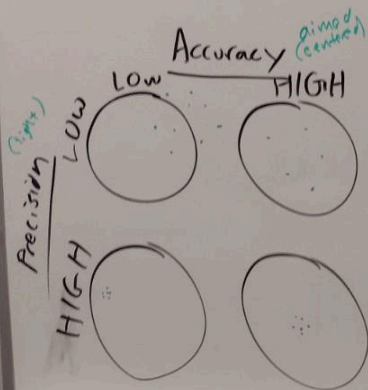


4-2 Day 1: Observational Studies + Experiments

Question: Does
where a beginner
aims in darts make
a difference in the score?



Round 1: Everyone throws 3 darts and
tallys their score. Record
where you were aim. T20

T19

Bull

T11

Observational Study:

We observe and measure
variables of interest but
don't attempt to influence
responses.

explanatory: where we
were aiming
(what trigger response)

response: score
measures outcomes

Experiment: We deliberately impose some treatments/conditions on individuals and measure response.

Experimental Units:

Object to which a treatment is randomly assigned.
(subjects when human)

Treatment: combinations of specific explanatory var. tested.

[Ex] T20 with 25g

Factors: a variable that

is manipulated to cause change in response. Different values are considered different levels.

Exp. Var.

factors { A = where to aim (T20, T19, T11)
W = weight of dart (25g, 30g, 35g)
levels

4-2 Day 1: Observational Studies + Experiments

extraneous variables: generate variability in response and were not accounted for.

- experience
- dexterity
- height thrower
- warm up rand?
- dart condition
- eyesight
- environment sensitivity

⋮

These are dealt with by randomizing subjects to treatments

Confounding Variable: associated with how groups are formed
(lurking) and with responses collected

Big Rules

① randomly selecting individuals from population allows us to generalize about the population

Table 2.1

② randomly assigning subjects to treatments allows us to generalize about treatment (cause & effect)

↑ we can't conclude this ever with observational studies