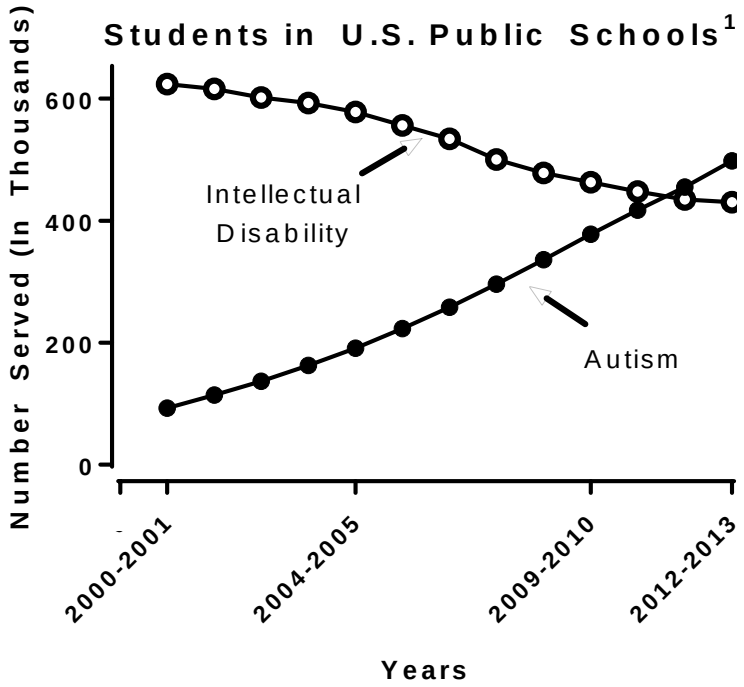
University of Houston Clear Lake

Disseminating ABA into Public Schools: Prior and Current Research at the University of Houston, Clear Lake

Dorothea C. Lerman, Ph.D., BCBA-D

CADD
CENTER FOR AUTISM AND DEVELOPMENTAL DISABILITIES

Introduction



[1] U.S. Department of Education, National Center for Education Statistics. (2016). *Digest of Education Statistics*, 2014 (NCES 2016-006), Chapter 2.

- Barriers to dissemination
  - Training time
  - Resources
  - Availability of qualified trainers

Prior and Current Research

- Focused Training on Core ABA Teaching Procedures
  - Outcomes of a five-day summer training program (preference assessments, discrete-trial teaching, incidental teaching)

    Lerman, Vorndran, Addison, & Kuhn (2004)

    Lerman, Tetreault, Hovanetz, Strobel, & Garro (2008)

  - Comparison of written, vocal, and video-assisted feedback

    Luck, Lerman, Wu, Dupuis, & Hussein (under review)

Introduction

- Focused Training on Core ABA Teaching Procedures
  - Pyramidal training of peers and paraprofessionals

    Woo, Lerman, Luck, Dupuis, & Bao (in preparation)

    Lerman, Luck, Smothermon, Zey, Custer, & Smith (in preparation)

Introduction

- Training to Identify Potential Antecedents/Consequences of Problem Behavior
  - Narrative versus structured A-B-C recording

    Lerman, Tetreault, Hovanetz, Stroble, & Garro (2008)

  - Computer-based training in A-C detection

    Scott, Lerman, & Luck (in preparation)

Five-Day Focused Training

Topics

Basic Concepts of Applied Behavior Analysis

*Preference Assessments

Behavioral Assessment

*Discrete Trial Teaching

Shaping and Chaining

Generalization and Maintenance of Skills

*Incidental Teaching

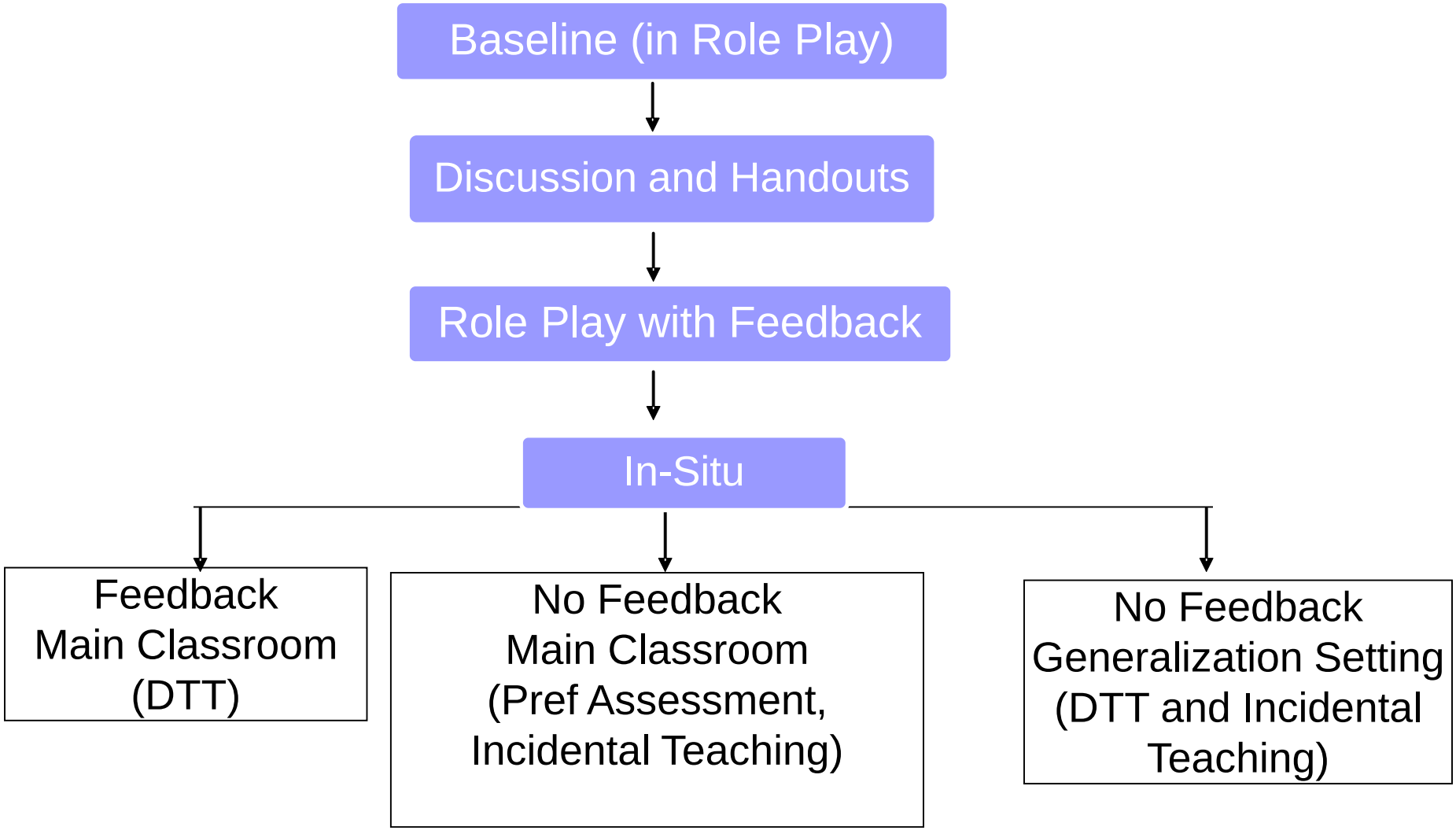
IEP Goals/Objectives

Data Collection

*Managing Problem Behavior

*Includes both didactic and hands-on training

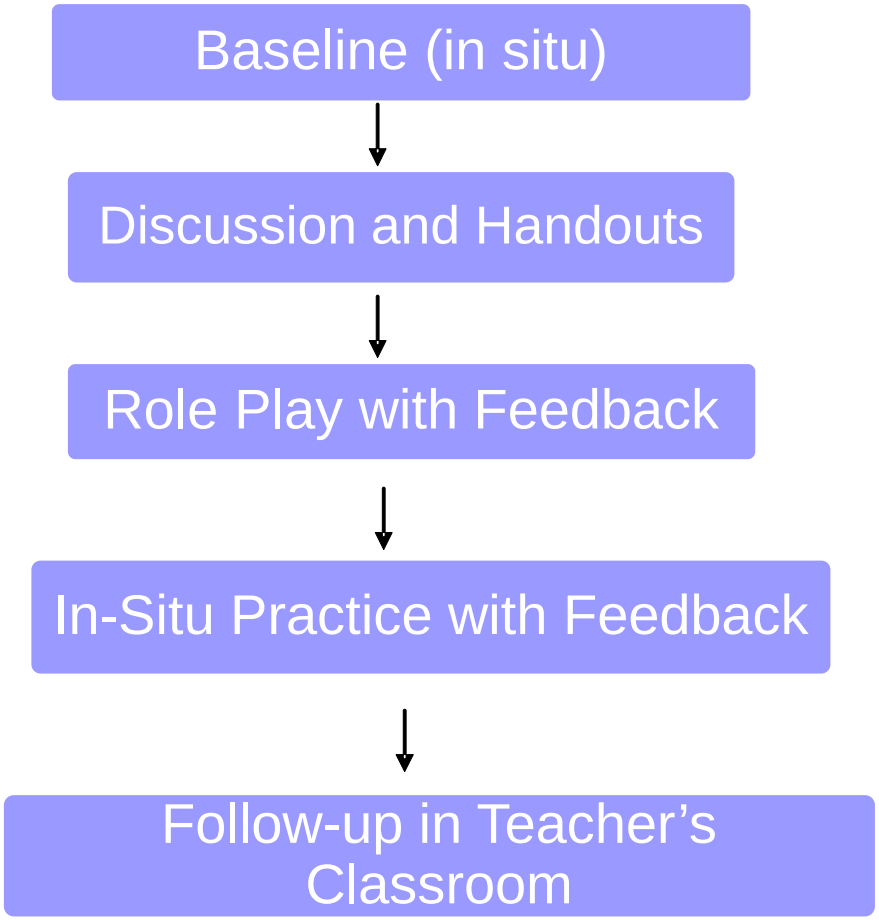
Lerman et al. (2004)



Conclusions

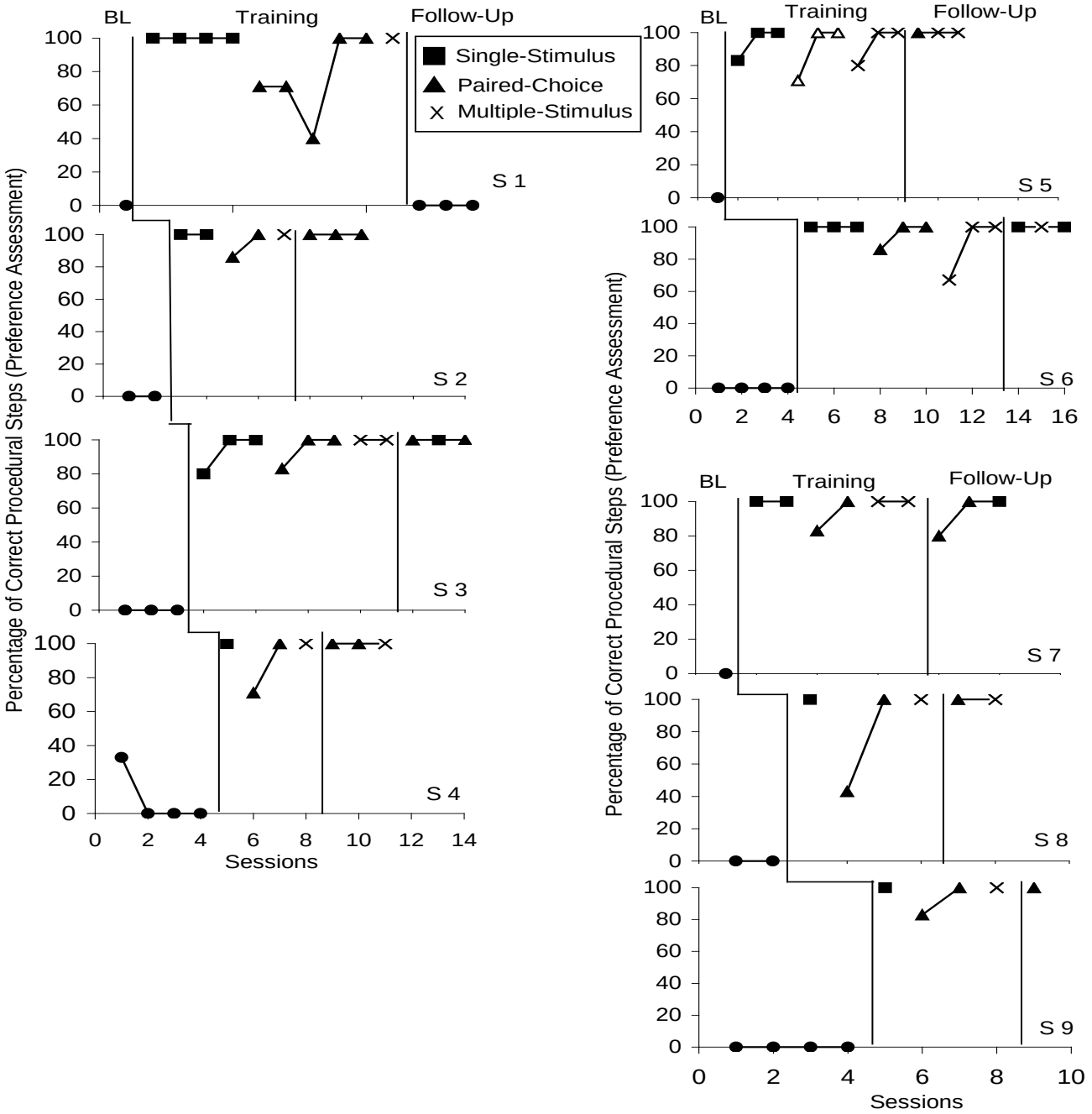
- Teachers acquired large number of skills via brief intensive training
- In-situ feedback unnecessary for some ABA skills (preference assessment, incidental teaching)
- Skills generalized across children and locations
- Data collection impractical

Lerman et al. (2008)

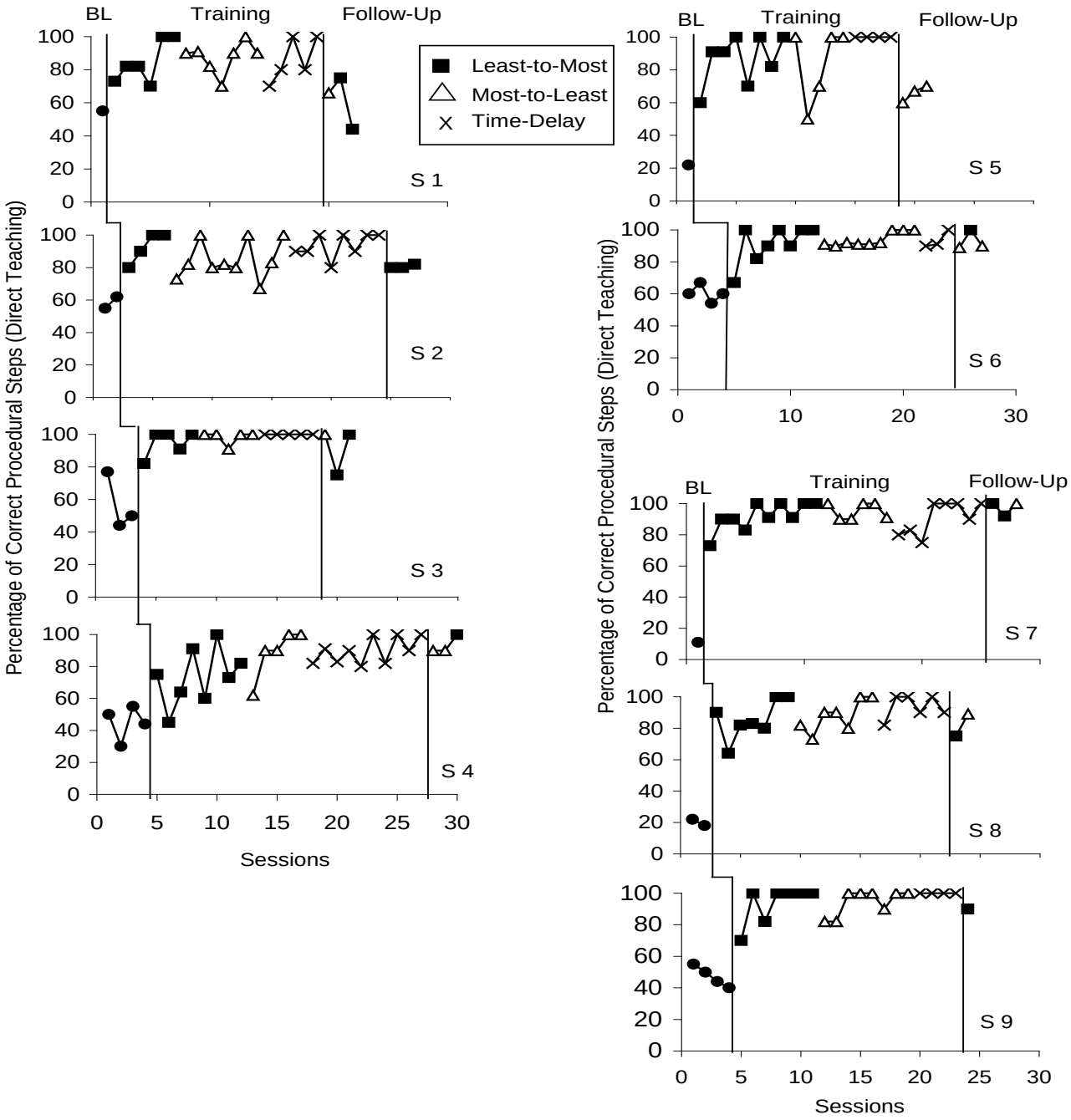


"All-Trial" Data Collection Replaced Trial-by-Trial Data Collection

Lerman et al. (2008)



Lerman et al. (2008)



Conclusions

- Brief, intensive training effective
- Practical for practitioners
- Adequate reliability/sensitivity of measurement
- Monthly feedback sufficient to maintain skills
- What type of feedback?

Comparison of Different Types of Feedback
Luck et al. (under review)

- Commonly Used in Classrooms
  - Vocal
  - Written
- Beneficial Alternative?
  - “Video Assisted”
- Examined effectiveness and preference (choice)

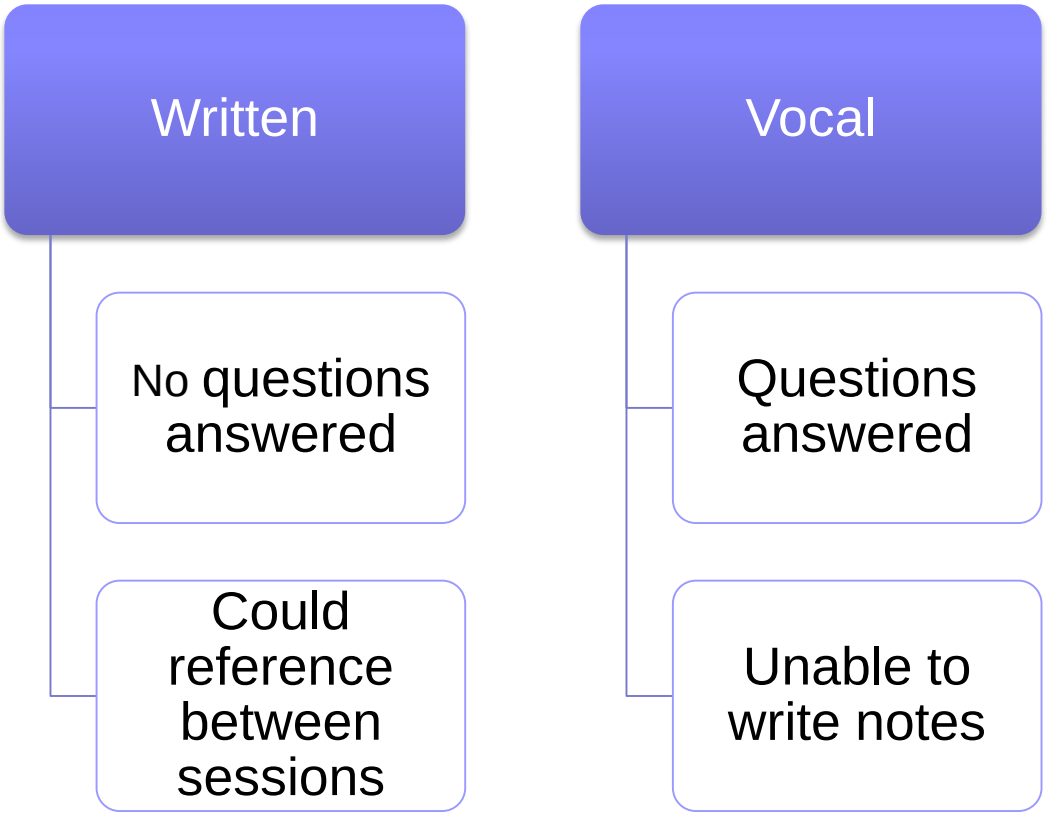
Part 1: Vocal vs Written Feedback

Paired Choice (PS) vs Multiple Stimulus Without Replacement (MSWO) Preference Assessments

Participant	PS	MSWO
Meredith	Written	Vocal
Christina	Vocal	Written
Bernice	Written	Vocal
Betty	Vocal	Written
Robin	Written	Vocal
Trudy	Vocal	Written

Part 1: Vocal vs Written Feedback

Paired Choice (PS) vs Multiple Stimulus Without Replacement (MSWO) Preference Assessments



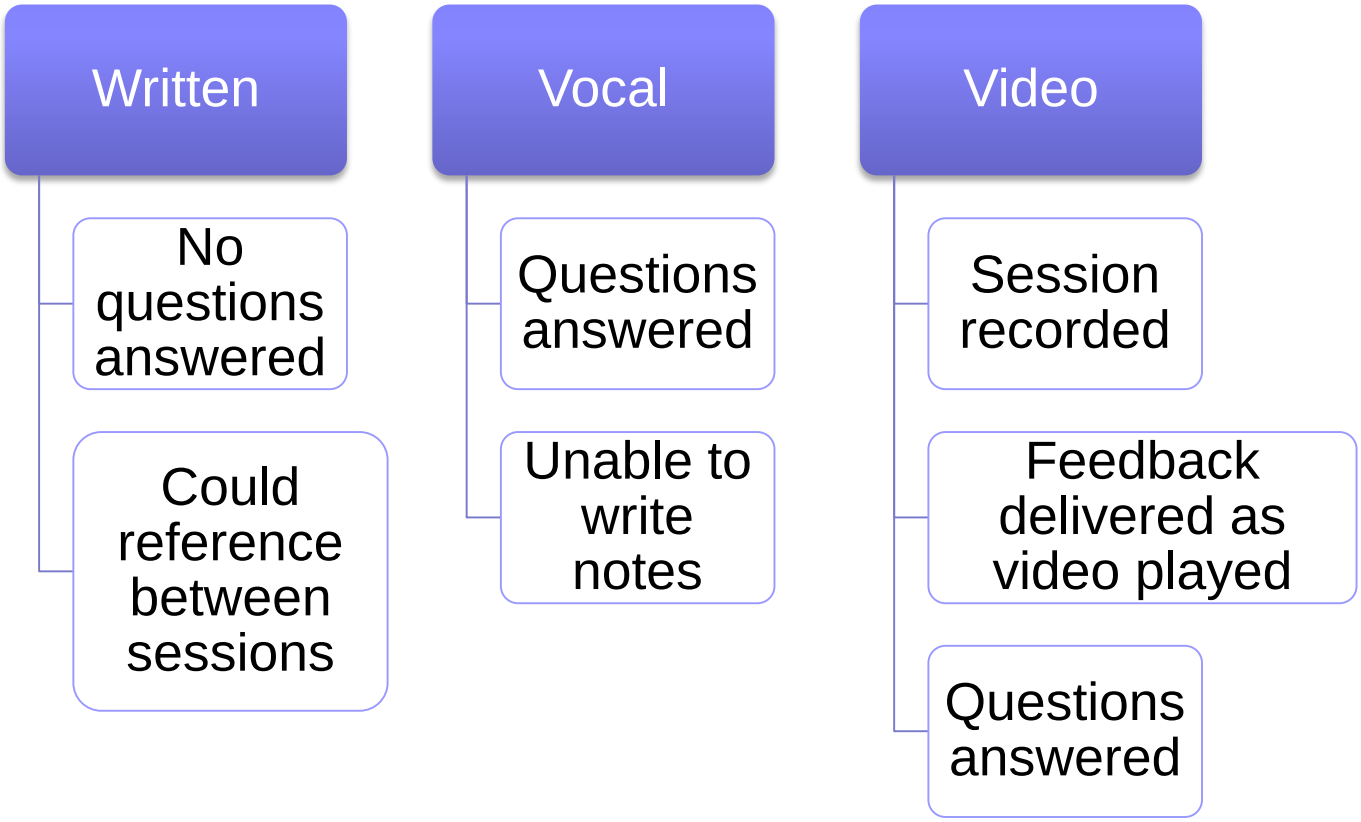
Part 2: Vocal/Written vs. Video-Assisted Feedback

DTT with least-to-most (LTM) vs most-to-least (MTL) prompting hierarchies

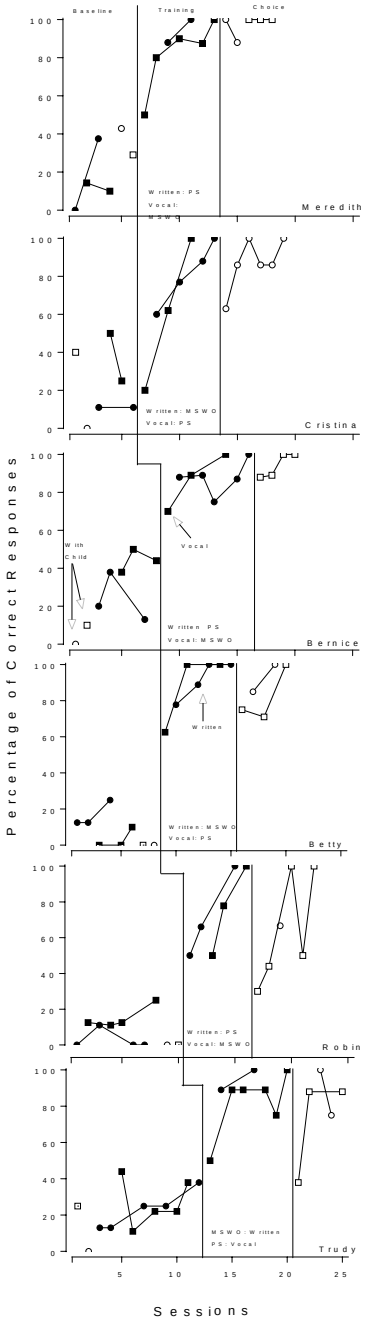
Participant	LTM	MTL
Meredith	Written	Video
Christina	Written	Video
Bernice	Video	Vocal
Betty	Vocal	Video
Robin	Video	Vocal
Trudy	Video	Written

Part 2: Vocal/Written vs. Video-Assisted Feedback

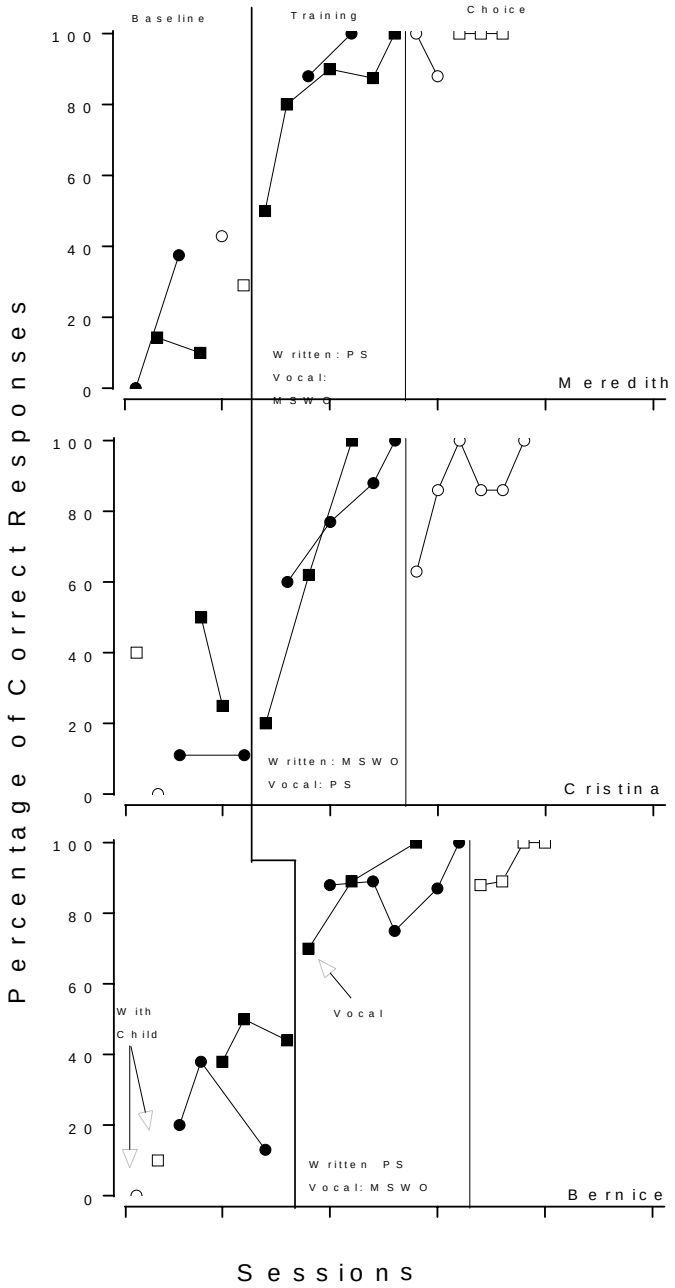
DTT with least-to-most (LTM) vs most-to-least (MTL) prompting hierarchies



Part 1 Results



Part 1 Representative Results



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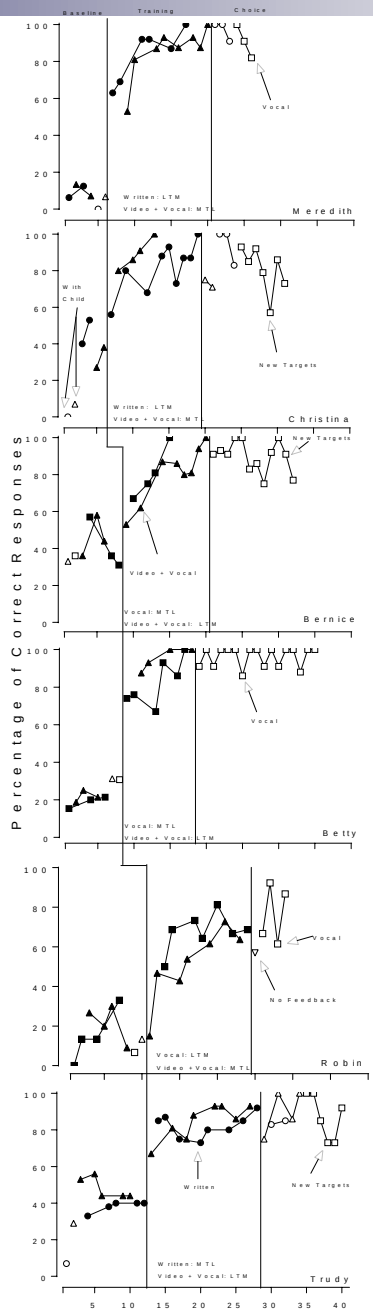

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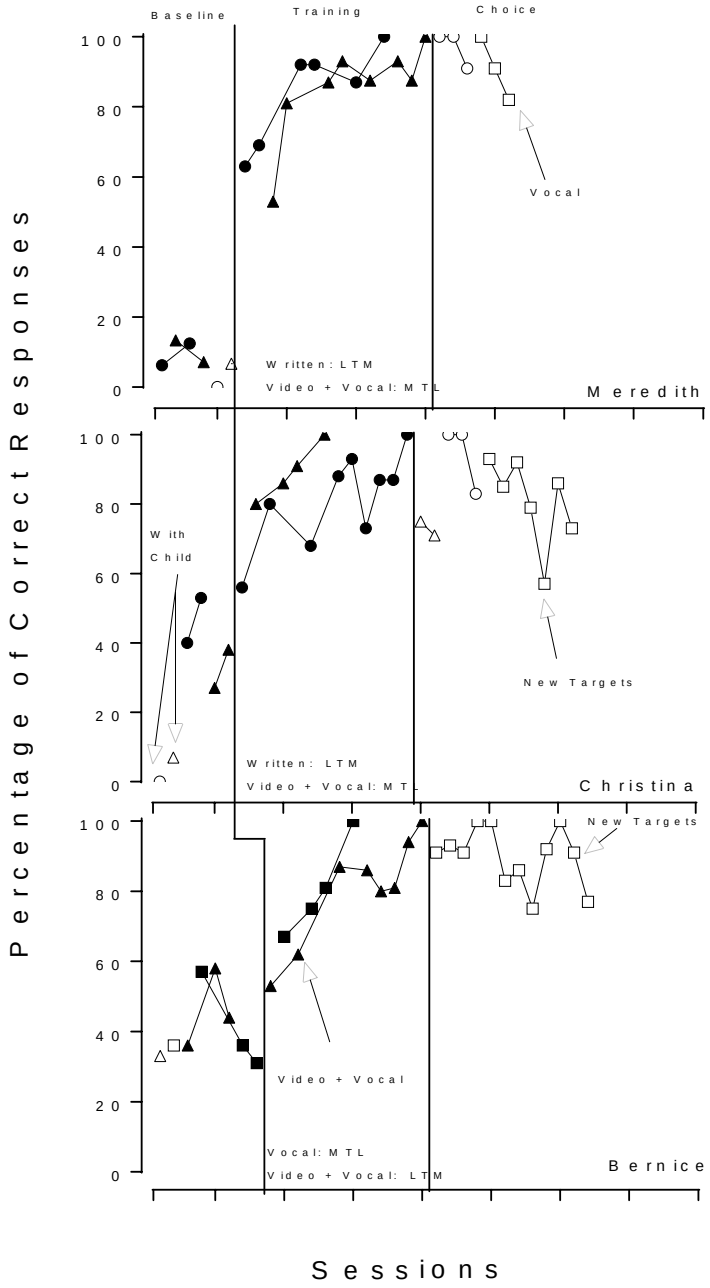
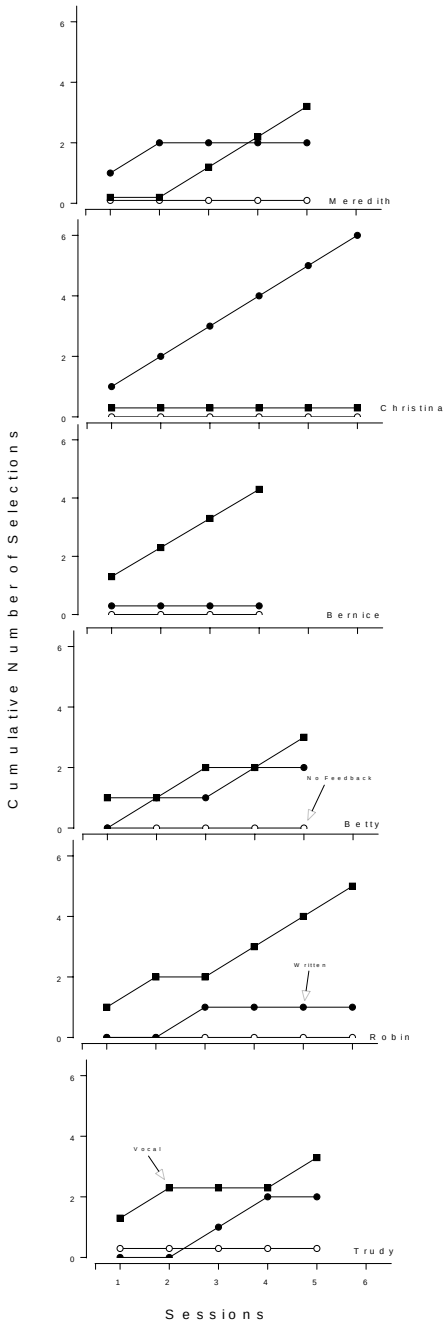


Effectiveness - Summary

Participant	Written vs. Vocal	Written vs. Video	Vocal vs. Video
Meredith	Written	Equal	N/A
Christina	Equal	Video	N/A
Bernice	Equal	N/A	Vocal
Betty	Equal	N/A	Equal
Robin	Equal	N/A	Equal
Trudy	Written	Equal	N/A

Part 1 Choice



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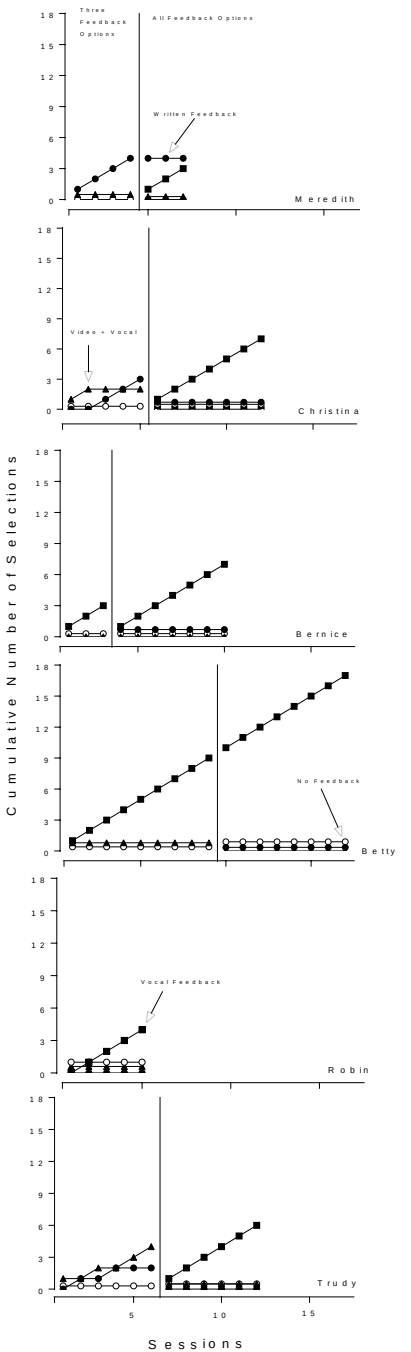

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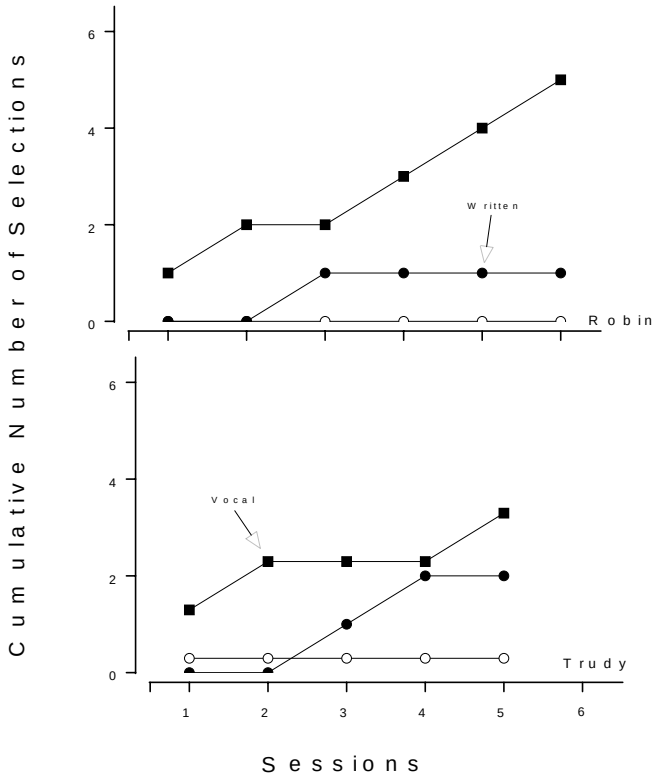

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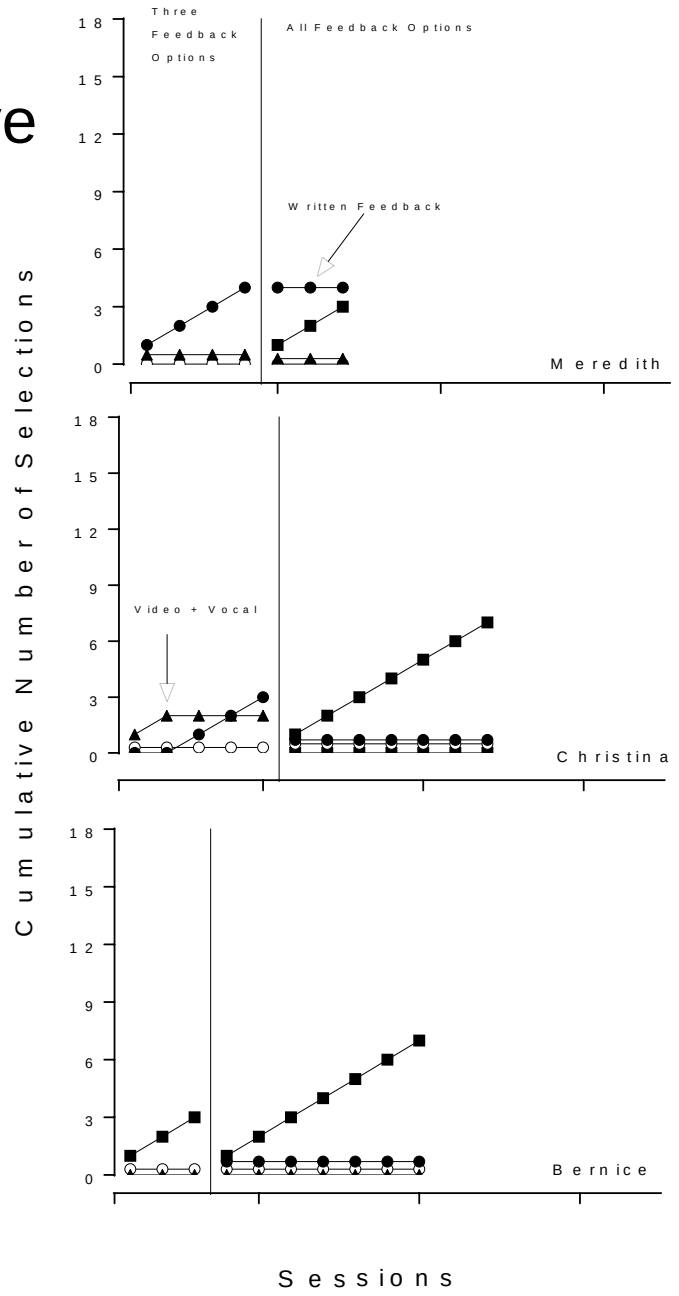


Preference - Summary

Participant	Written vs. Vocal	Written vs. Video	Vocal vs. Video	Overall Preference
Meredith	Vocal	Written	N/A	Vocal
Christina	Written	Written	N/A	Vocal
Bernice	Vocal	N/A	Vocal	Vocal
Betty	No Preference	N/A	Vocal	Vocal
Robin	Vocal	N/A	Vocal	N/A
Trudy	No Preference	No Preference	N/A	Vocal

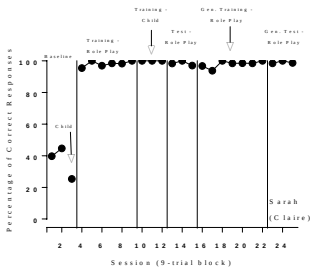
Conclusions

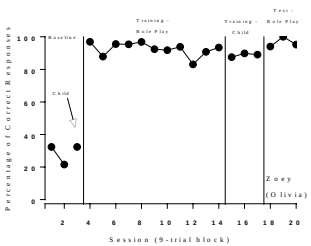
- All forms of feedback generally effective
- Majority showed preference for one type
- Training thus far restricted to teachers!!!

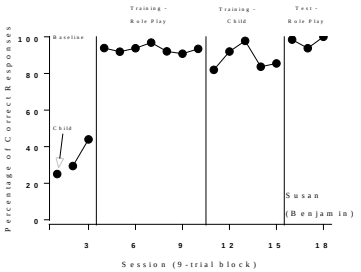
Pyramidal Training of Paraprofessionals
Lerman et al. (in preparation)

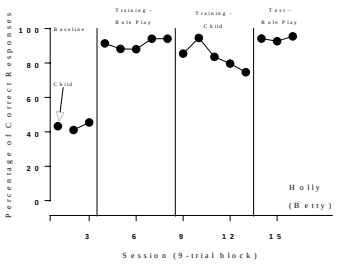
- Targeted Skill: DTT using LTM + Error Correction
- 16 teacher-paraprofessional pairs
- BST to mastery for teachers
- Given all necessary materials; told “teach as you think practical in classroom”
- Descriptive analysis of outcomes

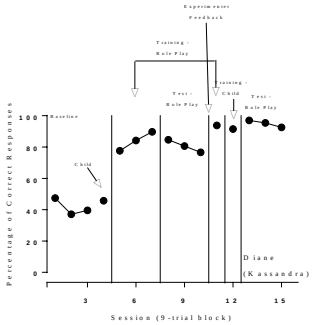
Outcomes for Paraprofessionals

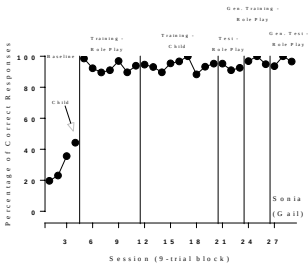


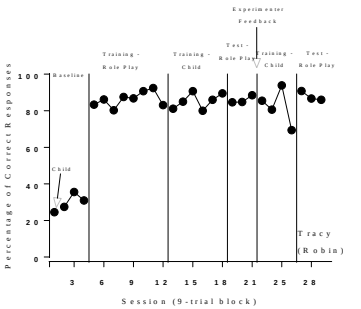


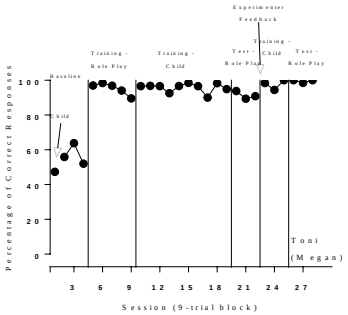


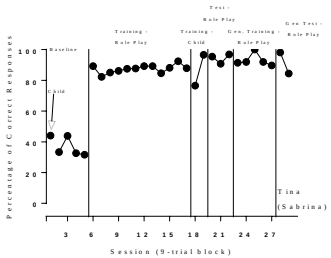


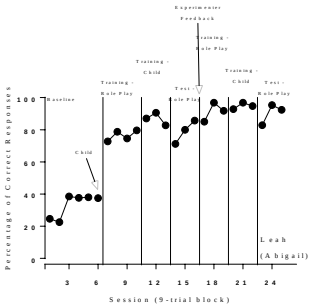


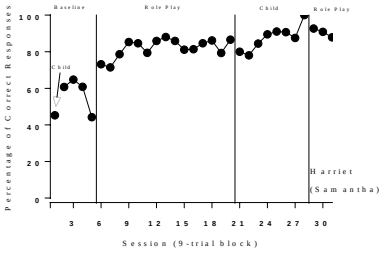


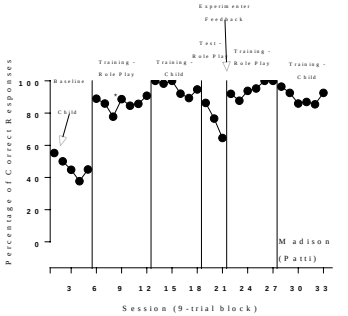


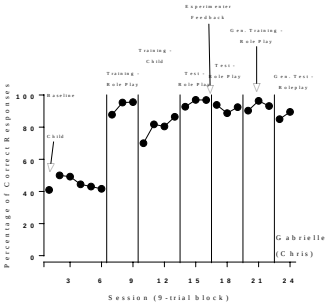


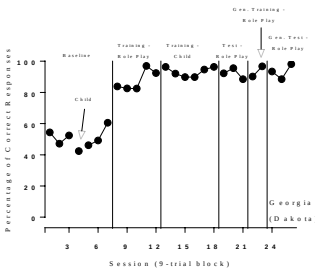


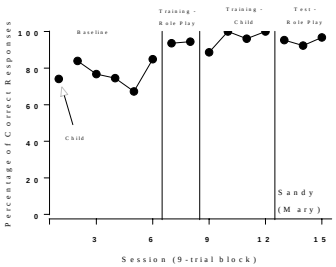


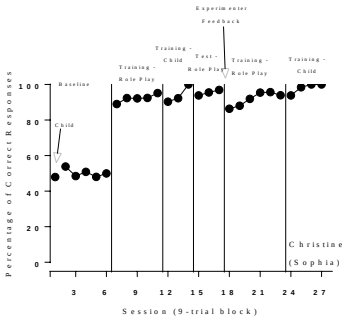




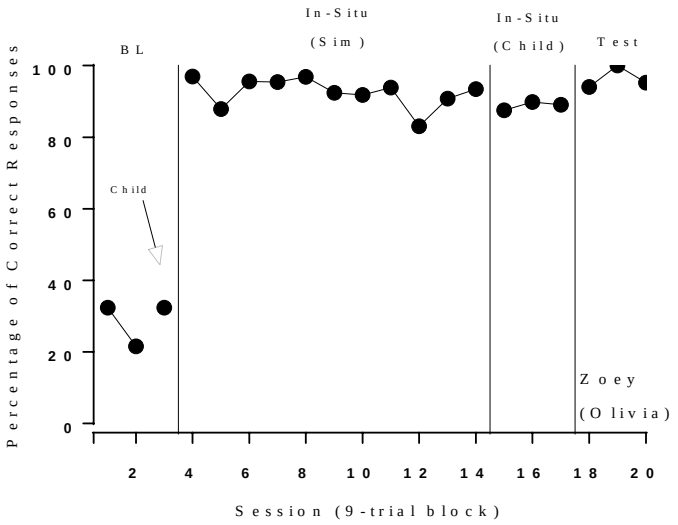


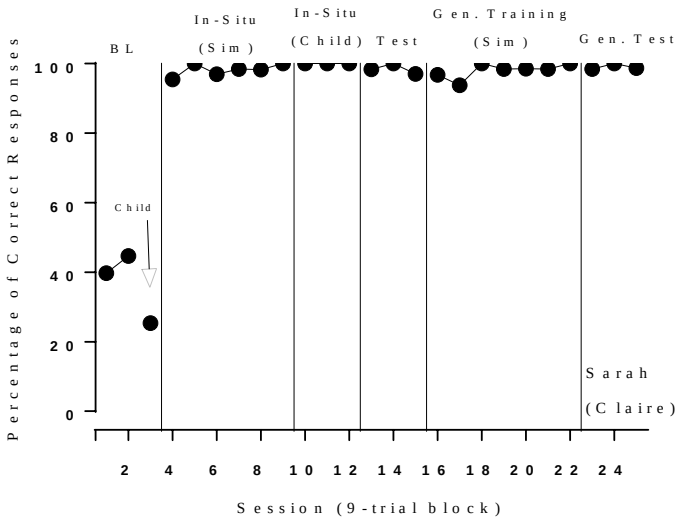


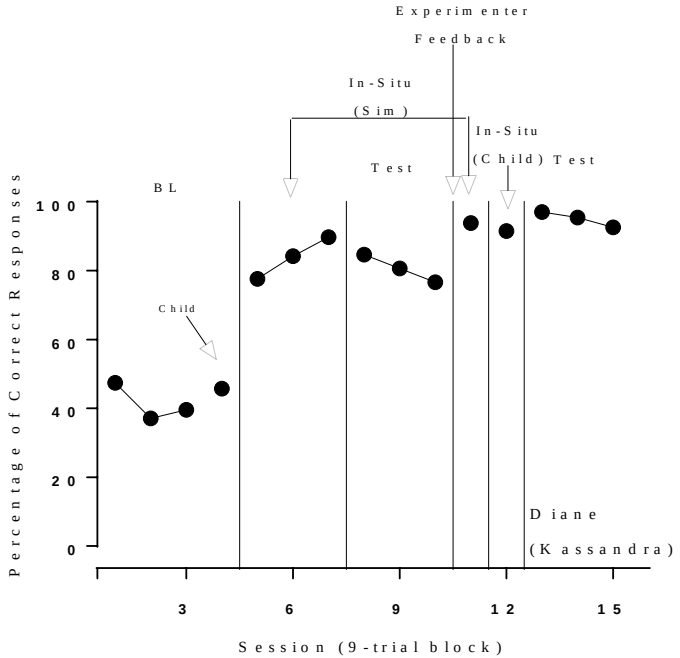


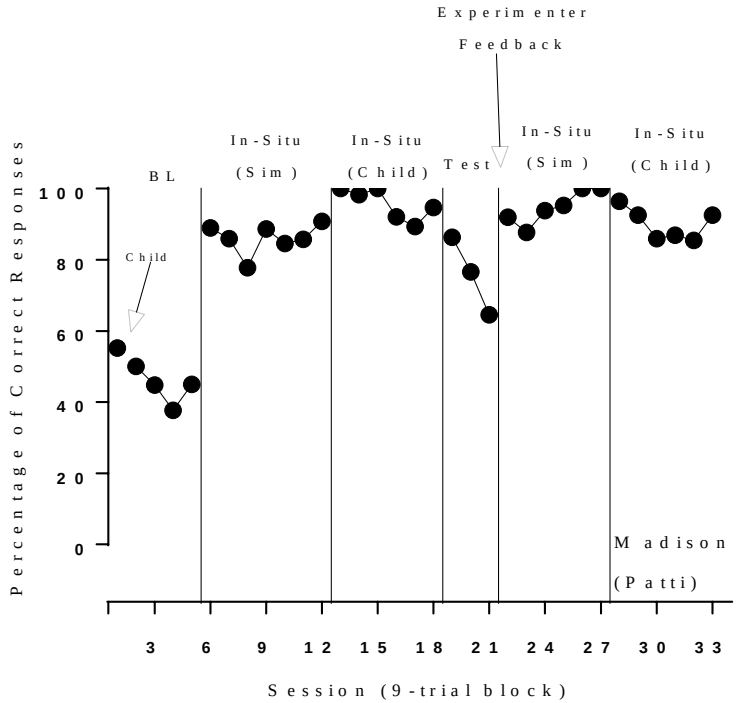


Outcomes for Paraprofessionals: Representative Results

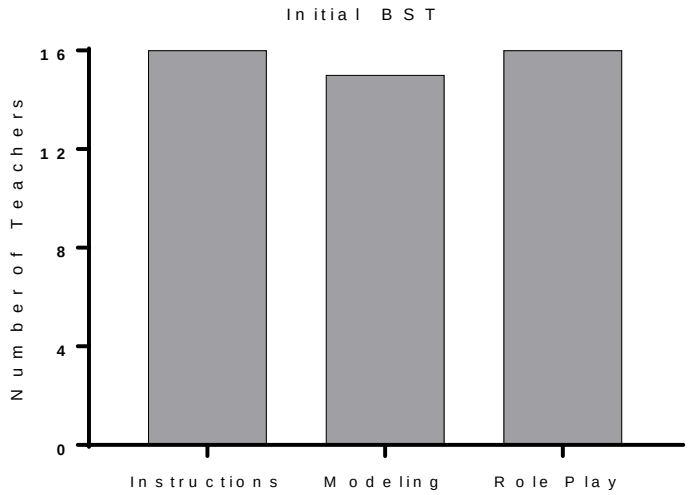


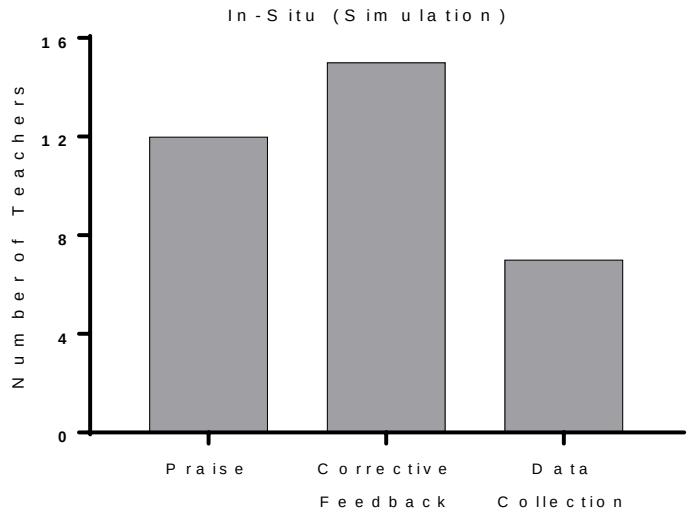


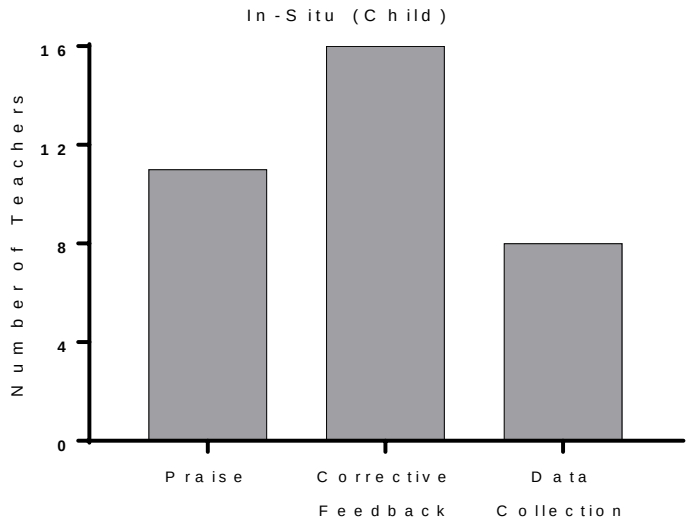




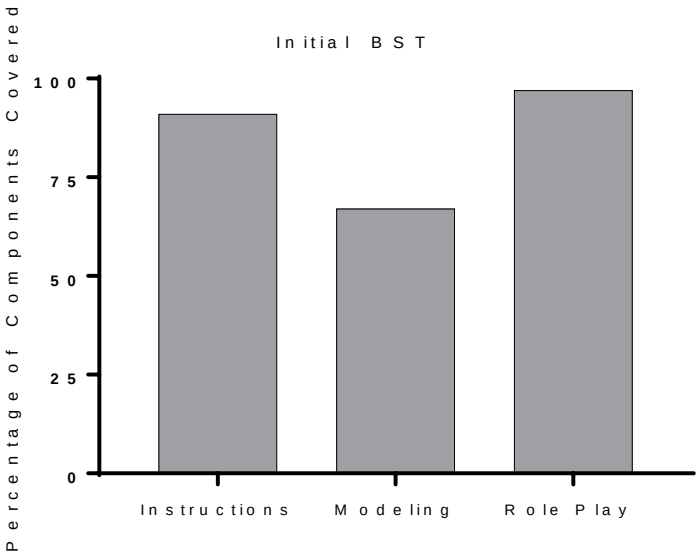
Trainer (Teacher) Integrity – Use of Components

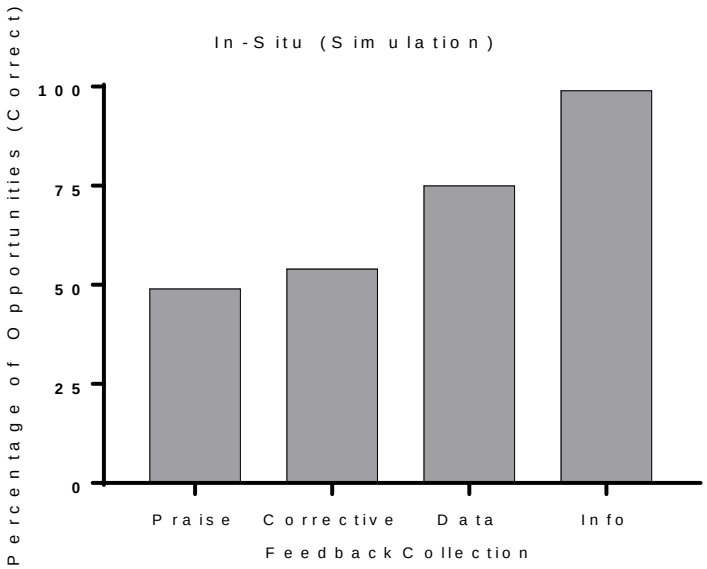


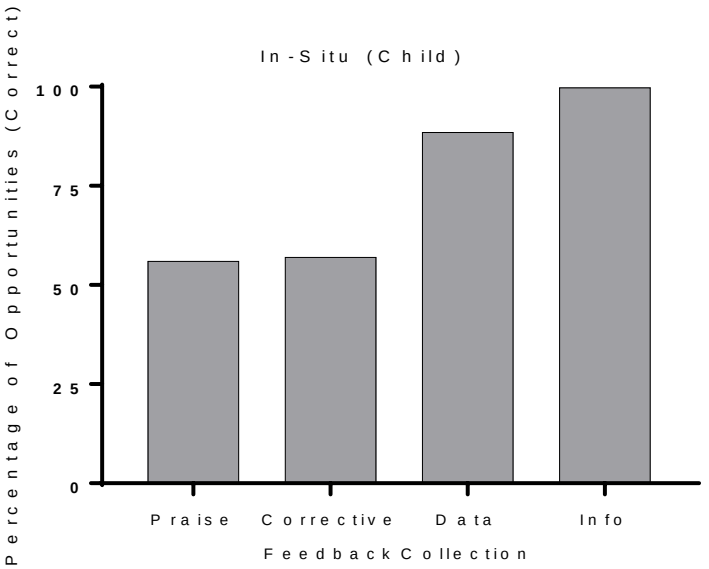




Trainer (Teacher) Integrity – Correct Use







Findings

- All paraprofessionals adequately trained
- 7 of 16 trainers received experimenter feedback
- Mean training time = 263 min (range, 125 min – 325 min)
- Trainers used essential BST components
  - More likely to correct than praise
  - Least likely to collect integrity data
  - But no clear relationship to training outcome!

Identifying Potential Antecedents/Consequences of Problem Behavior Through A-B-C Recording

- Benefits of competency
  - Descriptive data provides information to
    - Generate hypotheses
    - Design functional analysis
    - Evaluate intervention effects
  - Reduces inadvertent reinforcement of problem behavior?
- Lerman, Hovanetz, Strobel, & Tetreault (2009)
  - Narrative vs structured A-B-C recording (accuracy/ease)
- Scott, Lerman, & Luck (in preparation)
  - Computer-based training (detection of multiple and subtle events)

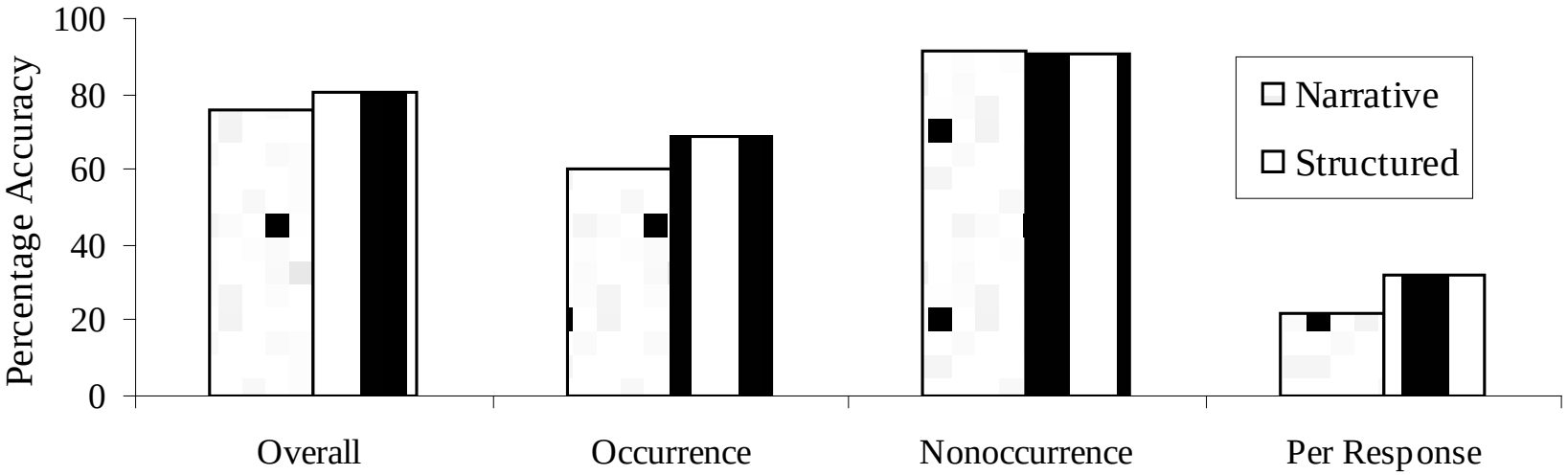
Narrative A-B-C

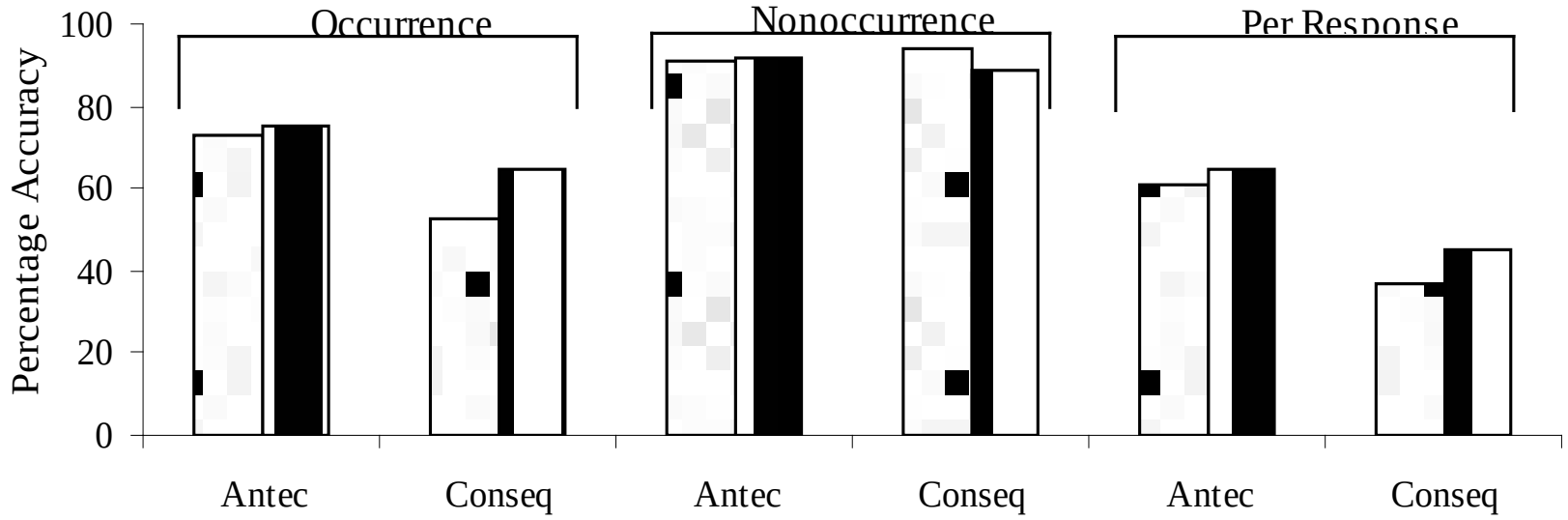
DATE: _____		
Eddie was told to go to gym class	*Yelled, threw a book, and sat on the floor*	*Eddie was told to stop misbehaving. He was kept in the classroom instead of going to gym.*
The class was watching a movie; I was working at my desk	*Ran out of the classroom*	*I retrieved Eddie and made him sit near my desk*
Eddie was working with the speech therapist	*Yelled and tried to hit the speech therapist*	*He was returned to the classroom and placed in time out*

Structured A-B-C

DATE: _____		
__Aggression __Self-Injury __Elopement	__Ignored By Someone __Material/Food Removed __Other Request Denied __Given Instruction/Prompt __None	__Attention, Response Block __Redir. to Other Activity __Material or Food Given __Work Terminated __ No Response
__Aggression __Self-Injury __Elopement	__Ignored By Someone __Material/Food Removed __Other Request Denied __Given Instruction/Prompt __None	__Attention, Response Block __Redir. to Other Activity __Material or Food Given __Work Terminated __ No Response

Lerman et al. (2009)





Conclusions

- Modestly accurate under ideal recording conditions
- Neither sufficient to reliably identify function
- Structured form
  - Decreased likelihood of misses (particularly consequences)
  - Preferred by majority of teachers
- Problems detecting simultaneous or subtle events?

Computer-Based Training
(Scott et al., in preparation)

- Can we improve the detection of simultaneous/subtle events?

  - Simultaneous Events

    Examples:

    Antecedents:

    demand delivered + tangible removed

    Consequences:

    escape + attention delivered

Computer-Based Training
(Scott et al., in preparation)

- Can we improve the detection of simultaneous/subtle events?

  - Subtle Events

  Examples:

  Antecedents:

  class-wide instruction delivered

  materials presented w/out vocal instruction

  Consequences:

  neutral attention delivered

  alternative tangible offered

  demand delayed

Computer-Based Training
(Scott et al., in preparation)

- Will training with single exemplars generalize to other exemplars?
- Will training with single antecedents/consequences generalize to simultaneous antecedents/consequences?

- 20 “Test” Videos:
  - 6 responses (3 single/3 simultaneous)
  - 22 ant/con (4 trained; 18 other)

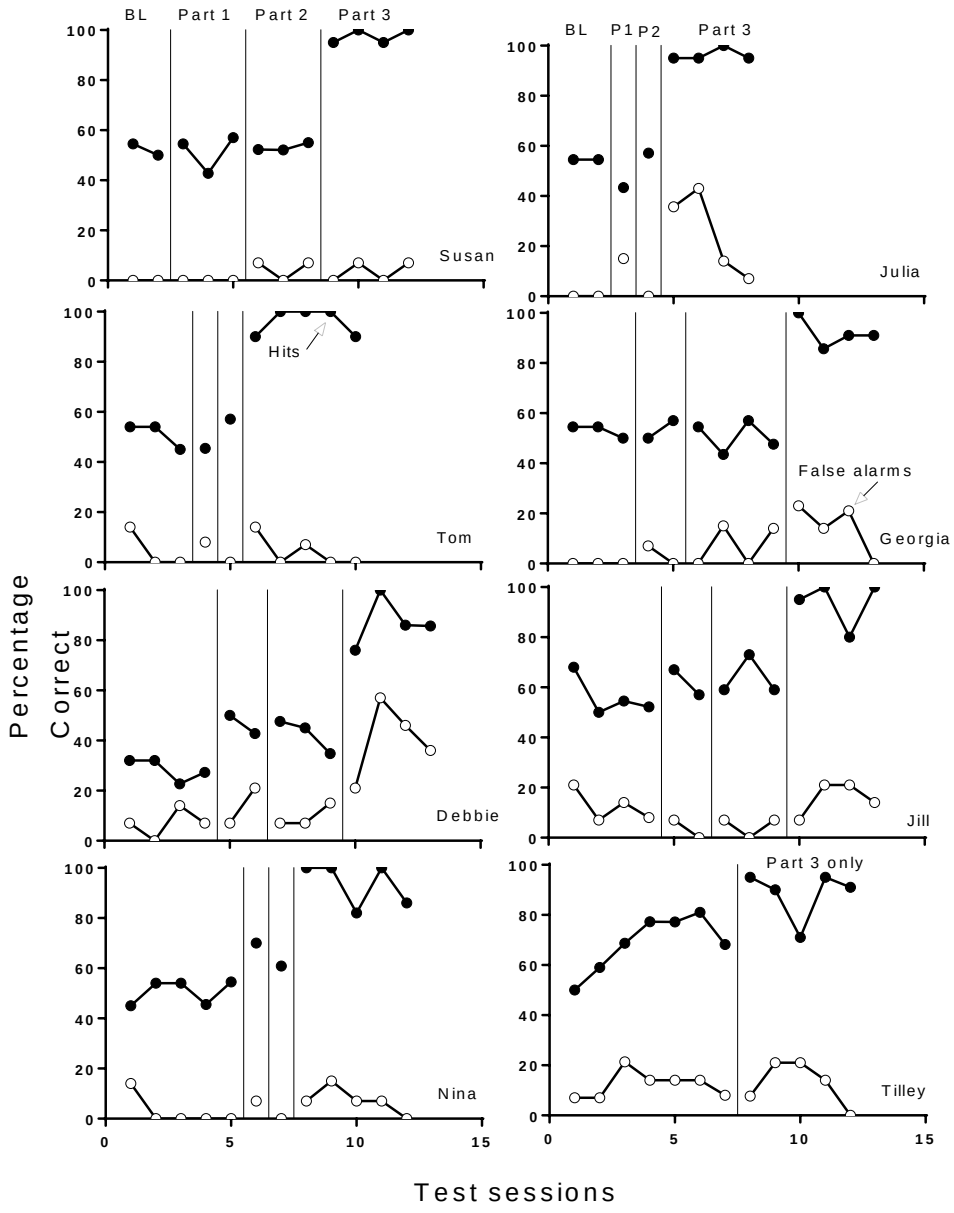
- Training Video
  - Lecture
  - Models
  - Practice

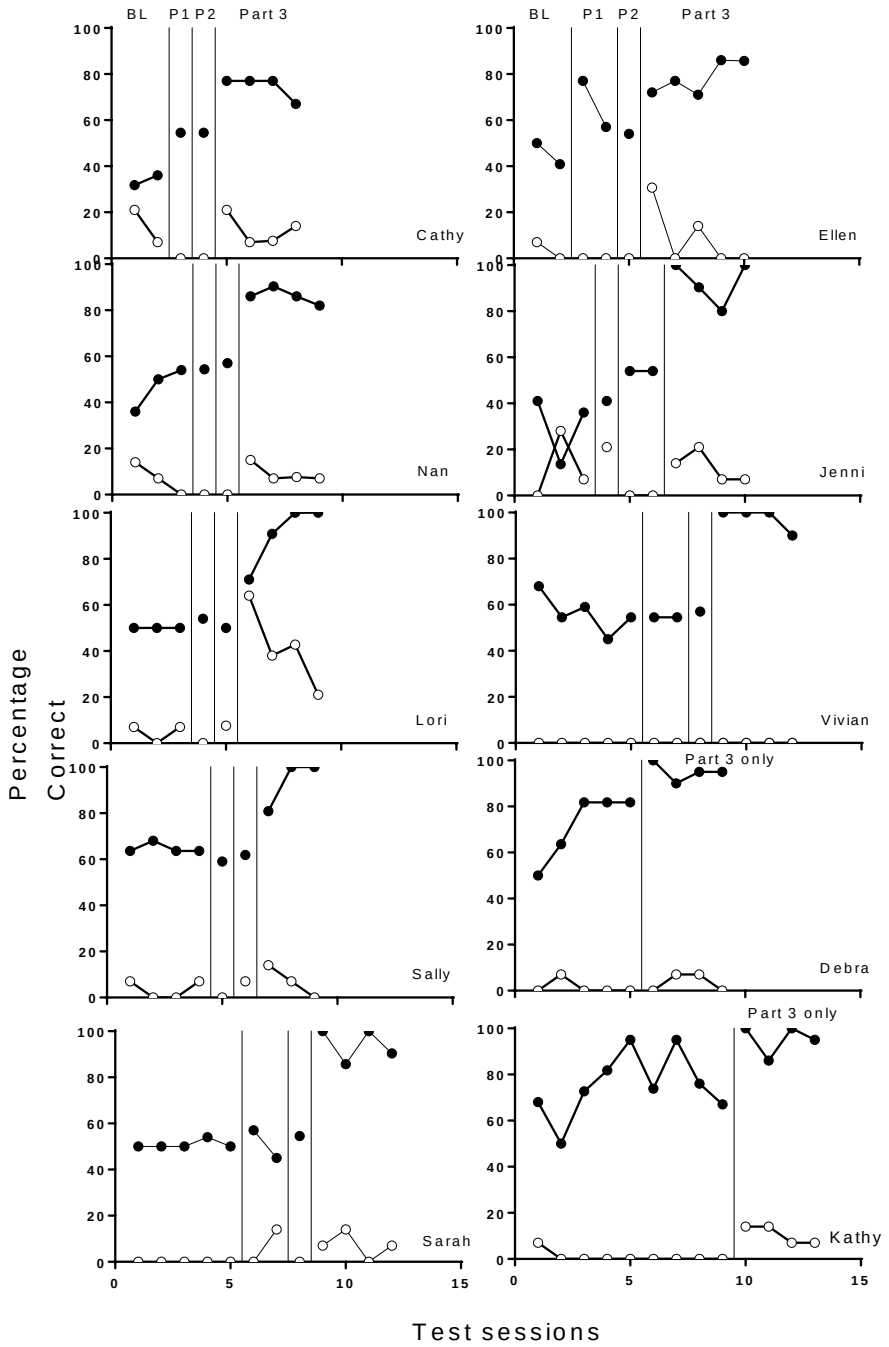
Computer-Based Training
(Scott et al., in preparation)

- Experiment 1: (N = 18)
  - Part 1: Single Exemplar Training
  - Part 2: Multiple Exemplar Training
  - Part 3: Simultaneous Event Training

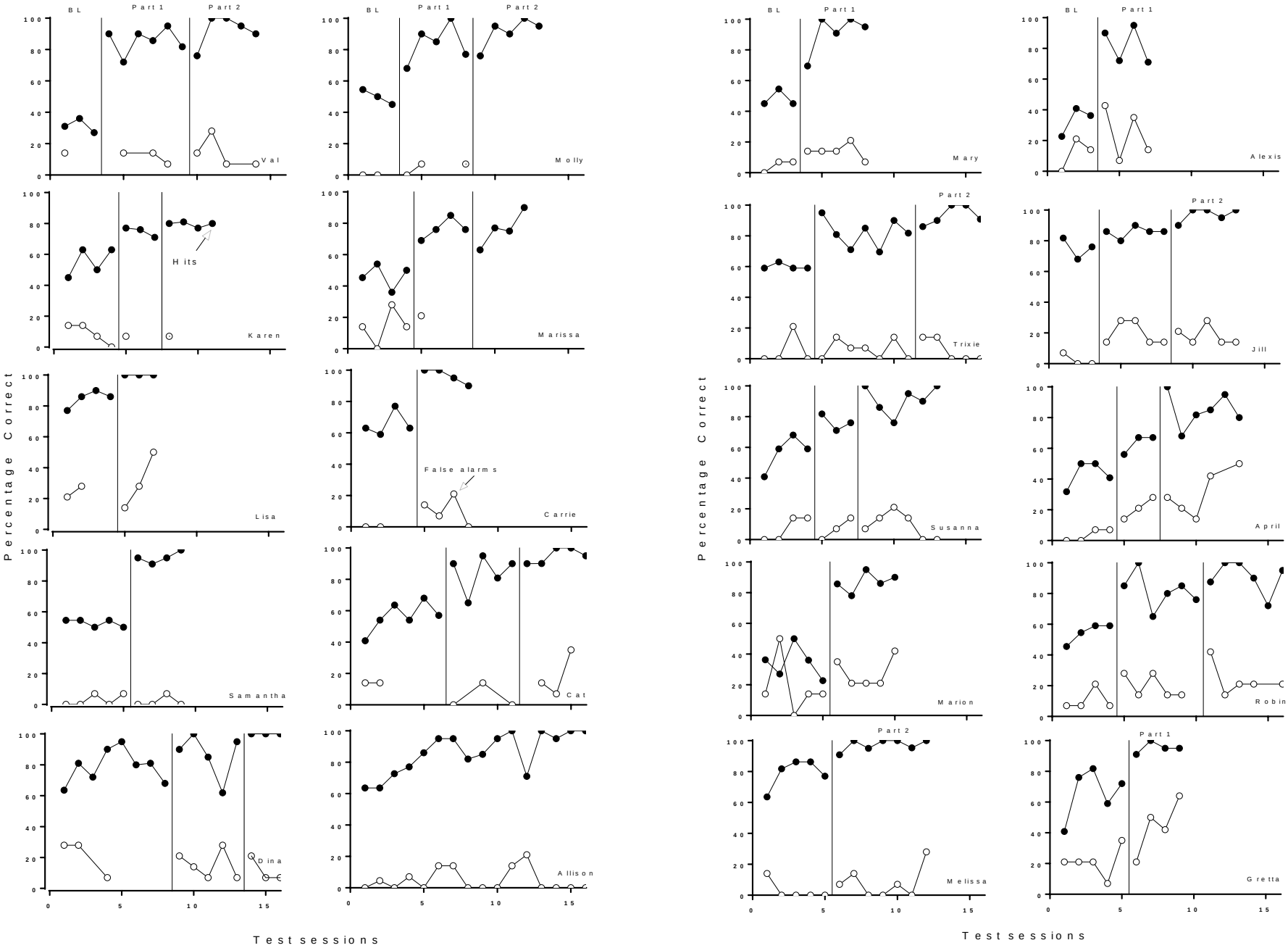
- Experiment 2: (N = 20)
  - Part 1: Simultaneous Single Exemplar Training
  - Part 2: Multiple Exemplar Training

Experiment 1





Experiment 2



Computer-Based Training (Scott et al., in preparation)

Conclusions

- Computer-based training effective
- Generalized across multiple exemplars
- Simultaneous training critical
  - But false alarms!

Questions/Comments?

Thank You!!!

Lerman@uhcl.edu

University of Houston Clear Lake

Disseminating ABA into Public Schools: Prior and Current Research at the University of Houston, Clear Lake

Dorothea C. Lerman, Ph.D., BCBA-D

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