# Behavior Analysts Think; Can Robots Do? Using Human Analogues in Translational Research

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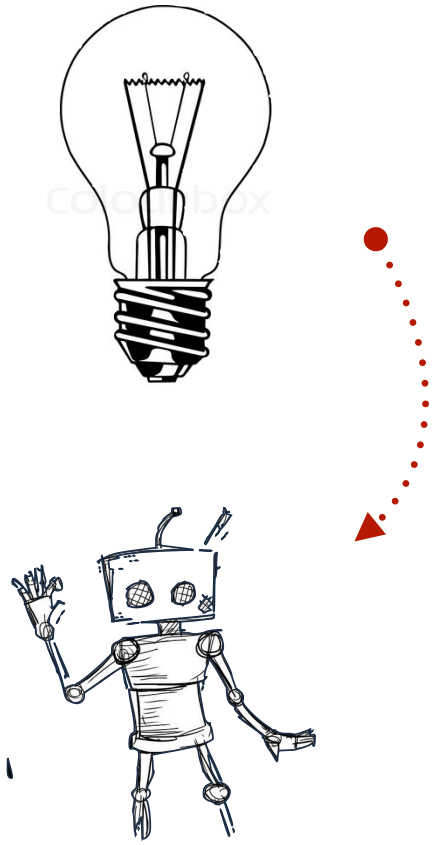
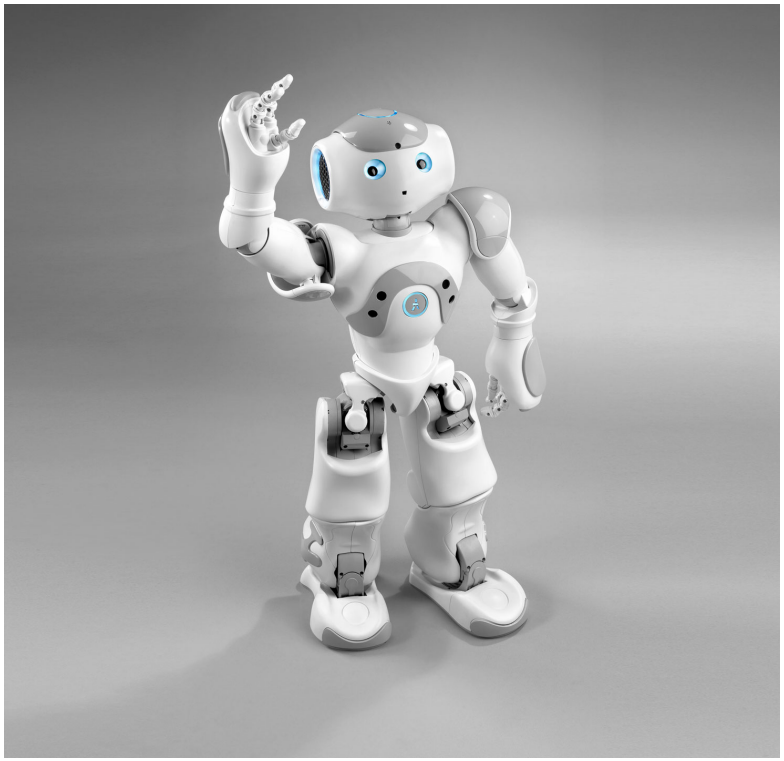
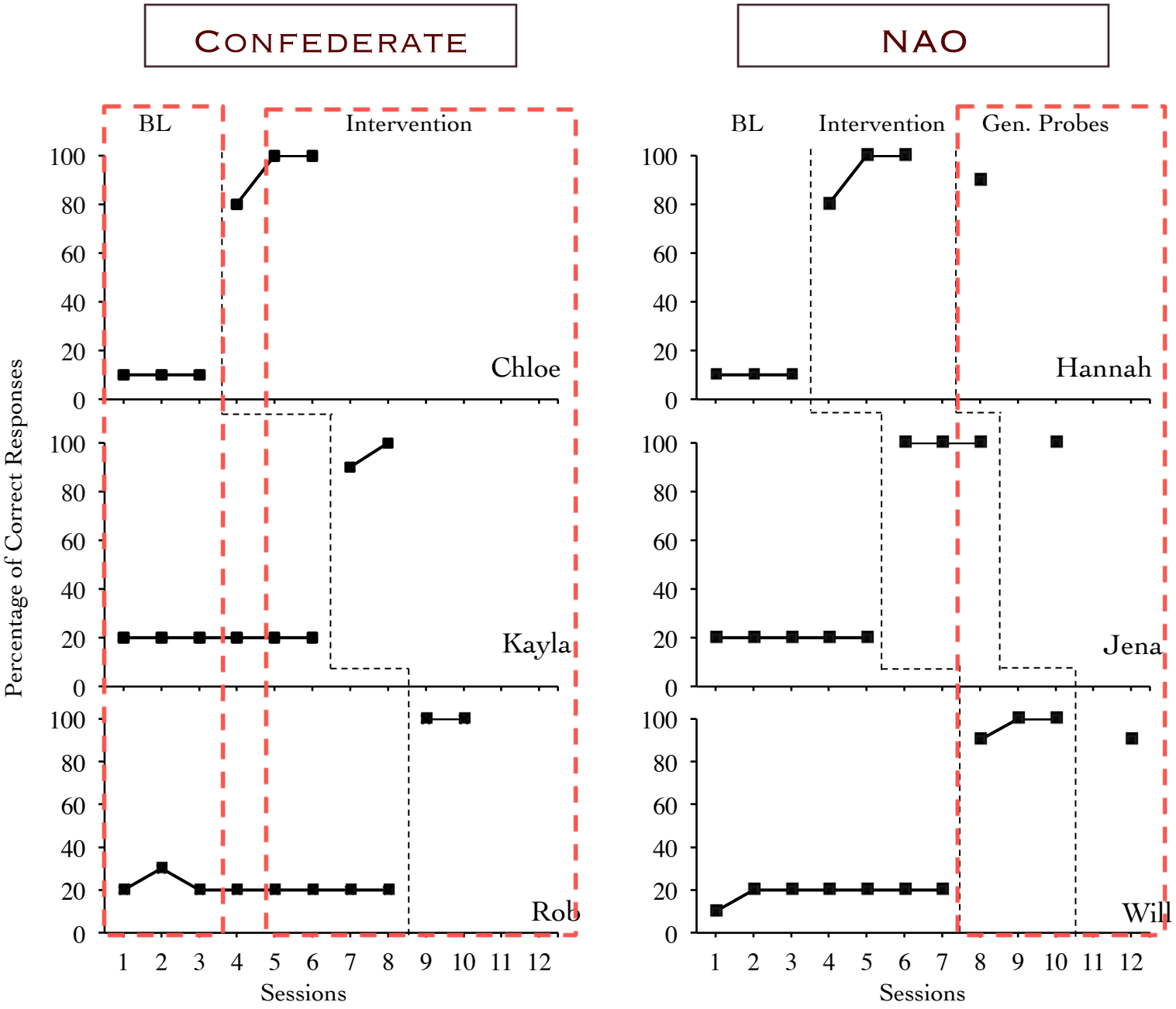


# NAO



# NAO in Research

- Assistant to Direct Staff (Gillesen et al. 2011)
- Skill Acquisition in Children with ASD
  - Imitation (Duquette et al. 2008)
  - Turn-Taking (Robins et al. 2005)
  - Social Skills (Tapus et al. 2012)


CONFEDERATE
NAO
BL
Intervention
Gen. Probes
Chloe
Hannah
Kayla
Jena
Rob
Will
Percentage of Correct Responses
Sessions
0
20
40
60
80
100
1
2
3
4
5
6
7
8
9
10
11
12

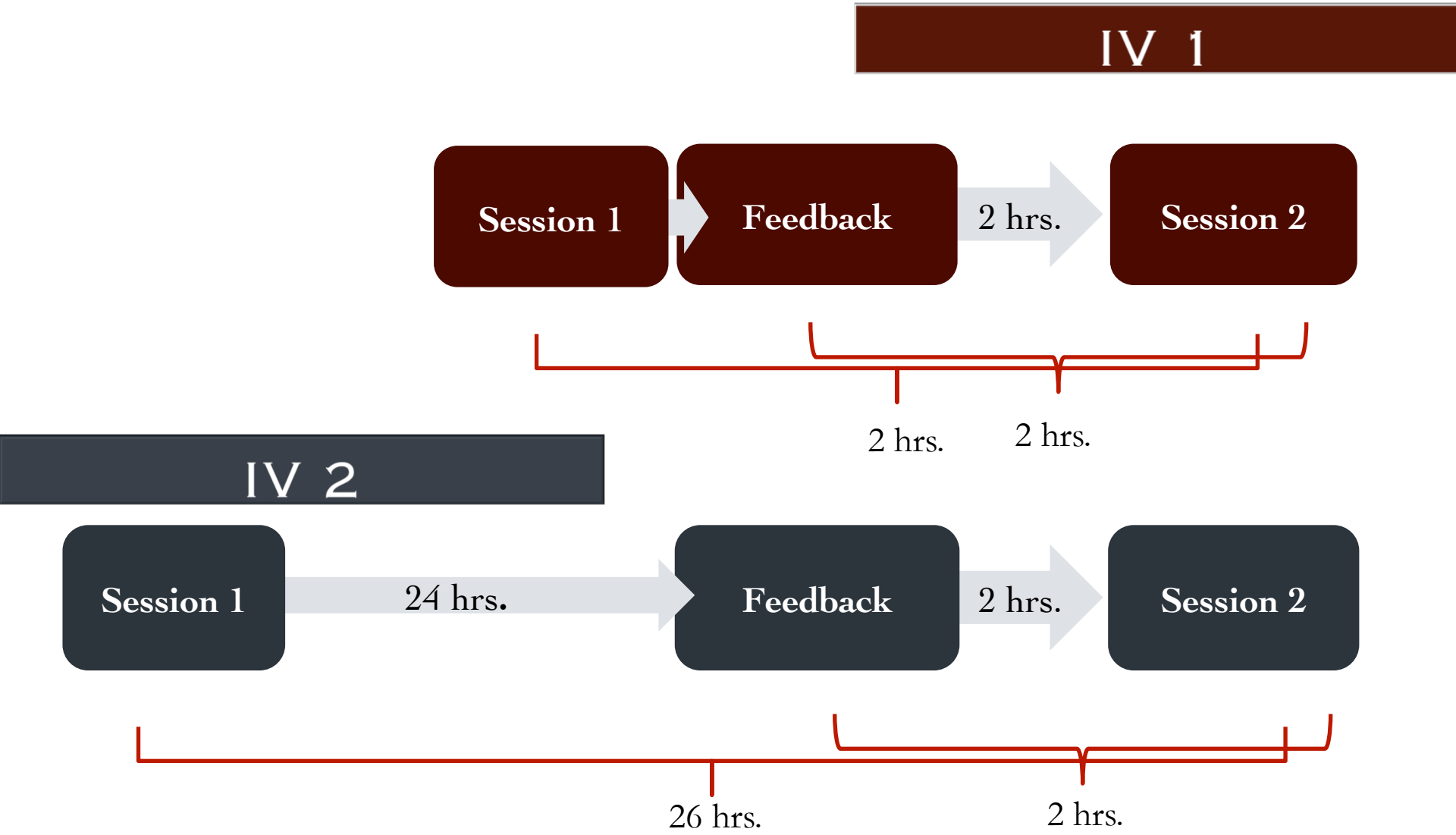
# Objective & Method

- Purpose: Use to isolate effect of 2 schedules of feedback
- Subjects: 6 undergraduate students
- Design: Alternating treatment comparison in a multiple baseline across participants
  - Paired stimulus (PS)
  - Multiple stimulus without replacement (MSWO)

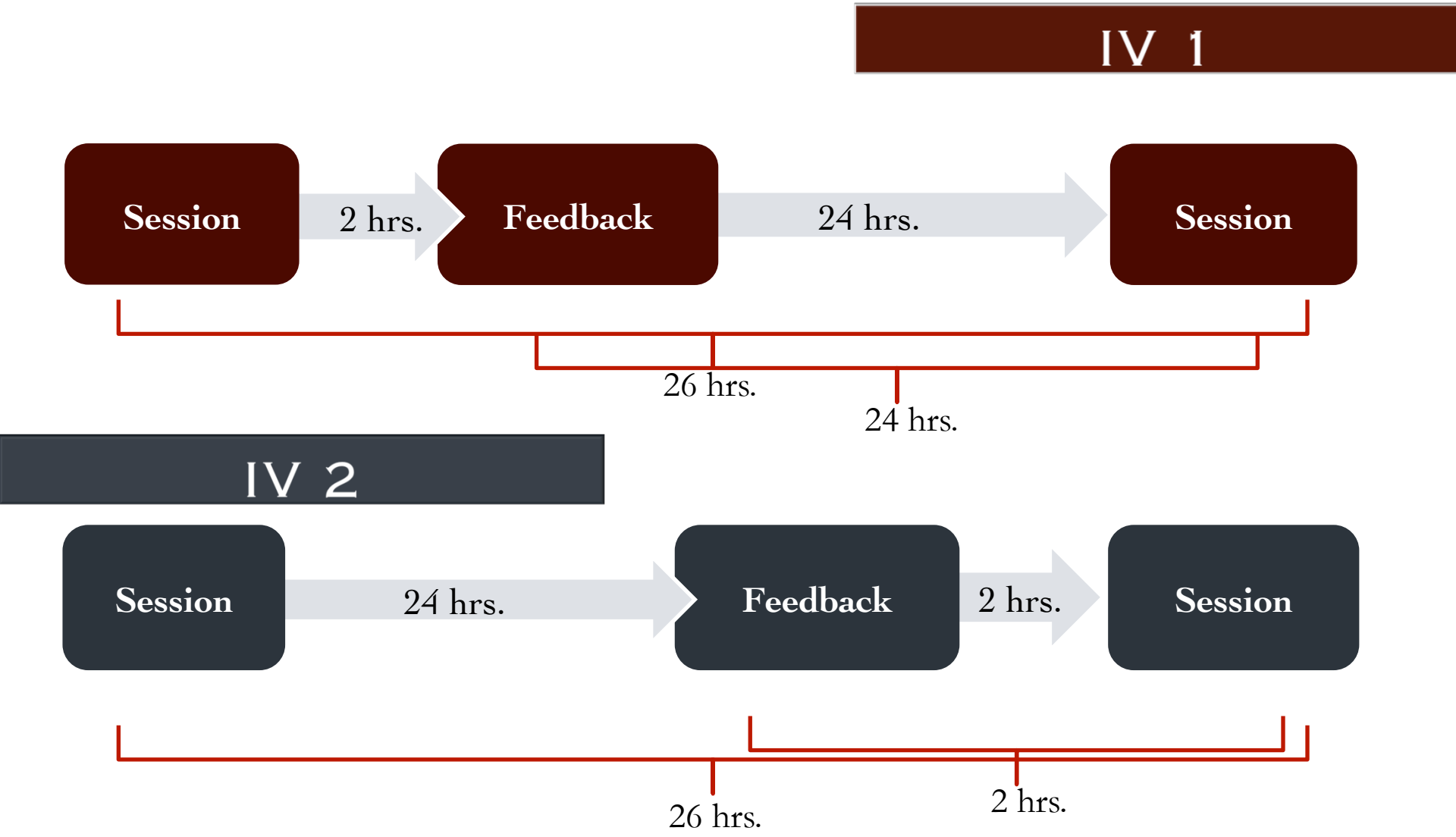
# Procedures

- Baseline: Written procedures of DeLeon & Iwata (1996) for MSWO & Fisher et al. (1992) for PS
- Intervention
  - Immediate feedback (i.e., immediately post-session)
  - Delayed feedback (i.e., 24 hrs. post-session)

# Intervention: Group 1

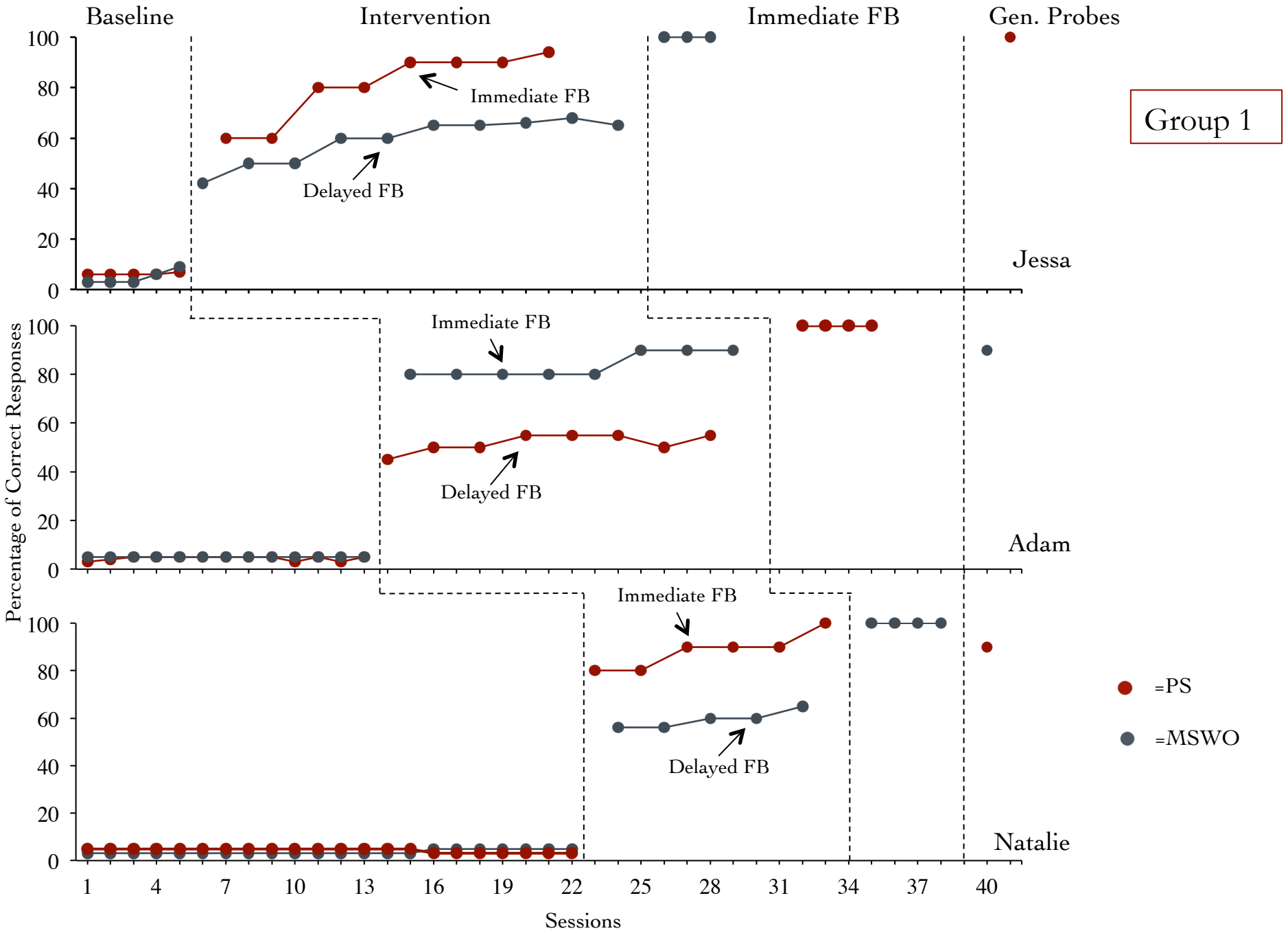


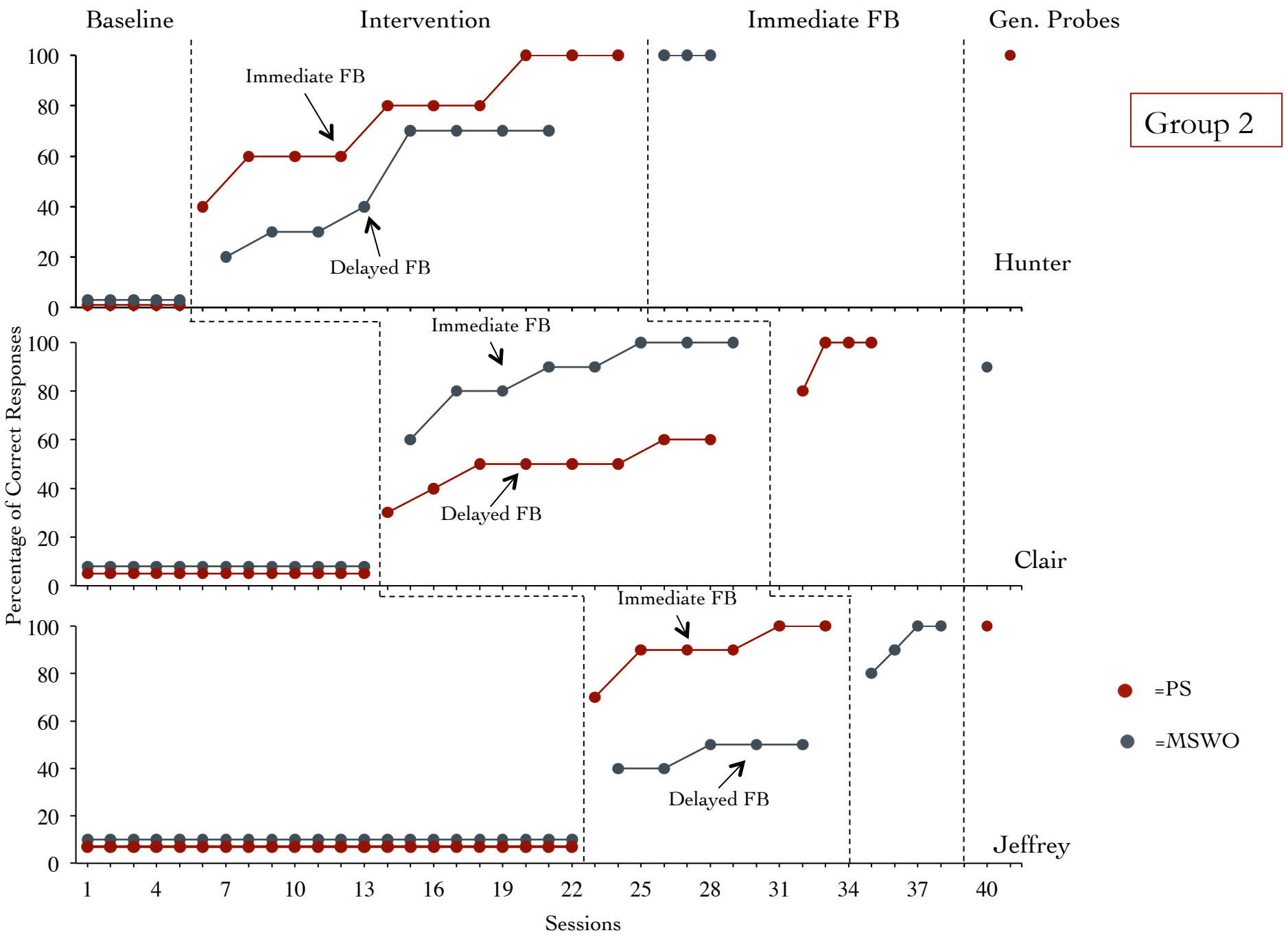
# Intervention: Group 2



# Procedures

- End with most effective treatment
- Generalization probes
  - Confederates
  - Child


Baseline
Intervention
Immediate FB
Gen. Probes
Group 1
Immediate FB
Delayed FB
Jessa
Immediate FB
Delayed FB
Adam
Immediate FB
Delayed FB
Natalie
Percentage of Correct Responses
Sessions
=PS
=MSWO
0
20
40
60
80
100
1
4
7
10
13
16
19
22
25
28
31
34
37
40


Baseline
Intervention
Immediate FB
Gen. Probes
Group 2
Immediate FB
Delayed FB
Hunter
Immediate FB
Delayed FB
Clair
Immediate FB
Delayed FB
Jeffrey
Percentage of Correct Responses
Sessions
=PS
=MSWO
0
20
40
60
80
100
1
4
7
10
13
16
19
22
25
28
31
34
37
40

# Advantages

- Consistency
- Participant would behave as they would in-vivo
- Not limited by recruitment, training, & turn-over

# Additional Directions

- Variables of Feedback
  - Supplements to feedback (e.g., videos)
  - Schedule of implementing feedback
  - Content of feedback
  - Complexity of task

# Challenges

- Constrained repertoire
  - Food refusal
  - Severe forms of SIB
  - Severe forms of aggression
  - Elopement

# Future Considerations

- Advancements in technology
- Developing a precise technology of training & supervision