# Dog training - Independent

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# Agenda

- Problem definition
- Questions and the test
- Assumption checks
- Results and final thoughts

# Problem definition

**There are two popular methods to train dogs**

- clicker: Make sound when the dog do something right
- food: The dog get some food after doing something right

**a dog trainer would like which one is better**

We hope there is a difference between the two methods **(Statistically significant)**


# Questions and the test

## Questions

- **Business:** Are the two training methods have the same effectiveness
- **Statistical:** Score(dog with clicker-training) = Score(dog with food-training)

## The test

The Statistical test is **Independent t-test**
This test requires some assumptions check

- Are the two groups have similar variance
- Is the data Normally distributed
- We hope those tests to be **(Statistically not significant)**
- To be able to do the t-test

# Assumption checks

- The p-value of **Shpiro-test** $< .05$
- which means: The data Normally distributed: **Great**
- The p-value of **Levene-test** $< .05$
- which means: The groups have similar variance: **Great**

**Assumption Checks** ▼

Test of Normality (Shapiro-Wilk) ▼

| | | W | p |
|---|---|---|---|
| correct_tasks | clicker training | 0.934 | 0.557 |
| | food reward | 0.919 | 0.425 |

*Note.* Significant results suggest a deviation from normality.

Test of Equality of Variances (Levene's)

| | F | df | p |
|---|---|---|---|
| correct_tasks | 0.503 | 1 | 0.490 |

# Results and final thoughts

- Although there is a difference we can see with our eyes
- And the **Effect size** is large
- But, we can't reject the $H_0$
- As **p-value** $>$ **.05**
- **Sad**

**Independent Samples T-Test** ▼

Independent Samples T-Test ▼

| | Test | Statistic | df | p | Cohen's d |
|---|---|---|---|---|---|
| correct_tasks | Student | 1.587 | 14.000 | 0.135 | 0.793 |
| | Welch | 1.587 | 13.454 | 0.136 | 0.793 |

**Descriptives**

**Descriptives Plot**