

Chapter 1 Perspectives on animal learning theory

Part 1

Comparing training concepts and styles

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In this chapter, two perspectives on the theoretical principles underlying training of mine detection dogs are offered. Both were originally used as background for particular training objectives (Fjellanger — training REST dogs; Hilliard — training to detect tripwires), but both have considerable generality in that they review the principles of the psychology of learning. There is therefore considerable overlap between them.

The overlap involves some repetition for the reader, and those with a background in the principles of learning may consider it unnecessary to have included both contributions. The principles are widely written about anyway (example references in Fjellanger, Chapter 1, Part 2; Matre, Chapter 3), and any dog trainer should have a reasonable understanding of them.

However, the main value of these two perspectives is in the thought-provoking differences between them. It is routinely commented that five dog trainers in a room will give six opinions about the best way to achieve a training objective — four opinions are strongly held, while the fifth trainer can see at least two options. Despite their differences, the five trainers will still agree on the principles of learning being applied because the disagreement among them centres on applications. It is therefore unsurprising that these two perspectives on dog training differ in significant ways.

The agreement can easily be found. Both contributions explain the concept of reinforcement, the need for precise timing links between action and reward, the meaning of *positive* and *negative* in relation to reinforcement and punishment, and the importance of intermittent use of rewards. Hilliard considers it appropriate to use limited forms of punishment (Fjellanger disagrees), although both agree that punishment must be used carefully. Fjellanger emphasises shaping as the most preferable training technique, whereas Hilliard discounts shaping almost entirely. Application of their arguments can be found in the parts written by Fjellanger and Hayter in Chapter 2.

One of the difficulties in reading texts on learning theory is the extensive use of a complex technical language which must be learned before the text is understandable.

Dog trainers, especially those for whom English is a second language, may not have the time (or for that matter, patience) to learn that language. Fjellanger minimises use of technical language in his part by keeping it in the background, although he provides the language where relevant. Hilliard uses the language more frequently, and his approach is similar to the writing in an undergraduate textbook in psychology.

Dog training involves the application of scientific principles of learning, but is also a constantly evolving art. It is now widely recognised that an important shift in training style took place during the 1990s, particularly among trainers who work with the general public. That shift has been captured in many books on dog training written for general use. Examples are Karen Pryor's *Don't Shoot the Dog* (1985) and Robert Mugford's *Never Say No!* (1992). Not all professional trainers have embraced the shift, although some also say "we already did that", and it is fair to say that, to some extent, they are right.

The shift began with attempts to train dolphins rather than dogs. Communication between animal and trainer is an essential (if poorly understood) component of the training process. Communication with dolphins is much more difficult than with dogs, because it is mediated through water. Dolphins also move much more quickly in water than humans. Thus, dolphin trainers were faced with the problem of supplying precisely timed rewards to reinforce desired actions for an animal that exhibited rapid changes in behaviour in a medium in which the trainer was at a physical disadvantage. The solution was communication through sound. Dolphins certainly responded to sound, but the problem was to make a sound rewarding. The solution was to use classical conditioning techniques to link a sound (a whistle) with something that was already rewarding for the dolphin (food) using the principle of *secondary conditioning*. Before long, the dolphins responded to the sound as though it was food; i.e. the sound had become rewarding. The trainer now had a powerful tool that gave precise timing for rewarding desired actions.

Animal psychologists rapidly recognised that the training concept was not restricted to dolphins. It crossed all animal boundaries and today has been used to train many kinds, including even those most untrainable of animals: cats. The principle has come to be called *clicker training* because of the frequent use of a clicking device as the primary sound producer. However, the clicker is simply a mechanism for establishing communication with the dog, and should not be confused with the training principle, which is reward-based learning (sometimes also called "shaping", although this concept is more specific). Reward-based learning is not new, which is why established trainers can argue that "we already do that". What made this training approach new?

For dogs, there were four significant elements of the shift in training style:

- The dog was given control of the training process;
- De-emphasised was the notion that the most effective training was achieved through a close relationship in which the handler *led* the dog;
- Forms of punishment or negative reinforcement were eliminated from the training experience; and
- Prompts, or leading the dog towards a desired behaviour (see below), were eliminated from the training process.

Hilliard offers a traditional view of the process of training a dog, whereas Fjellanger gives a modern view that emphasises the shift in training style outlined above. The

differences can be seen both in the recommended training approach, and in the contradictory statements in some areas.

Here are some examples of alternative perspectives, or contradictions. The reader is invited to find more.

- **Hilliard** refers to the notions of “needs and drives”, although he notes that this language is no longer used by behavioural scientists. **Fjellanger** does not mention these concepts.
- **Hilliard** notes that working dogs are selected for a moderate to high level of aggressiveness; and he makes various comments about dominance. **Fjellanger** makes no reference to dominance or aggression issues.
- **Fjellanger**: “**Prompt**” here, means *assisting the dog to express an action*. For example, pushing down on the rear end of the dog while training the action of sit. The optimal application of the forward training principle involves providing a minimum of prompt, even though the initial learning process may be slower than can be achieved with more prompt.¹ **Hilliard**: Assisting the dog to assume the desired position or behaviour is permissible (i.e. in the case of the sit, gentle pressure on the rump to encourage the animal to sit)... Inducing the animal to perform the desired behaviour independently and then reinforcing the behaviour will produce more rapid learning than “pushing” the animal into position and then rewarding it for allowing this to happen.
- **Fjellanger**: But as training goes on and the dog is *offering* the behaviour reliably without the reward being provided... **Hilliard**: When we train animals, what we do is exploit the animal’s desire to “feel good” by *requiring* the animal to do as we wish it to before we allow it to engage in one of these basic motivating behaviours...²
- **Fjellanger**: From Chapter 2, Part 2: It [the leash] must not be used for checking or jerking (a form of punishment). **Hilliard**: *Examples of punishers are jerks on the collar (collar corrections)*... when administered to a dog after it misbehaves by, for example, departing from the down-stay position without permission, will tend to weaken down-stay-breaking behaviour.³
- A notable similarity is that trainers in both styles are expected to use “small changes in behaviour” (Fjellanger, from Chapter 2, Part 2), or a JND (just noticeable difference) (Hayter, from Chapter 2, Part 2/3). These notions imply that trainers using either style require considerable experience observing the subtleties of dog behaviour.

It is important to emphasise that neither of these approaches is “right” in any fundamental sense. Hilliard’s description is of a training style that has been used successfully for decades, and is still the preferred style for the training of protection and security dogs. Fjellanger’s description incorporates an approach that is now commonly used by the general public, but which is almost completely untested with respect to the training of MDDs. As noted by Fjellanger in Chapter 2, Part 2, the differences of opinion in the examples above may produce no difference in the end-product (a dog capable of undertaking all required operational tasks). This is one reason why there are so many differences of opinion among dog trainers. All of them are right in the sense that their style will probably produce a trained dog.

1. Bold and italics as in the original.

2. Italics added.

3. Italics as in the original.

Relevant to preference for the difference in these two styles is the question of what characteristics are desirable in an MDD, and whether it is appropriate to produce an MDD using a training style originally developed for producing protection dogs. MDDs are not protection dogs, and many of the desirable characteristics for a protection dog are irrelevant for an MDD (although Hilliard and Hayter might disagree with this comment; see GICHHD 2001 for an analysis of desirable characteristics for an MDD). Some trainers of detection dogs are beginning to indicate preferences for breeds other than the breeds traditionally used as MDDs (German shepherd and Malinois — which are also the preferred breeds for use as protection dogs). For example, the most successful detection dog breeding programme in the world (run by the Australian Customs Service) uses Labrador retrievers exclusively (Vandaloo, 2001). The development of breed preferences for different roles is driven by links between breed characteristics and characteristics desirable in the end product, and by preferences for training styles based on experience. It may well be that the approach described by Hilliard is the best training style for German shepherds and Malinois, even if they are to be used as MDDs. Other breeds might better be trained in other ways.

Differences in training styles are therefore not closely related to the quality of the end product. However, the following issues are relevant, and readers are encouraged to consider them while reading this book:

- The importance of the handler: Hilliard emphasises the need for a good dog-handler relationship; Fjellanger insists that the dog should work independently of the handler.
- The ability of the handler: Many MDDs work with handlers who have a limited understanding of dog behaviour, and an even more limited understanding of the principles of learning.
- The speed and efficiency with which training proceeds.
- The effectiveness of the training in establishing behavioural patterns that are resistant to changes arising from operational experiences (including training mistakes).
- The requirement for maintenance training once the dog is operational.

References

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