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## Introduction

- Advances in understanding dog personality and learning ability can help match dogs to an owner or handler, providing a suitable and perfectly matched owner and dog (Coppinger et al, 2004).
- First, animal cognition is a developing area to measure an individual's welfare.
- Second, further research into dog personality and learning ability can improve our understanding of factors that affect cognitive performance which is much more complicated than simply intelligence.
- Third, new found knowledge on personality and learning ability can be used to assess dogs, especially puppies, for suitability for certain tasks.
- Overall, improved knowledge about a dog's individual personality can help promote better training and welfare (Svartberg, 2002).

## Aims

- To understand how personality affects a dog's cognitive performance, using subjective and objective methods.

## Methods

- Personality was assessed using the validated Monash Canine Personality Questionnaire (Ley et al, 2009).
- An objective approach was used to measure cognitive performance through two learning ability tasks, V-shaped Fence (figure 1) and Spin the Bottle (figure 2), using three measurements.
  - These three measurements included; **Engagement, Performance** and **Subject's ability to learn** through sets and attempts at each task.
  - These performance factors were then compared to the individual's results from the personality questionnaire.

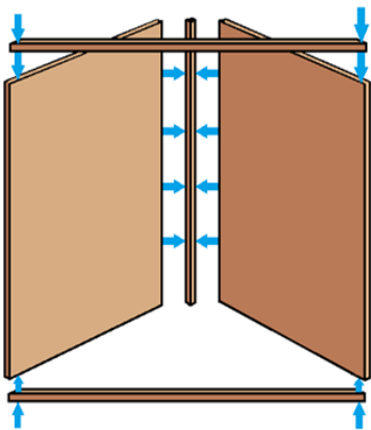


Figure 1: Shows the V-shaped fence learning ability task.

- Variables measured included; questionnaire personality traits; **Extraversion, Motivation, Training Focus, Amicability and Neuroticism**, all attempts in the learning ability tasks comprising of a total of 6 attempts for each subject, level of engagement, average performance and overall time improvement.
- **Level of engagement** with the task was measured retrospectively from video recordings by measuring how long the subject spent engaging with the task as a percentage of the total time taken to complete the task.
- Time taken to complete each attempt was measured using a stop watch during testing. Time taken to complete the attempt was subtracted from the maximum available time to give a score for "**average performance**".
- Latency to complete the task across multiple attempts within the set was measured to assess how readily the subjects learnt the tasks and improved with repeat performance, named "**overall time improvement**". Improvement in performance across attempts within a set was determined by the following formulas:

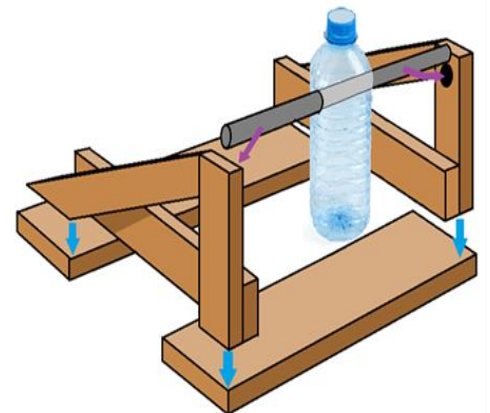


Figure 2: Shows the Spin the Bottle learning ability task.

-Improvement 1 = latency in attempt 1 – latency attempt 2.

-Improvement 2 = latency attempt 2 - latency attempt 3.

-Overall Improvement = latency attempt 1 – latency attempt 3

## Results-Principal Component Analysis

### Pearson's Product-Moment Correlation Coefficient test

- The test revealed that there was a **significant correlation** between **Motivation** and **Average Level of Engagement** in Spin the Bottle ( $P= 0.046$ ,  $R=.362$ ,  $N=31$ ).
- Regarded as a weak and positive by the PCA test at 0.527, this figure could be argued that it had a high tendency.
- No other significant data were found in Component 2, Component 3, Component 4, Component 5 and Component 6.

### Paired T-test

- The test showed that there was a significant difference in overall level of engagement between the V-shaped fence and Spin the Bottle task ( $N=31$ ,  $R=.321$ ,  $P=0.00$ ).
- V-shaped fence showing higher levels of engagement at a mean of 3.9960 and Spin the Bottle at 2.5076.

## Conclusion

- Although only one significant piece of data was found this key piece of data could be baseline knowledge on which to develop future research.
- Understanding that a dog's motivational state may impact learning ability can encourage owners to provide them with an appropriate task or training goal.
- Understanding that individuals learn and perform differently is vital to improve welfare so animals remain in a balanced emotional state.

### References

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