Do dog owners know their dogs?

Identifying preferred rewards and positive behaviour during social interactions

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The Goal.

‘Oh, East is East and West is West, and never the twain shall meet’.

~‘The Ballad of East and West’ (Rudyard Kipling; 1892)

• There is a between academic publishing in animal behaviour and the information reaching pet owners.

• My aim is to take ‘science’ to pet owners by conducting experiments and writing ‘papers’ that can be made accessible to pet owners through open access journals and industry.

• The long-term plan is to create skill-based modules for pet owners delivered through pet stores to upskill and up-knowledge pet owners with scientifically and laboratory tested techniques that will aid them in training their dogs.
Rationale

• Humans attribute their personal values and assumptions to canine behaviour which can negatively affect the care and wellbeing of the animal.
  • E.g., owners anthropomorphise behaviour (especially the undesired), which can mask an underlying health issue

• A lack of knowledge about canine behaviour can lead to:
  • poor dog training with possible relinquishment due to continued ‘bad’ behaviour
  • development of behavioural problems
  • a decrease in socialisation opportunities
  • degradation of the owner-dog relationship
  • general decline in welfare.

These two projects identify areas where owners can upskill and increase their knowledge to benefit the owner-human relationship.
Project 1. Identification of reinforcers for dog training

• Dog owners often use low-value rewards as reinforcers during dog training with some empirical evidence for what [food] to use…. but this does not have the reach to pet owners.
  • E.g., owners could use either the dog’s normal diet or a high-value food

• Vicars et al., (2014) found that 5/8 owners failed to identify their dogs most preferred food.

• Leonardi et al., (2012) found dogs will exchange a low-value food or a small quantity of food for a high-value or larger amount of food.

• Vondran (2013) reported that dogs in her study would alter their preference when offered the choice of a novel versus staple food;

• Riemer et al., (2018) concluded after comparing the ability of dogs to discriminate and select foods of differing qualities and quantities that more highly valued foods will likely make a more effective reinforcer.
Methods and Results

• 1. To establish a methodology for the preference assessment
  • \( N = 9 \) dogs (+ 4 just completed)
  • Owners identified six foods the dogs regularly ate and rank ordered them.
  • In a paired preference assessment, dogs selected their preferred foods in 30 trials, producing a rank order.

• None of the owners identified their dog’s most preferred foods,
  • Agreement values were low to middling: e.g., Roxy and her owner with no similar rankings \([W = .0.94, p = .967]\) to Bentley and his owner with two identical rankings across foods and two that were 1 ranking out \([W = .790, p = .162]\).
**Figure 1.** Proportion of trials when each test food was selected by each dog.
Methods and Results

• 2. To identify whether staple foods affect preference using the runway methodology
  • $N = 9$ raw-fed dogs (Submitted to *Pet Behaviour Science*)
  • Two repeats of the PS assessment
    • With particular staple food offered for 3 days before
  • Then a reinforcer assessment to measure *effectiveness* of the reinforcer
    • A ‘point-to-point’ movement

• Idiosyncratic preferences for foods across dogs with no differences in the rank orders for each dog between the first and second test.
• The dogs moved faster to obtain their *most* preferred food compared to their least preferred AND the staple foods.
Figure 2. Proportion of trials when each test food was selected by each dog in Experiment 2. The darker columns represent the proportion of trials when rabbit was the staple food, the light grey columns represent the proportion of trials when horse was the staple food and the white columns represent the proportion of trials when lamb was the staple food (Indy only).
**Figure 3.** Proportion of trials when each test food was selected by each dog. The darker columns represent the proportion of trials when rabbit was the staple food, the light grey columns represent the proportion of trials when horse was the staple food. The data for Indy was not included in the analysis. Error bars are the standard error of the mean.

**Figure 4.** Average latency (seconds) to complete a 5 m distance across dogs for the most- and least preferred and staple foods. The food types are shown in order of presentation to the dogs with the final four trials used for each block of trials. Error bars are the standard error of the mean.
Methods and Results

• 3. Does combining choice and effort precludes the need for separate preference assessments?

• To identify the most reliable method for testing preference by comparing PS, MSWO and a reinforcer assessment using a runway
  • $N = 8$ dogs
  • 3 sessions of each pref method + reinforcer assessments using the same foods.

• A heap of data yet to comb through – but we think we have identified a stream-lined method for owners to identify preference.
Conclusions

• 1. Owners need to identify their dog’s preferred food – not guess – to have the best chance at successful training
  a dog’s preferred food might surprise you!

• 2. Dogs may show a preference for a particular raw food which should be saved for training, while a secondary or variety of raw food is fed as the staple diet
  preference + novelty increases the chance of successful training

• 3. Use of a runway to combining an effortful behaviour to obtain food while also requiring the dogs to make a choice precludes the need for more complicated and time consuming methods of preference assessment.
  whether the PS or MSWO is the best method is yet to be identified!
Project 2. Identification of behaviours associated with dyadic interactions

- Dog owners meet the exercise and social needs of their dog by visiting dog parks
  - Where it is likely they will come into contact with other dogs off-lead
- Greeting behaviours, such as olfactory inspection of another dog, are a commonly observed social interaction that is familiar to most people.
- This study aimed to describe the initial interactions of pairs of dogs and assess if there are discernible patterns of behaviour which may signal that in interaction is positive or negative.
Methods and Results

• 370 interactions were analysed.
  • Scan sampling with *ad libitum* recording was used to measure behaviour which was coded and analysed.
  • Behaviours were categorised into inactive, active, olfactory, visual, auditory and ‘other’.
  • In 100 interactions the duration of olfactory based behaviours were analysed.
  • A sequence of behaviour was established based on the highest proportion of behaviours in the interactions (100 interactions).
Figure 3. Total number of each behaviour of the initiator and recipient dog.
Figures 5 & 6. Total number and proportion of each behaviour class over 370 interactions. Error bars are the standard deviation of the sample.
Figures 7 & 8. Proportion of dogs recorded as males, females and unknown sex & proportion of dogs as terminators of interactions. Error bars are the standard error of the mean.
Figures 9 & 10. Number of dogs as initiators and recipients per breed and size of dog (indicative only).
Figures 11 & 12. Number of and duration of olfactory behaviours of initiators and recipients for 100 interactions.
Sequences of behaviours for positive interactions

Figure 13. Percentage based sequence of a positive interaction (N = 100).
Conclusions

- Significantly more behaviour was exhibited by initiators consisting of locomotive, play and head-to-tail and head-to-head olfactory behaviour compared to recipient dogs.

- There were more male initiators and more female recipients, and small to medium breed recipients exhibited more behaviour than initiators or other sizes.

- Based on 100 interactions, recipient dogs investigated the tail region of other dogs more often and for longer than initiators.
Take Home Messages

• Owners need to be made aware that effective reinforcers increase the success of training their dogs

• Then... they need to be shown how to conduct an intuitive and reliable assessment combining effort and choice

• It isn’t convincing that one particular sex, breed or size of dog indicates dog role within an interaction

• Deviation from the identified patterns could help owners make decisions about their dog’s behaviour, and could potentially allow them to identify if their dog is displaying abnormal greeting behaviour and if they should consider intervening.

• A simple graphic on the vet clinic wall
... So it’s back to PUPPY school for mum and dad

Thank you!
References


