become fearful (point B) and start barking. The fear is replaced by emotional relief (point C) as the stranger recedes.

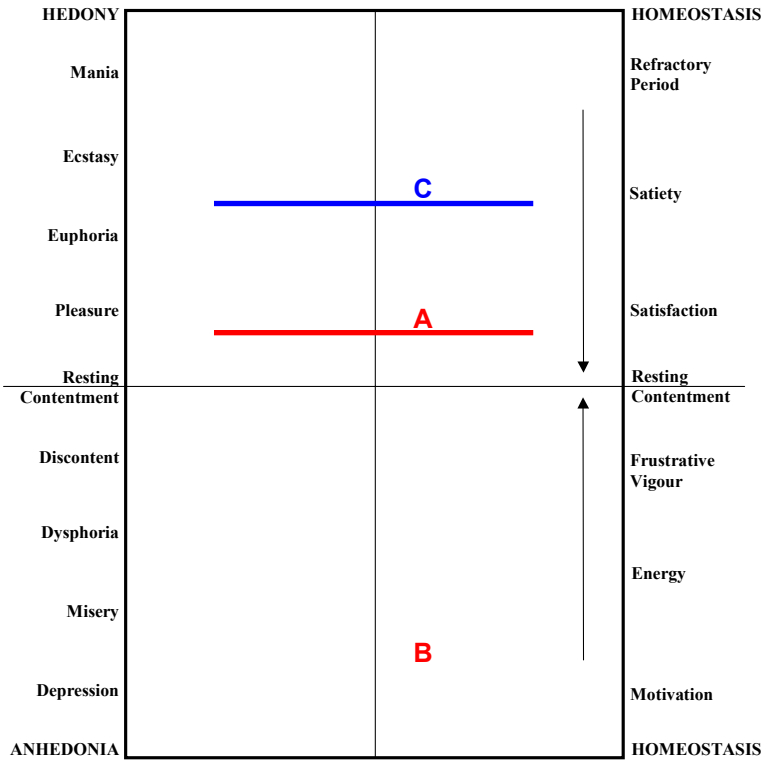
2. It may enjoy barking because it has learned that by doing so it receives attention from the owner, even if this is negative attention in the form of being told off. In this case, the dog might first feel pleasure (moving from point X to point Y) from the owners attention, which then turns into frustration (point Z) as the owner pulls the dog in the opposite direction and away from the stranger.

Mood State Assessment

It has been long recognised that the regulation of vital bodily systems (such as blood glucose levels, body temperature, hunger, thirst, heart rate etc.) are tightly controlled by sophisticated homeostatic mechanisms. For example, a dogs body temperature is maintained at exactly 101.8ºF. On a hot day the body temperature starts to rise, so the dog pants to dispel excess heat. On a cold day, body temperature starts to fall, so the dog shivers to generate more heat. Thus, body temperature homeostasis is maintained at its optimum level, irrespective of the temperature outside.

During the course of a day, humans and animals experience a range of both positive and negative emotions. Mood State is a measure of an individual's average, day-to-day feelings of wellbeing, or otherwise, and can be defined as the feeling that is left after the '*ups and downs*' of the day have passed. It has recently been discovered that a homeostatic mechanism for mood also exists. In the same way that other homeostatic mechanisms maintain physiological equilibrium within the body, the emotional brain also maintains an individual's so-called Hedonic Set Point (HSP), tending to pull any emotional divergence back to its 'normal' level.

The grid below illustrates the relationship between Mood State and HSP. The point of Resting Contentment in the middle of the grid is the central point around which fluctuations in mood occur. Resting Contentment is defined as having no particular feelings at all, such as just before falling asleep. If you imagine an individual's Mood State being attached to the line of Resting Contentment by elastic bands, any changes in mood in either direction (positive or negative) will tend to be pulled back towards the centre.



In a normal, content individual the HSP lies somewhere just above the line of Resting Contentment (line A in the diagram), and represents the feelings of satisfaction and well-being. In order to maintain its HSP, this individual will actively pursue normal, everyday behaviours that are both rewarding and pleasurable (see below).

In a person suffering from depression, their Mood State would lie somewhere below the line of Resting Contentment (point B) and well below their HSP. In an attempt to 'push' their Mood State back towards their HSP, this individual might indulge in excessive and abnormal behaviours. Likewise, a dog that is unable to cope with being left at home by itself may resort to destroying the house and even severe self-mutilation.

To complicate matters further, it is now recognised that the Hedonic Set Point itself can become disrupted (Hedonic Homeostatic Dysregulation). In humans at least, there is evidence that some forms of extreme behaviour, such as chronic substance abuse, pathological gambling, compulsive exercise, compulsive binge-eating, alcoholism, etc., can alter an individual's HSP upward (line C) so that they can no longer derive a satisfactory level of well-being and contentment from normal, everyday activities. In addition, a gene has been identified in humans that appears to predispose those that possess it to an abnormally high or low HSP, and the research suggests that these individuals are more likely to develop addictive and compulsive behaviours (high HSP), or become chronic depressives (low HSP).

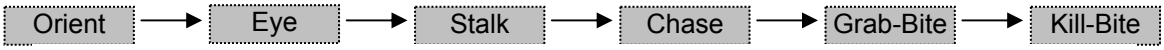
The areas in the brain that maintain the HSP, and the chemical neurotransmitters involved, have been identified and collectively called the Reward Cascade. In a normal individual, these neurotransmitters work together in a cascade (hence the name Reward Cascade) of excitation and inhibition, leading to the feeling of well-being, the ultimate reward. A disruption anywhere along the line of this complex and finely balanced cascade of chemical reactions results in anxiety, anger and other 'bad feelings', or in a craving

for a substance, or an extreme behaviour, that alleviates the negative emotion. This disruption has been called Reward Deficiency Syndrome. The discovery of the Reward Cascade and the existence of the Hedonic Set Point has helped to explain how many drugs, that have been used for years to treat mental illness, actually work and why, sometimes, they do not. There is little doubt that these systems also exist in companion animals, and an understanding of them has helped to unravel and to treat many complex behavioural problems.

Hedonic Budget Assessment

Consideration of an individual's (whatever species) emotional needs is not the fanciful brainchild of some ambitious social worker. Different types of dogs (e.g. Hounds, Gun Dogs, Terriers, Chasing Dogs and Toy Dogs) are good at doing different things. This may seem a rather obvious statement, but it lies at the heart of many frustratingly persistent behaviour problems in dogs. To understand why, we need to take a fresh look at the wolf as the dog's original ancestor and, in particular, the wolf's predatory behaviour.

The wolf is a remarkable killing machine. Like all predatory animals, it has hard-wired into its brain a genetically inherited motor pattern, or program, called the Predatory Sequence. This 'program' is triggered to run by the sight of a prey animal and directs the hungry wolf, as if on autopilot, through a predetermined sequence of behaviours that ultimately ends in a meal, provided all goes according to plan.



The Wolf's Predatory Sequence

The sequence starts with the wolf detecting the presence of prey and moving himself into position (*orient*). He then sits and watches (*eye*) patiently for a suitable victim then manoeuvres himself closer and closer without being detected (*stalk*). When within striking distance of the prey, the wolf breaks cover and goes in for the kill (*chase*, *grab-bite*, *kill-bite*).

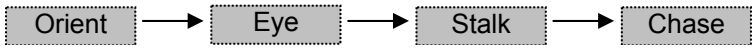
It is important to realise that it is this predatory sequence that makes the wolf undomesticatable. A wolf brought up with human beings is indeed tame – and very dangerous – because if someone inadvertently triggers his predatory sequence, they would probably end up as lunch. The domestic dog is genetically almost identical to the wolf, but the idea that the original domestic dog's ancestors were wolves captured and 'domesticated' by ancient man has now been discredited (Coppinger and Coppinger, 2001).

The three survival imperatives for any animal are feeding, reproducing and staying out of trouble. Physical changes in an animal are triggered by changes in the environment and its behavioural adaptations to ensure survival. The change in the environment that facilitated the domestication of the wolf into the dog occurred 10,000 to 15,000 years ago, when man began to adopt a village way of life. This provided the possibility of a year-round stable food supply for wild animals if they could move in near enough to exploit it. The rubbish dumps just outside man's villages and settlements would certainly have been a good source of scavengeable food for some wolves and many other animals who could tolerate the relatively presence of man. The dumps would also have provided a safe place for juvenile wolves to be left by the adults when they went on hunting excursions. Although past the very dependent cub stage and out of the den, these juveniles would not yet be old or experienced enough with their hunting and communication skills to join the hunt for wild quarry, but would need to be left in a safe place. Dumps would be ideal as they contain small 'snack' prey such as rodents and edible waste left by humans which would help them survive if their pack returned late or not at all, and other predators that might prey on young wolves, such as large cats, are mainly solitary and more sensitive to disturbance and would have been less likely to approach man's settlements.

The wolves that benefited most from this stable food supply and security of the 'out-of-town' dumps, were those that learned to live and survive close to man without running away. The more confident juvenile wolves would soon have become able to follow people (seen as food providing 'parent' figures) into the village to scavenge on the richer resources of the waste left in the streets and on the contents of village latrines, which provided food for vermin and canine scavengers alike. All of this biodegradable waste was of no use to man in his village, but it could be utilised by dogs and converted into canine protein for humans to eat. So, while it was probably the case that man could not have chased the young wolves away even if he had wanted to, there was an ulterior motive for him to want them around. Man's switch from a hunter/gatherer lifestyle to being mainly a crop farmer would have meant that an easily obtainable year-round meat supply would have been highly advantageous. Young wolves would have provided this

buffer to poor harvests and so it would have suited man to tolerate their scavenging activities in the villages. Once a resident population of young wolves was established in the village and had stayed to reach maturity and breed there, man would soon have become aware of which wolf/dogs produced the biggest fastest growing puppies and encouraged them for eating later. Direct physical contact and socialisation of village-born puppies with man would then have occurred as a crucial part of the taming and domestication process.

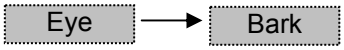
Early village dogs would therefore have been indirectly encouraged to grow up retaining the playful characteristics of juvenile wolves and not develop the organised social or predatory behaviours typical of adult wolves in order for man to accept them without danger to himself. These characteristics thus became established in the adult, reproductive population of village dogs. Some would have retained near-adult qualities in terms of their predatory behaviour patterns, and they would have been ideal for helping man to stalk his prey when he went out to hunt. Similarly, such dogs could also have proved useful in helping man herd his sheep and other livestock outside the village, but only once the bite/kill end of the hunting sequence had been selected out by man, who would have culled any dogs that attacked livestock, or used them instead for hunting.



Herding Dog Predatory Sequence

This predatory sequence would make a very good herding dog as the animal can be taught to chase and round up other animals without killing and eating them. The *grab-bite*, and *kill-bite* have gone.

Village dogs that remained very juvenile in their behaviour and showed no propensity to hunt or herd would have been ideal for guarding livestock.



Livestock Guarding Dog Predatory Sequence

This predatory sequence would make a very good livestock guarding dog as the animal is unable to chase, bite or otherwise harass the animals he is taking care of. All he can do is bark when a potential predator is sighted.

Other slightly more adult types would have developed possessive instincts over subjects and these would have been selected for by man and trained to use as retrievers on the hunt.

Hunting Dog Predatory Sequence

This predatory sequence is ideal for hunting/retrieving dogs as the animal hangs on to the prey once caught rather than tearing it up and consuming it.

Thus, the different *types* of dogs (herding, stalking, heeling, retrieving and guarding) around today may be classified according to the fragments of their wolf ancestors predatory motor patterns they have retained and how much these fragments have been exaggerated, suppressed, or otherwise altered by natural selection, or deliberately by man. What is certain is that the full combined expression of adult predatory behaviours of the wolf, the ancestor of all dogs, are not seen in any type or breed of domestic dog.

In addition to predatory behaviour, domestic dogs have also inherited other motor patterns from the wolf, for example the ability to form a social bond with people. Hand-raised wolves and coyotes can be extremely sociable with their handlers, yet differ from dogs in the level of distress experienced when they are isolated from them. Dogs show much more distress when separated from their humans, a dependency that underlines the 'perpetual juvenile' theory. A dog views its owner perhaps somewhere between a parental figure and a pack mate, from whom to expect signals of leadership and protection and, since the owner is also the pack mate who provides food, initiates hunting excursions (walks!) and play, defines sleeping areas and initiates many of the social interactions, their role as director is regularly reinforced. Understanding the social structure of a pack animal is relatively simple – the higher up the ladder you are, the more privileges you are granted, but when dogs live in a mixed pack containing humans, dogs (perhaps of different types) and cats, understanding the rules can become confusing. Owners attempt to teach the dog many of the values and expect them to understand our methods of communication, but the dog is only capable of learning via languages that it can interpret and can only

understand canine values, and these vary enormously between types, breeds, gender and the nature of individual dogs.

Recent and continuing research has shown that different breeds of dog organise their social structure in different ways, i.e. what is important to one breed, in terms of 'pack rules' and communication systems, is unimportant to another breed. For example, recent investigations in the UK have shown that some breeds, such as the Husky, are sensitive to which member of their group is given attention first by a visiting stranger. If a dog of lower rank is given preferential attention, a great deal of tension may develop between the other dogs in the group. Dogs of other breeds, such as the Norfolk Terrier, do not seem to care which member of their group is greeted first, but instead seemed to place great importance on the possession of a new toy. Other breeds may value access to the food bowl while German Shepherd Dogs often organise their social relations around access to their home base or den, or specific areas in the home, such as their bed, or proximity and access to key members of their group, human or canine, that provide security and affection. In fact, social behaviour and organisation varies so much between the different breeds that it may be too much of a generalisation to lump them all under the same description of 'dog'. There is perhaps no such thing as a dog, and we should instead define each breed according to its highly individual and complex behavioural motor patterns.

In certain breeds of dogs the motivation to perform specialised routines such as retrieving or herding may be so intense that frustration ensues when no opportunities for work or appropriate play alternatives exist. This situation will be made very much worse by punishment of the behaviour in question. Clear instances abound were retrievers have been taught to become aggressive by repeated punishment of their innocent compulsions to retrieve anything and everything. Some very severe attacks upon owners by their dogs can be explained fully in this way, for example in some cases of so-called 'rage syndrome' in Cocker Spaniels and Golden Retrievers.

Anyone who spends some time just observing their dog's daily 'habits' will gain a great deal of useful information about the dog's behavioural motor patterns. For example, ruffling up the carpet or their beds to create a 'den', holding an object in their mouth, lying on their owner's feet in order to make body contact, watching passers-by in the street, grooming, etc. Here are some examples of common breed-specific motor patterns:

- Retrievers - carrying or just holding objects in their mouths.
- Bassett Hounds - sniffing at the expense of any exercise, to the frustration of many owners.
- Border Collies - the *eye-stalk* part of the predatory sequence is extremely well developed and these dogs experience a great deal of reward when engaged in this activity. In fact, some Border Collies become 'addicted' and will spend most of their waking hours *eye-stalking* anything that moves at the expense of anything else. Imagine such a Border Collie that maintains it's HSP by standing at a window all day watching passers-by on the street outside. The owner's, in order to gain some privacy from the pedestrians looking back at the dog in amusement as they walk by, erect a high fence in front of the window, thereby completely blocking the dog's view. Such a dog would inevitably undergo a mood state shift downward towards frustration or even depression! It may then adopt other behaviours (e.g. chewing furniture, barking incessantly, snapping at it's owners heels as they walked around the house) in a desperate attempt to gain alternative rewards to drive it's mood state back up again. An example Hedonic Budget Assessment for this dog, let's call her Bess, is shown below.

Because these behavioural sequences are hard-wired into the dog's brain, performing them is innately (or internally) rewarding and pleasurable and may be very important for maintaining the animal's Hedonic Set Point (HSP), as described above.

Therefore, when dealing with a behavioural problem, the important question to ask is:-

> "*What rewarding things/activities that are important to the animal can be utilised in a behaviour modification programme, and what things/activities that are important might be missing?* "

These factors cannot be divorced from any treatment plan. In order to change an undesirable behaviour it is not enough to simply stop the animal from performing the behaviour. It is crucial that the animal learns for itself some alternate behaviour that is ***equally or even more rewarding***. It could be that the undesirable behaviour has arisen because, being denied the opportunity to perform some important, inbuilt behavioural motor pattern, the animal has resorted to doing something else in an attempt to maintain its HSP.

Breed Typical *(Border Collie)*	**Bess**
Hunting/Exploring *(eye/stalk)* +++	+
Hunting Play *(eye/stalk)* +++	+
Eating +	+++
Chewing +	+++
Digging +	+
Barking/Meowing +	+++
Contact/Being Groomed ++	++
Denning / Safe Haven ++	++

The diagram on the left is an example of an Hedonic Budget Assessment for a Border Collie *type* of dog. The left hand column is used to identify behaviours that are typical/important for the particular breed type, with the number of pluses indicating just how important each trait is. The right hand column is used to show how well these behavioural traits are represented for the particular animal under investigation, and also to show any other behaviours that may have been adopted as a possible coping mechanism.

This diagram can be used as a 'memory jogger' to help identify:-

1. What opportunities for reward the animal currently has on offer.

2. If the animal's important, innately rewarding behavioural motor patterns are currently being met.

3. Which of the animal's innately rewarding behaviours can be utilised as part of it's retraining and behaviour modification program. 'Tapping into' existing behavioural motor patterns, and therefore what the animal is already programmed at being good at and finds enjoyable, is far more effective in this kind of guided learning.

4. If the animal's undesirable behaviour is part of an in-built motor pattern (e.g. car-chasing Border Collies), or a learned behaviour (e.g. a dog that will not come when called).

It is important to remember that the reward value of each behaviour is going to fluctuate up and down during the day. For example, food treats lose value following a big meal, playing with a ball loses value if the animal is exhausted. Being aware of this, you are in a better position to make the best use of the resources at your disposal during training and behaviour modification.

Reinforcement Assessment

Some behavioural problems can be frustratingly difficult to resolve in spite of many varied attempts to remove them, and this is where consideration of exactly what factors, external and internal, are involved in maintaining the behaviour becomes essential.

Internal factors are usually problems with the animal's Hedonic Budget, as described above. For example, the destructive Labrador may simply not have enough to do so resorts to chewing his owners shoes and clothing.

External factors are usually less obvious, for example the shoe-chewing behaviour of the Labrador described above may be reinforced (i.e. encouraged) by the tellings off he receives from his owner because, in the absence of any other form of attention, being shouted at and having the shoe taken away is better than no physical contact with the owner at all.

External factors that reinforce undesirable behaviours such as the reactions to fearfulness, or aggression are generally very important and need to be identified and removed if the animals behavioural problems are to be resolved.

Positive Reinforcement Training With a Clicker to Signal Success

Modern dogs are just as opportunistic as their forefathers and their basic outlook on life is that:

They will do what they find rewarding for them to do at the time, with no other ulterior motive.

The dog is obviously more dependent on us in a social group than the wolf or his social wild cousins can ever be as a direct result of his arrestation in a perpetual juvenile stage and it is this enhanced dependence that makes him far easier to motivate to respond to our signals in training. Our job in training dogs is to motivate them through the prospect of gaining rewards to behave as we wish them to by signalling our behaviour and intents effectively and clearly. Then a dog can not only interpret our requirements but also take comfort from a consistent, positive and happy relationship.
One of the major common features of behaviour problems in dogs is that effective communication between the owner and their dog has either failed to develop properly or has become confusing for the dog. The owner's voice and the dog's name have usually come to mean different things at different times ("*Good dog, Fido*". "*Fido, No! Bad dog!*") and one of the first jobs of treatment is often to introduce forms of communication that are consistent and readily comprehensible to the dog. Signalling rewards is easy enough, and every dog learns very quickly that a smiling face, high voice, the rattle of the biscuit tin or the sound of a clicker can be associated with a rewarding experience. But a basic error that owners often make is to assume that 'punishment' is the opposite of 'reward' and that threatening or physically punishing a dog will decrease the frequency or expression of an unwanted behaviour. Not so. The opposite of reward is not punishment, but is 'non-reward', and teaching a dog this through a signal is just as easy as signalling rewards for desirable behaviour. Effective signalling of reward, non-reward and success, is what will define the relationship, establish the owner as the controlling influence, and encourage the dog to follow their lead happily.

Clicker training is often a vital part of such remedial training although it is now already widely used around the world for all aspects of normal dog training from teaching a 6 week old puppy to sit, to teaching an adult dog tricks, walking on a loose lead, competitive obedience, agility, working trials etc. The usual commercially available 'clicker' is a small coloured plastic box containing a strip of flexible metal which makes a double click sound when depressed and released with the thumb. Initially the clicker produces a sound that is meaningless to the dog but, conditioned correctly, it will quickly associate the sound with something rewarding and so the clicker becomes an audible conditioned reinforcer. The click is so quick that it marks the correct behaviour at the split second it is offered or performed by the dog, thus telling the dog exactly what it did to earn the reward. Emotionally the click gives the dog instant feelings of pleasure probably because dopamine is released as a pulse in the brain each time the click is heard.
After only a few repetitions of 'click and treat' the dog will focus completely on the owner and work hard in an attempt to make the owner click again. In effect, the dog, by altering or shaping (improving) it's own behaviour tries to train the owner to make the rewarding click - an interesting role reversal to traditional training techniques where the trainer is trying to induce the animal to perform new behaviours.

There are several important differences between clicker training and traditional training. Clicker training is based on the principles of operant and classical conditioning and teaches a behaviour before introducing words (signals) of command from the owner. Clicker trainers break behaviours down into small stages that are taught one step at a time, the process of 'shaping'. Each step in the direction towards the goal is rewarded whenever a good attempt at it is achieved but then delaying the click until closer performances are offered to the behaviour desired. Only when the dog has understood what is required and performing the behaviour is the cue or verbal signal added.

While the dog is being taught a behaviour it is initially given rewards for every attempt (continuous schedule of reinforcement), but once it has grasped the exercise, the reward is given on a random basis i.e. the dog sometimes has to perform the behaviour twice for a reward sometimes three times, others just once. This variable schedule of reinforcement strengthens the dog's response as the loss of an expected reward induces frustration, and frustration increases vigour in trying harder to earn the reward. The clicker trained dog is able to resolve this frustration, and will remain calm, happy and confident while trying to earn the reward – a vital mood change in the treatment of frustrated dogs compared with the vagaries of owner-based reinforcers, positive ("*good boy*") or negative ("*bad dog*"). It is clear that by the time an owner has said the words, the dog may have moved on to performing another behaviour, which may be unacceptable and even unintentionally rewarded by any verbal praise. By contrast, the dog soon learns which behaviours gain a click and which ones do not. By rewarding a behaviour a trainer increases the likelihood of that behaviour being repeated, and by not rewarding it, the likelihood is decreased.

Eventually the dog will stop performing any unrewarded (unacceptable) behaviours, and they will, in time, become extinct from it's behavioural repertoire and be replaced by the desired alternatives.

Signalling Frustrative Non-Reward (Failure)

The withdrawal or omission of an expected reward is known as 'non-reward'. This causes frustration in dogs and other animals and, as one would expect, the greater the expected reward, the greater the frustration. But when a sound or other signal is introduced as a signal of non-reward, this, in itself, does not induce frustration. The animal withdraws from the warning signal and this action actually becomes a reward because it reduces their frustration. This is known as 'passive avoidance' and, through it, dogs learn to refrain from behaviours that will lead to unrewarding or unpleasant prospects.

Simply by conditioning signals of reward/success and non-reward, owners can learn to communicate very effectively with their dogs and overcome and reshape many behaviour and training problems. Using a non-reward signal to interrupt unwanted behaviours followed by a Clicker to reinforce and then shape a desirable alternative often has a far more profound effect than either signal alone in the rehabilitation of many problems because of the power that these signals have in managing a dog's mood directly.

A Comparison of Emotionality in Cats and Dogs

The emotional brains of cats and dogs are driven by highly evolved and specialised emotional circuitry, which, compared with man, affords little opportunity for cognitive over-riding thought processes in their genetic quest for survival. The human neocortex has developed massively more than that of any other mammal.

The cat lacks a large, elastic emotional forebrain to make cognitive decisions compared with man, apes or the dog and is largely uncooperative and responsive to basic emotions. It is instead highly reliant on specialised instinctive behaviours, such as hunting and mating. The cat learns the language of social interaction and competition at the one time in its life when it is socially dependent on members of its own species, when it is with its mother and littermates, up to the age of about 14 weeks. Thereafter it matures alone, without the need for a lengthy period of acquisition of the social skills demanded by animals that live in co-operative adult groups and who nurture and protect their young long after weaning, such as man and the wolf/dog. The cat's relationship with us therefore primarily revolves around viewing us as parental figures, using perpetual infantile care soliciting behaviours from kittenhood to react socially with owners. The largely asocial adult cat is thus less influenced by the behaviour of other cats and their moods, and so has less need of an emotional awareness of others. This level of emotional development enables the cat to communicate sufficiently with others to defend and compete for resources, court and mate and for females to raise young but not formulate co-operative hunting or reproductive strategies based on co-operative nurturing roles of both males and females. The cat also retains a 'map' of its home range and hunting sites, and logs changes or challenges detected in the area, so enabling it to alter its pattern of territory usage and hunting strategy as required. This explains why cats are usually more bonded to home base than their owners, and are pre-programmed to defend these resources against competition from other cats.

The forebrain of the dog, on the other hand, is far more developed, and it is therefore able to utilise the language based on vocal, scent, facial expression and body posturing, necessary to form co-operative behaviours for hunting, reproduction and defence. More vitally perhaps, language enables greater cognitive interpretation of the emotions of others in the group and facilitates prediction of their behaviour. This in turn allows each dog to modify its own behaviour with far greater flexibility in response both to its own emotions and those of others in its group. It is flexible enough to establish similar relationships and levels of co-operation with human owners and man in general.

From a behavioural point of view then, cats are much less amenable than dogs to behaviour modification using reinforcement and reward because they are much less reliant on humans. This makes resolving some feline behaviour problems, such as aggression between cats in the same home, extremely difficult because the behaviour in itself may be highly rewarding to the cats and there are no equally rewarding alternative behaviours they could be taught instead.

Emotionality is a complex subject and this document has given only a brief overview in order to illustrate how it relates to behavioural problems in companion animals, how such problems might arise in the first place and why an animal's genetic heritage and accompanying emotionality need to be considered as an important part of any treatment plan.

References

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Acknowledgements and thanks to Dr Peter Neville DHc, BSc(Hons), Centre of Applied Pet Ethology, for permission to use some of his material in this article.

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