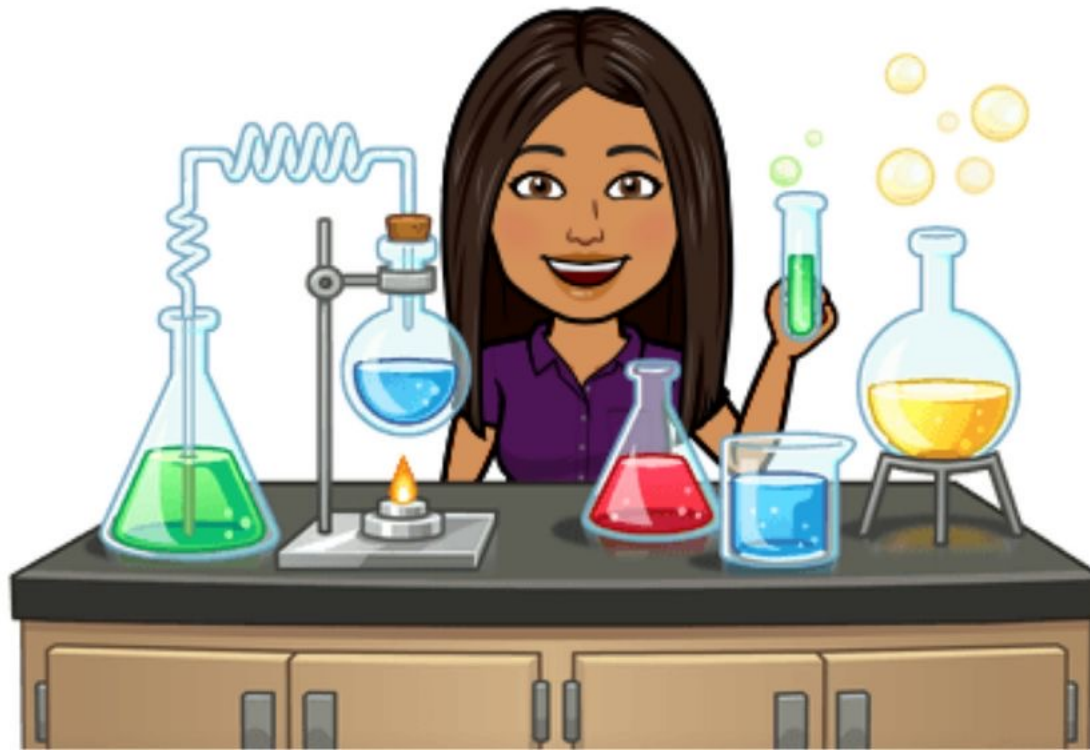What's my question?

The Scientific Method
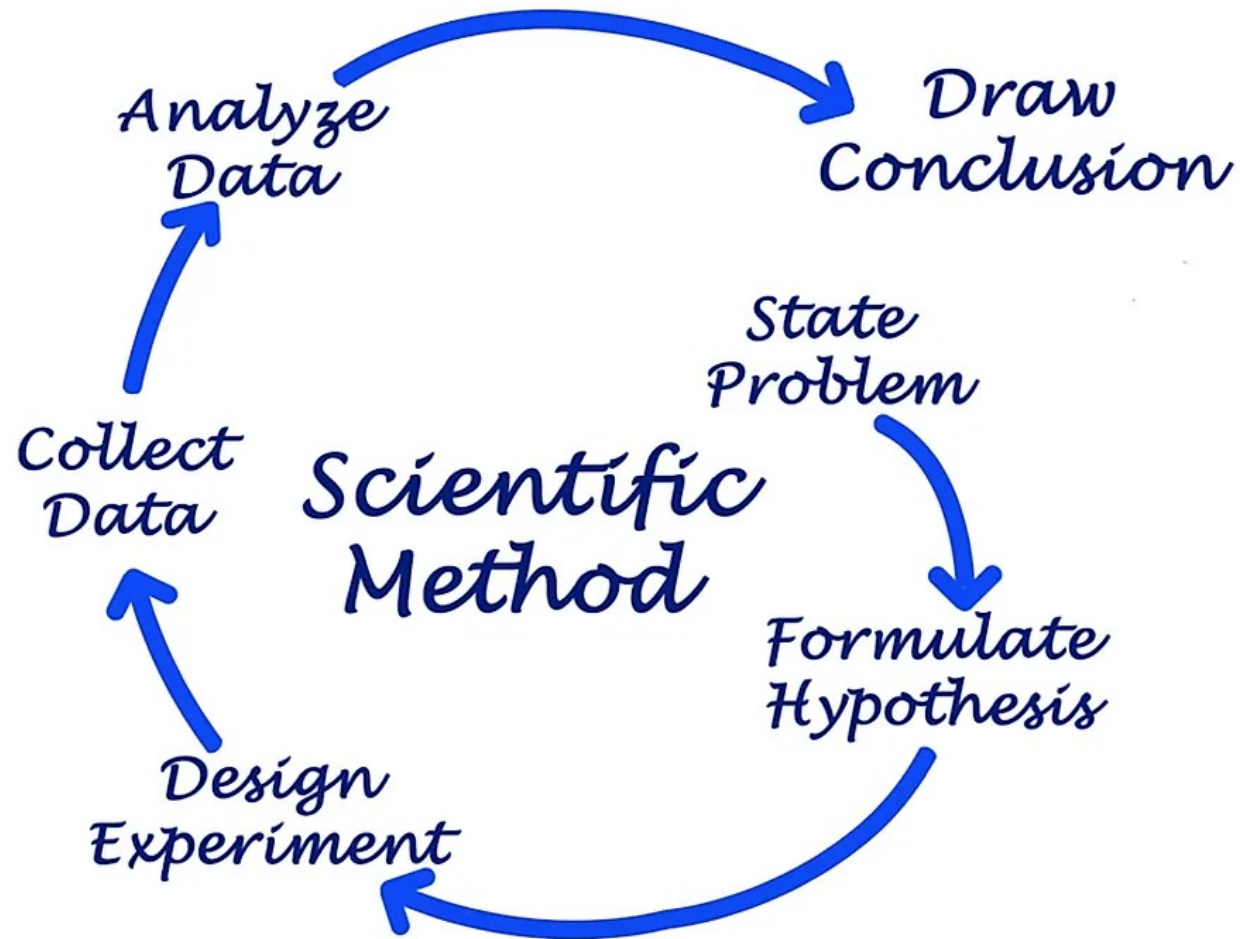
1. Scientific method

   Hypothesis, experimental design, analysis, conclusion

2. Research projects

   Ultimate Werewolf, planning

Science as an ongoing process

State a problem or question

Do conversations end when people want them to?

An occurrence guided by what, when, why, how, where, or who

Formulate hypothesis

- Hypothesis: *If* {people come to a conversation with a goal or desire},

  then we might expect {conversation to end when they have achieved it}

- Predictions:

  H1: actual duration = desired duration
  H0: actual duration ≠ desired duration

A suggested yet falsifiable explanation

Design experiment

- Procedure: Ask people to recall their most recent conversation and report its duration and when they had wanted it to end

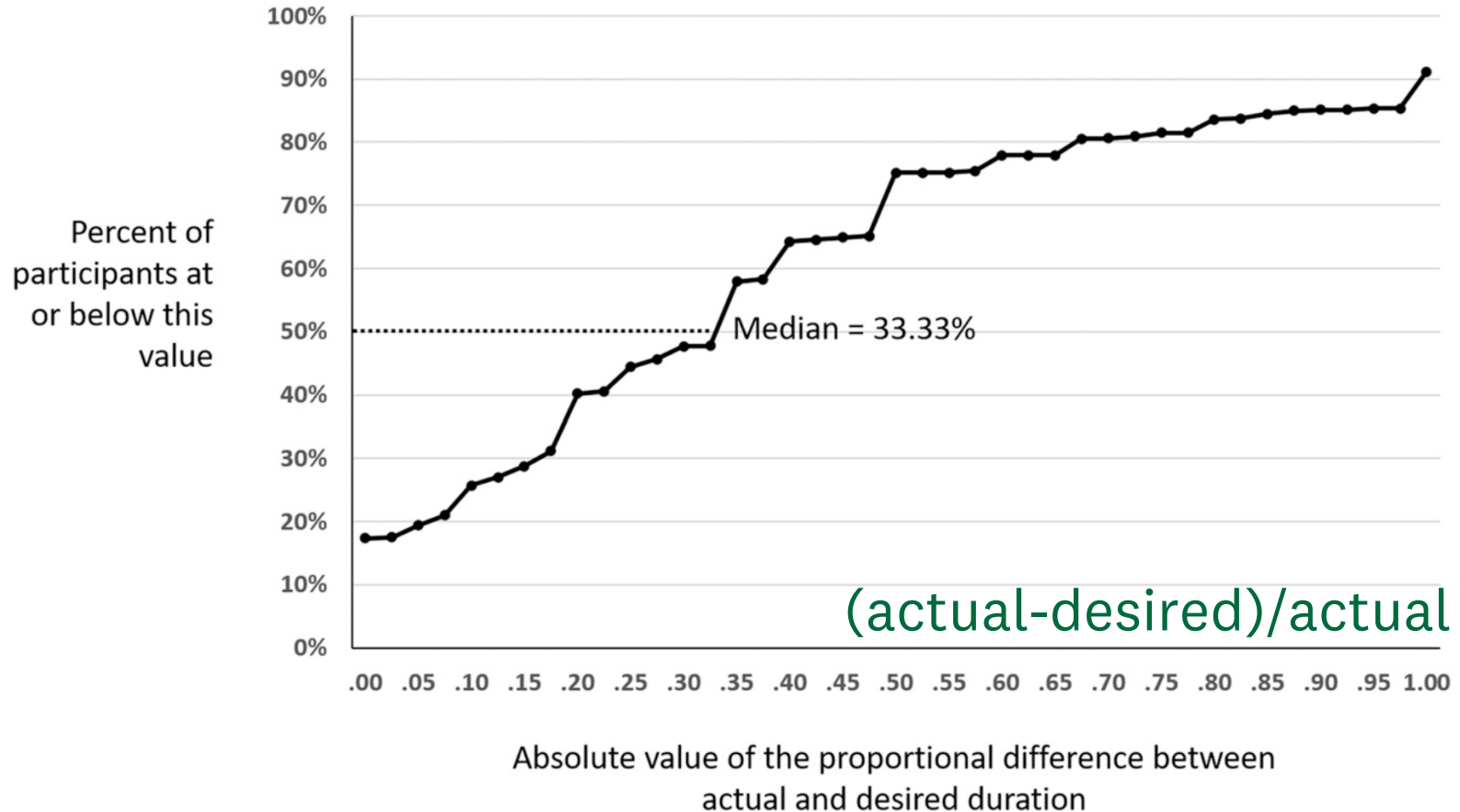- Variables: Actual duration, desired duration

Procedure for testing the predictions

Collect data

- Measurement: Phone/online survey

Measurement

Analyze data

Percent of participants at or below this value

(actual-desired)/actual

Absolute value of the proportional difference between actual and desired duration

Actual duration: 13.97 ± 11.51 (M ± SD mins)
Desired duration: 15.88 ± 17.91 (M ± SD mins)

Results

Draw conclusion

- Conclusion: Conversations do not end when people want them to end

X H1: actual duration = desired duration
Ho: actual duration ≠ desired duration

Rejection/acceptance of the primary hypothesis

Draw conclusion

- Interpretational limitations: Data consist of indirect and subjective self-reports

Publish

Significance

Social connection is essential to physical and psychological well-being, and conversation is the primary means by which it is achieved. And yet, scientists know little about it—about how it starts, how it unfolds, or how it ends. Our studies attempted to remedy this deficit, and their results were surprising: conversations almost never end when anyone wants them to! At a moment in history when billions of people have been forced to curtail their normal social activities and to reimagine this one, a scientific understanding of conversation could hardly be timelier.

Do conversations end when people want them to?

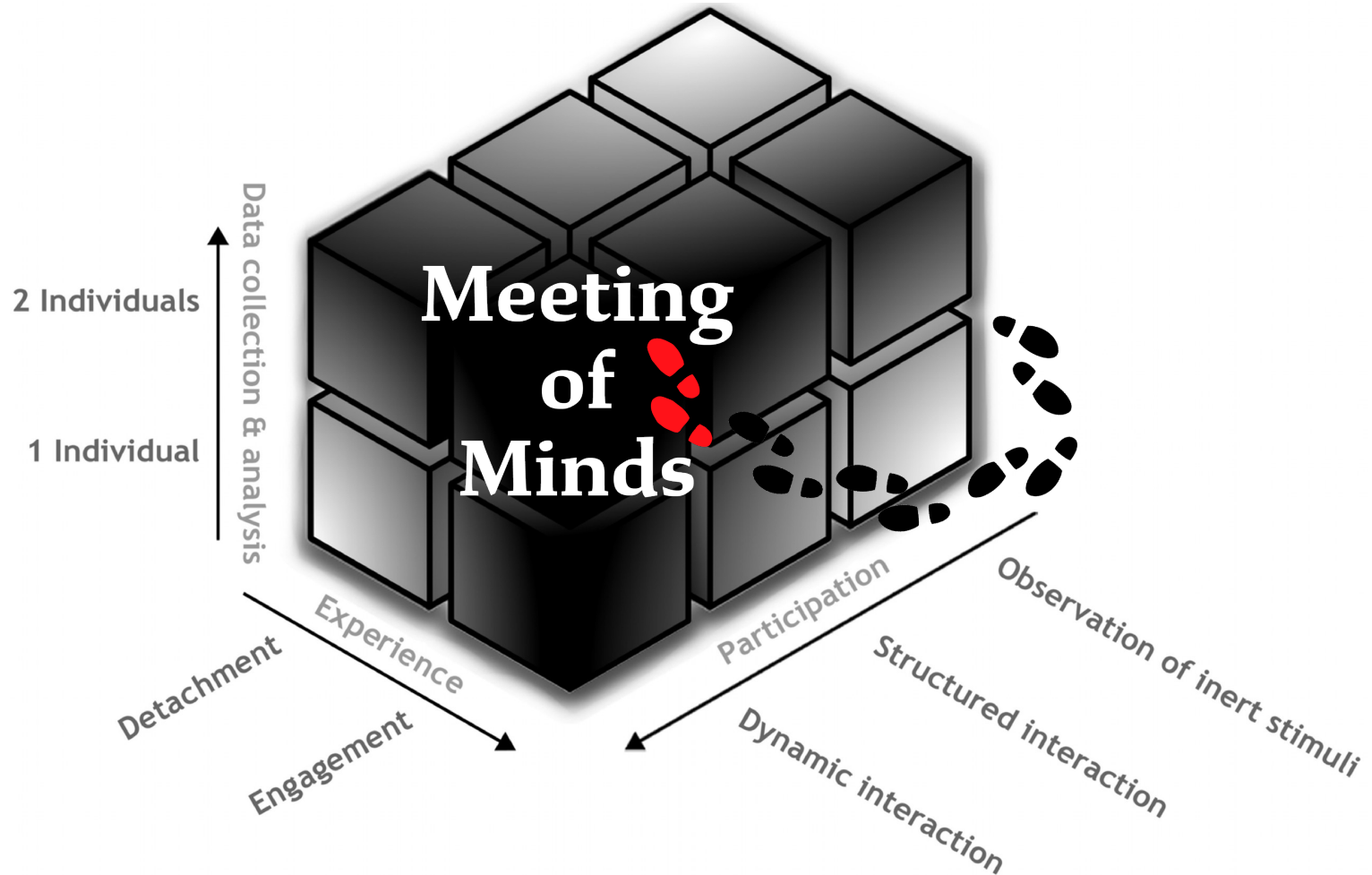Adam M. Mastroianni[a,1] , Daniel T. Gilbert[a] , Gus Cooney[b] , and Timothy D. Wilson[c]

Dissemination

1. Scientific method

   Hypothesis, experimental design, analysis, conclusion

2. Research projects

   Ultimate Werewolf, planning

2 Individuals

1 Individual

Data collection & analysis

Detachment — Experience — Engagement

Participation — Dynamic interaction — Structured interaction — Observation of inert stimuli

Meeting of Minds

Adapted from Schilbach & Timmermans, 2013

The "dark matter" of social neuroscience

Ultimate Werewolf

Each player has an agenda:

- As a villager, hunt down the werewolf

- As a werewolf, convince the other villagers that you are innocent, while secretly attacking those same villagers each night

Ultimate Werewolf

Formulate hypothesis

- Hypothesis: *If* {people in dialogue can have hidden intentions},

  then we might expect {werewolves to be behaviorally indistinguishable from villagers}

- Predictions:

  H1: werewolves' = villagers' behaviors
  H0: werewolves' ≠ villagers' behaviors

Ultimate Werewolf

Design experiment

- Procedure: Ask people to play multiple game rounds performing the roles of werewolf and villager, while measuring their behavior

- Variables: Werewolf and Villager behavioral measures, e.g., eye, face, body, voice, skin, heart rate

Ultimate Werewolf
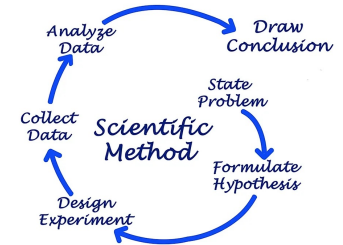
Materials and Methods

- Task: Ultimate Werewolf
  - 1 werewolf + 4 villagers
  - 15 rounds, with each round:
    - Role assignment (30 sec)
    - Day 1: <u>Discussion</u> (3 min, n=5): all point with eyes closed and kill one
    - 1st night (eyes closed): werewolf kills someone
    - Day 2: <u>Discussion</u> (2 min, n=3): all point with eyes closed and kill one
    - 2nd night (eyes closed): werewolf kills and wins

- Dataset: 15 werewolf, 60 villager discussions

Ultimate Werewolf

Materials and Methods

- Experimenters: 2 to 3 individuals?

- Participants: Ourselves, friends, colleagues?

- Tools:
  - Cameras & Microphones?
  - Eye-trackers?
  - Physiology: Skin conductance & Heart rate?

- Pilot:
  - Game set-up, including experimenter roles
  - Recording set-ups, including task-synchronization

Ultimate Werewolf

Planning

Week 5	Lab 4: Physiology *Team Enrollments*	**Research: Hypothesis**
Week 6	Lab 5: Lab Studies Lab 6: Online Studies	**Research: Experimental Design**
Week 7	Lab 7: Data Analysis I Lab 8: Data Analysis II	NO CLASS *Data Collection*
Week 8	Hackathon	**Research: Data Analysis**
Week 9	Anatomy of a Paper	**Research: Conclusion**
Week 10	11/14 *Research Report due*	

Scientific Method: Analyze Data → Draw Conclusion → State Problem → Formulate Hypothesis → Design Experiment → Collect Data

- Small teams of up to 3 individuals
- Presentations on Wednesdays
  (~10 mins, no more than 5 slides)

- The scientific method provides a means to find explanations of phenomena backed by evidence

- Let the games begin …

- *Presentations (Wednesdays)*

- Lab 5: Lab Studies