Teaching Receptive Language Skills to Young Children with ASD: Past, Present and Future

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Overview of Presentation

- Introduction
  - Early and Intensive Behavioral Intervention
  - Types of Receptive Language
- Seven recommendations for teaching receptive language
- Directions for future research

Behavioral Treatment of Autism

- Lovaas (1987) evaluated the short- and long-term outcomes of early intervention (EIBI)
  - Observed large improvements in a wide range of skills
- Eikeseth (2009) assessed outcome research on educational programming
  - EIBI was considered well-established

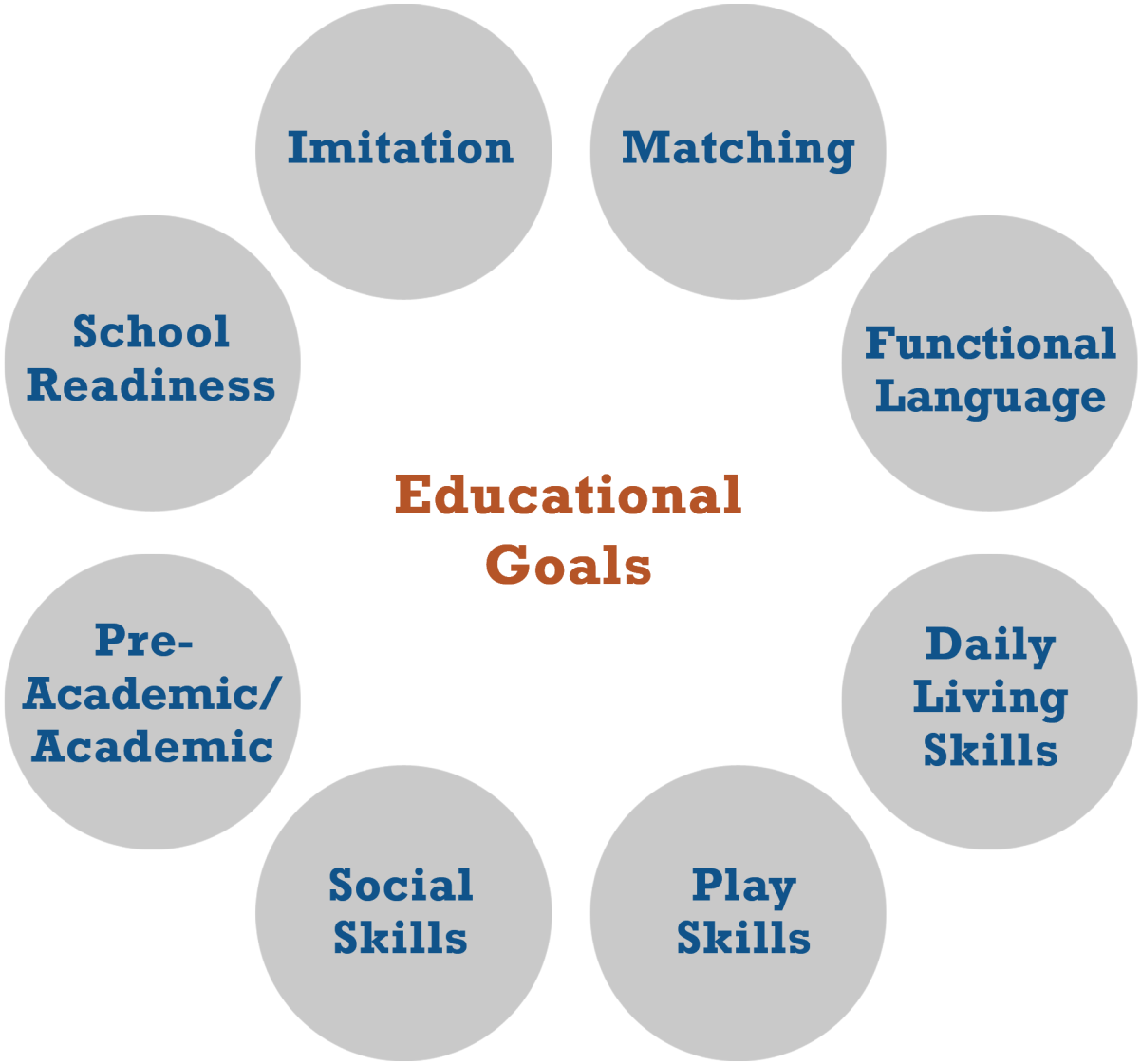
General Characteristics of EIBI

- Hierarchically structured curriculum
- Intensive intervention for several years
- Multiple targeted areas of functioning

Smith, 1999




General Characteristics of EIBI



Receptive Language Skills

- Refers to responding to the language of another person
- One of the most commonly targeted skills in early intervention programs (Smith, 2001)
- Useful for teaching:
  - Instruction following
  - Identification of stimuli in the environment
  - Completion of different activities

Two Types of Receptive Language Skills

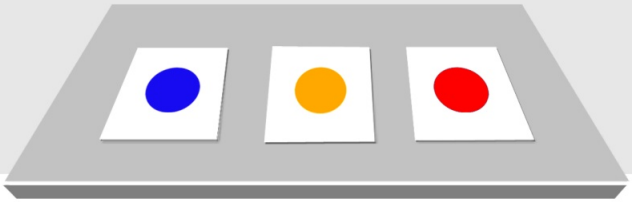
- Simple discriminations
  - A: Vocal instruction
  - B: Child response (specific motor behavior)
  - C: Reinforcer

Examples: responding to name, following instructions

- Conditional discriminations
  - A: Vocal instruction with visual array
  - B: Child response (pointing)
  - C: Reinforcer

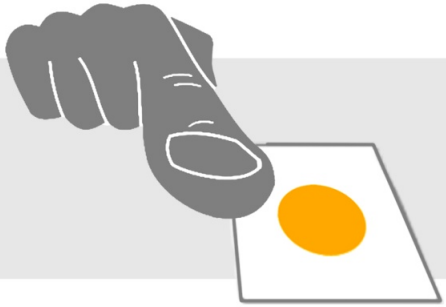
Examples: identifying an object after hearing its name, feature, class, or function

Programs with Conditional Discriminations



Array of Visual Comparison Stimuli
(pictures of items)

Corresponding Auditory Stimuli
(the name of the item)



Response
(pointing or touching the picture)

Consequence
(praise and edible for correct responses)

Overview of Presentation

- Introduction
  - Early and Intensive Behavioral Intervention
  - Types of Receptive Language
- **Seven recommendations for teaching receptive language**
- Directions for future research

General Recommendations

1. Ensure the child is attending
2. Teach the targets simultaneously
3. Present clear and concise instructions
4. Thoughtfully counterbalance stimuli
5. Reduce or eliminate unintentional teacher cues
6. Use effective prompting procedures
7. Use effective reinforcers

1. Ensure the Child is Attending

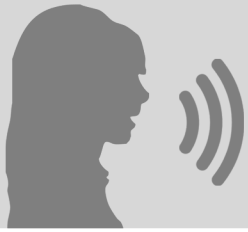
- Children with developmental disabilities may not readily attend to instructions
- Use techniques to maximize the child's attention during teaching

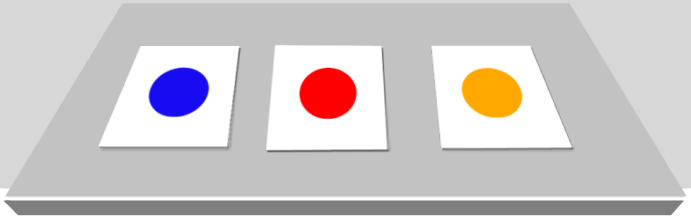
- Examples
  - Make sure the child is looking at the teacher
  - Have the child repeat the instruction (i.e., differential observing responses)
  - Only reinforce responses after the instruction
  - Ensure the child scans the array of visual stimuli before responding

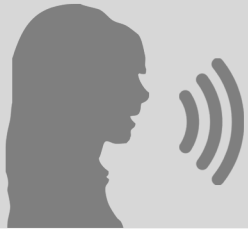
2. Teach the Targets Simultaneously

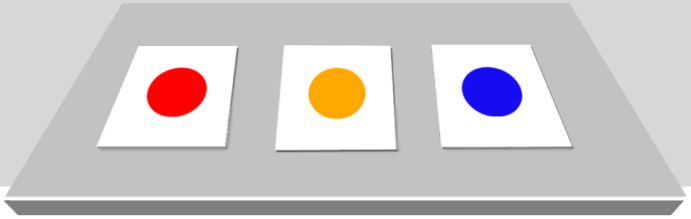
- A group of teaching targets should be introduced together from the onset of training
- The teacher should introduce a minimum of three targets
- Examples:
  - Teaching "clap hands", "stomp feet", and "touch tummy"
  - Teaching a child to identify red, blue, yellow from an array of color cards

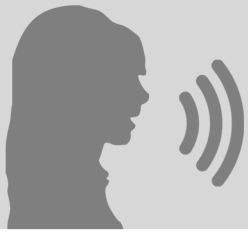
Color Identification Example

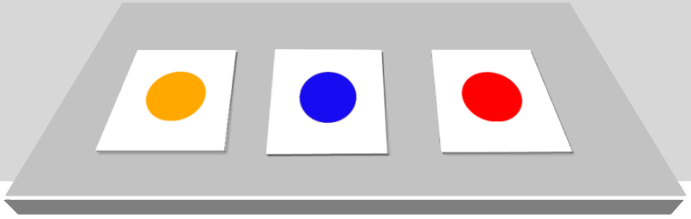
1  "ORANGE"



2  "RED"



3  "BLUE"



Primary Teaching Approaches

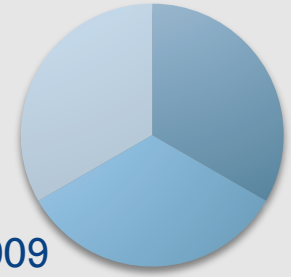
- Sequential Method
  - Lovaas (2003)
  - Blocked-trial procedure (Saunders & Spradlin, 1989)
- Simultaneous Method
  - Green (2001)

EIBI Manuals

Sequential Method

Clinical Practice

Mixed methods reported



Love, Carr, Almason, & Petursdottir, 2009

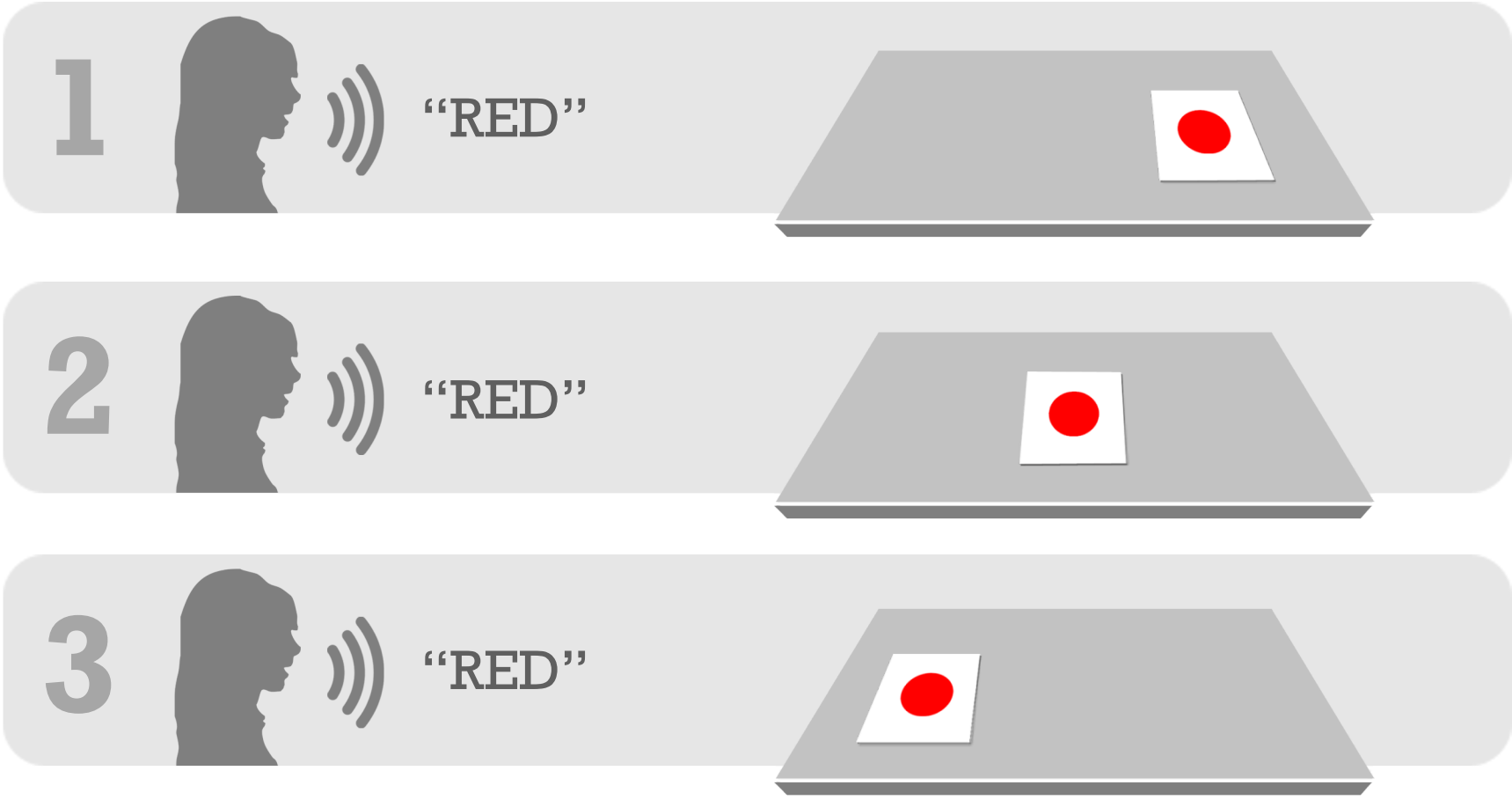
Applied Research

Simultaneous Method

Grow, Carr, Kodak, Jostad, & Kisamore, 2011

Step 1: Sequential Method

Step 2: Sequential Method



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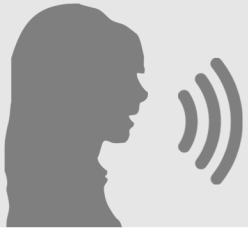
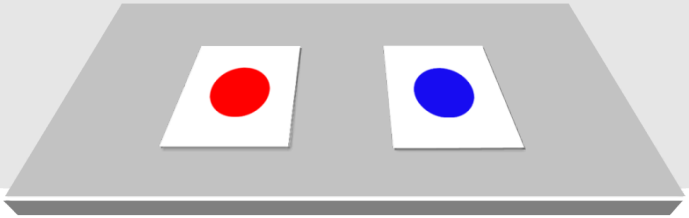
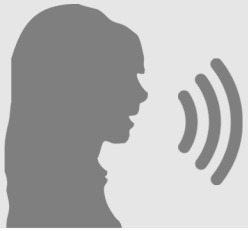
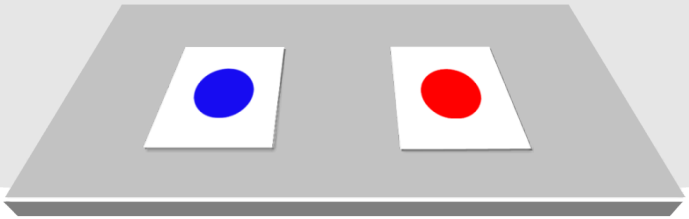
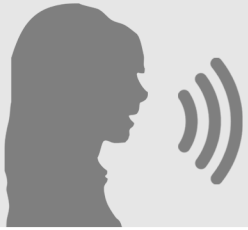
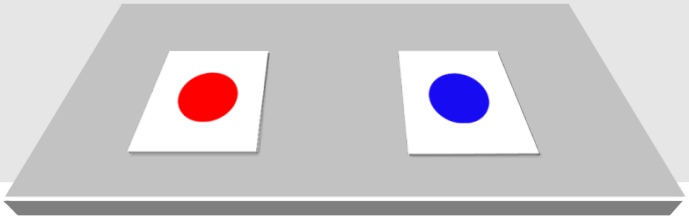
1  "BLUE"



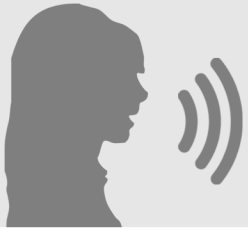
2  "BLUE"

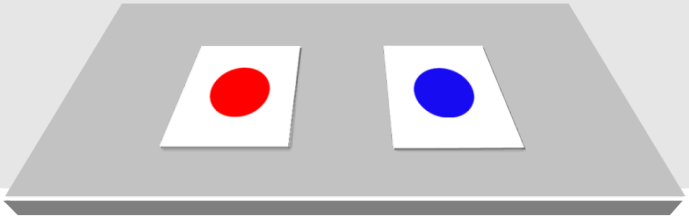


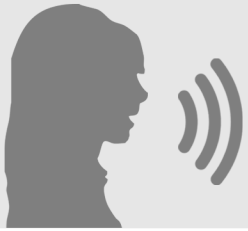
3  "BLUE"

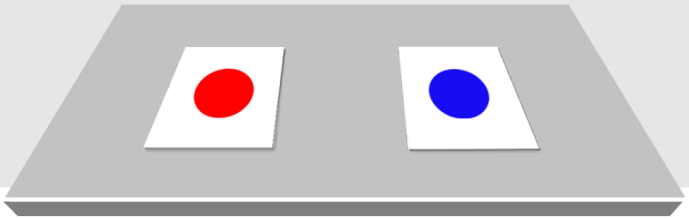


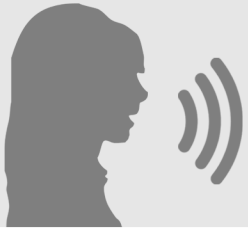
Step 4: Sequential Method

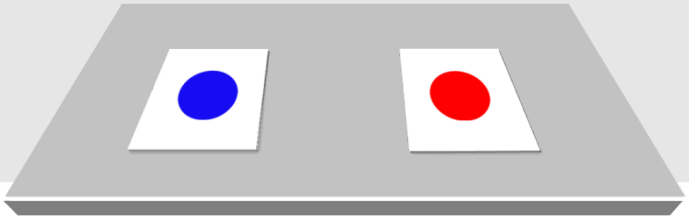
1  "RED"



2  "RED"



3  "RED"



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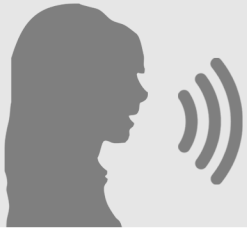
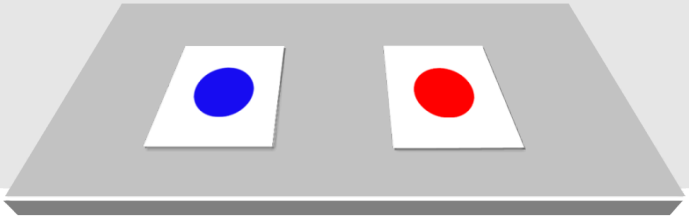
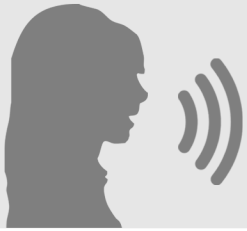
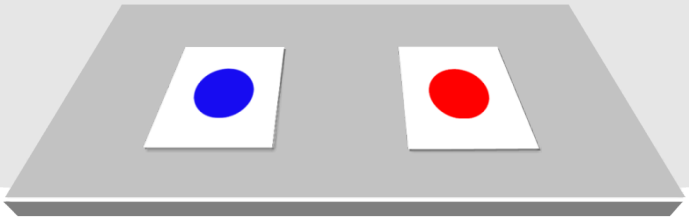
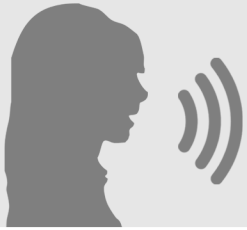
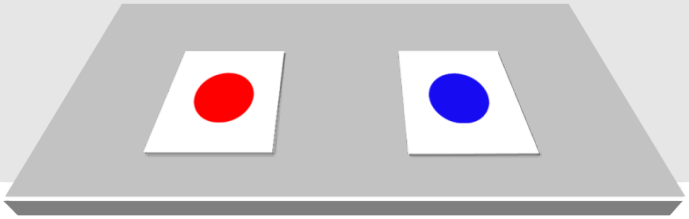
1  "BLUE"



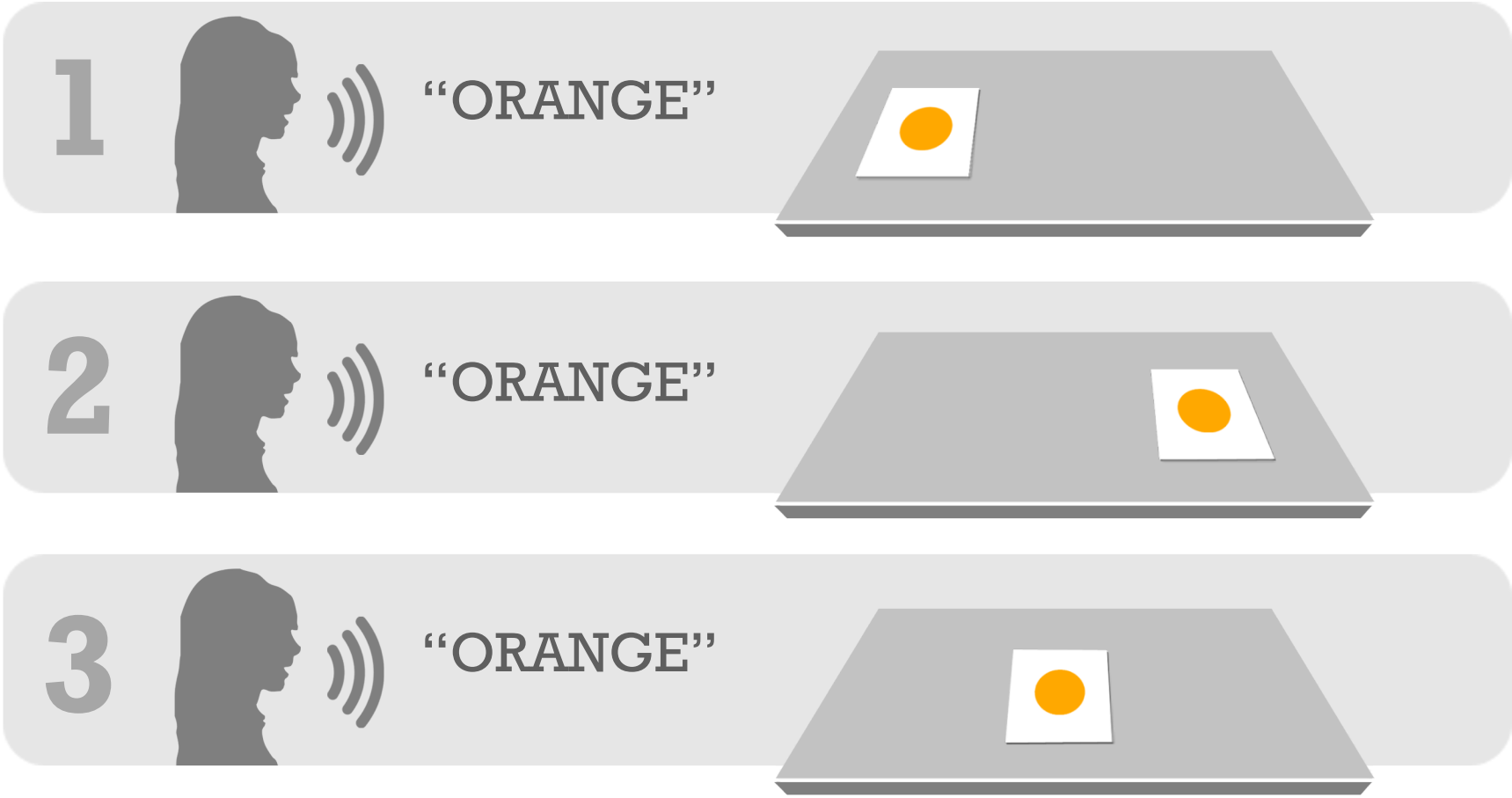
2  "RED"



3  "RED"



Step 6: Sequential Method



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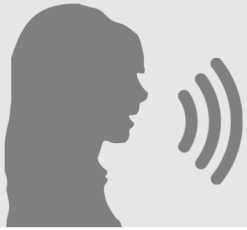
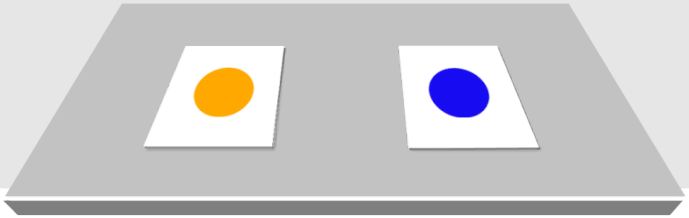
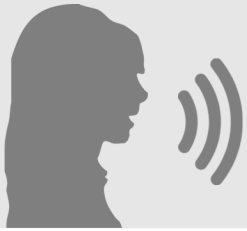
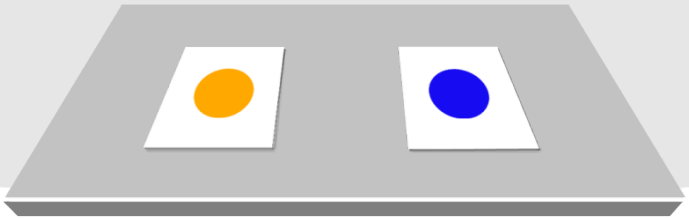
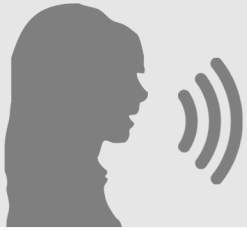
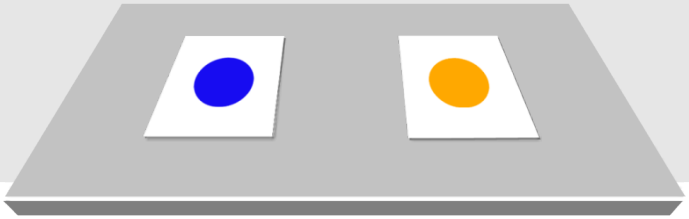
1  "BLUE"



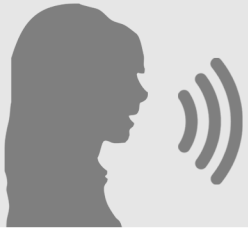
2  "ORANGE"

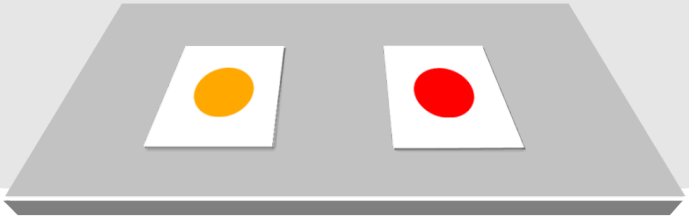


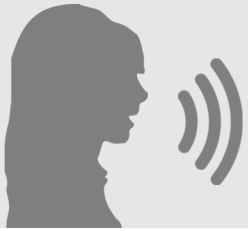
3  "BLUE"

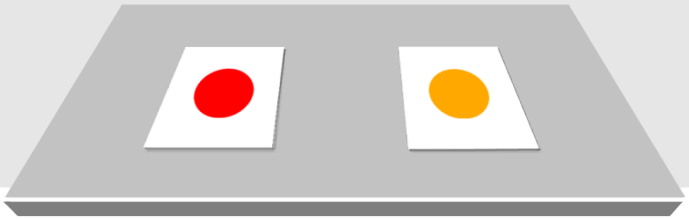


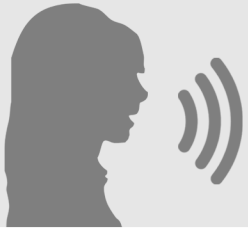
Step 8: Sequential Method

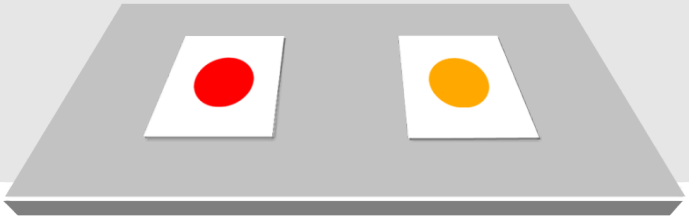
1  "ORANGE"



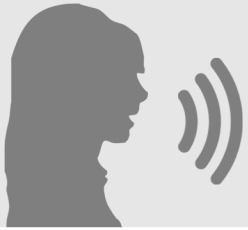
2  "ORANGE"

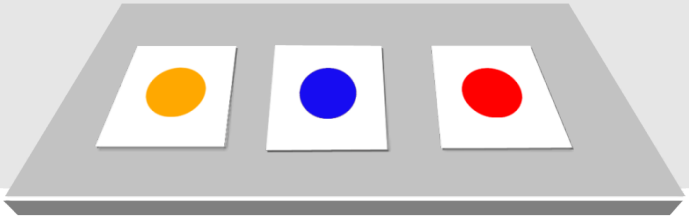


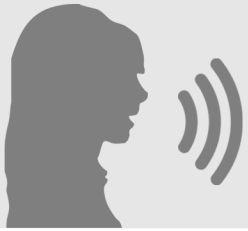
3  "RED"

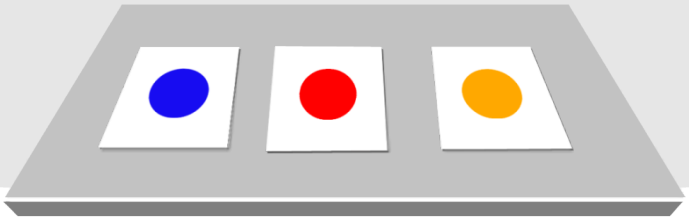


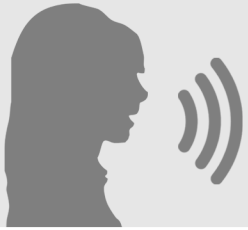
Step 9: Sequential Method

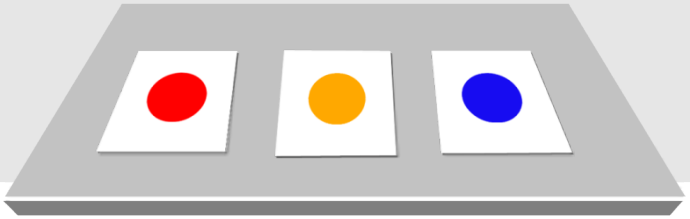
1  "BLUE"



2  "ORANGE"



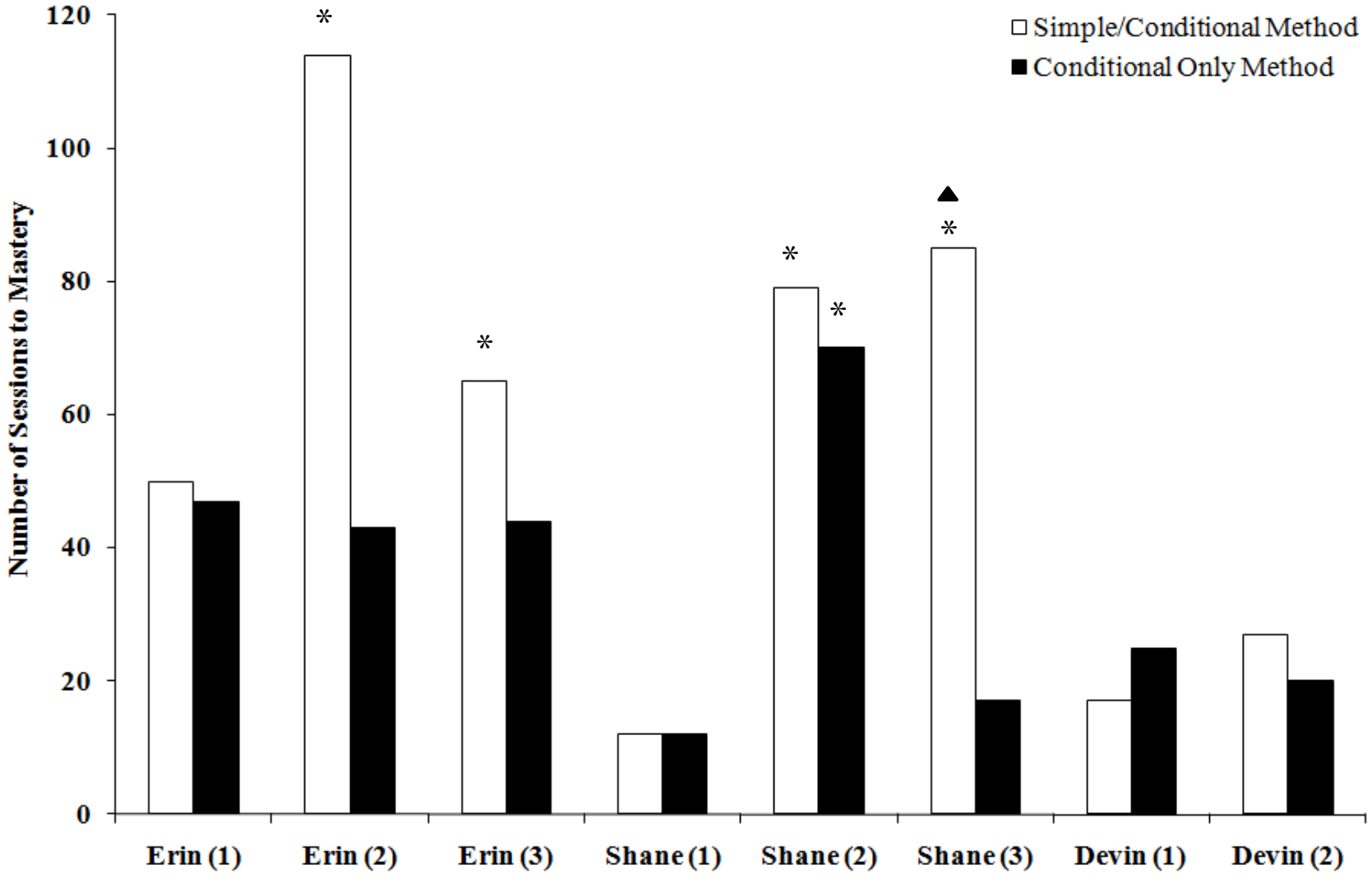
3  "RED"



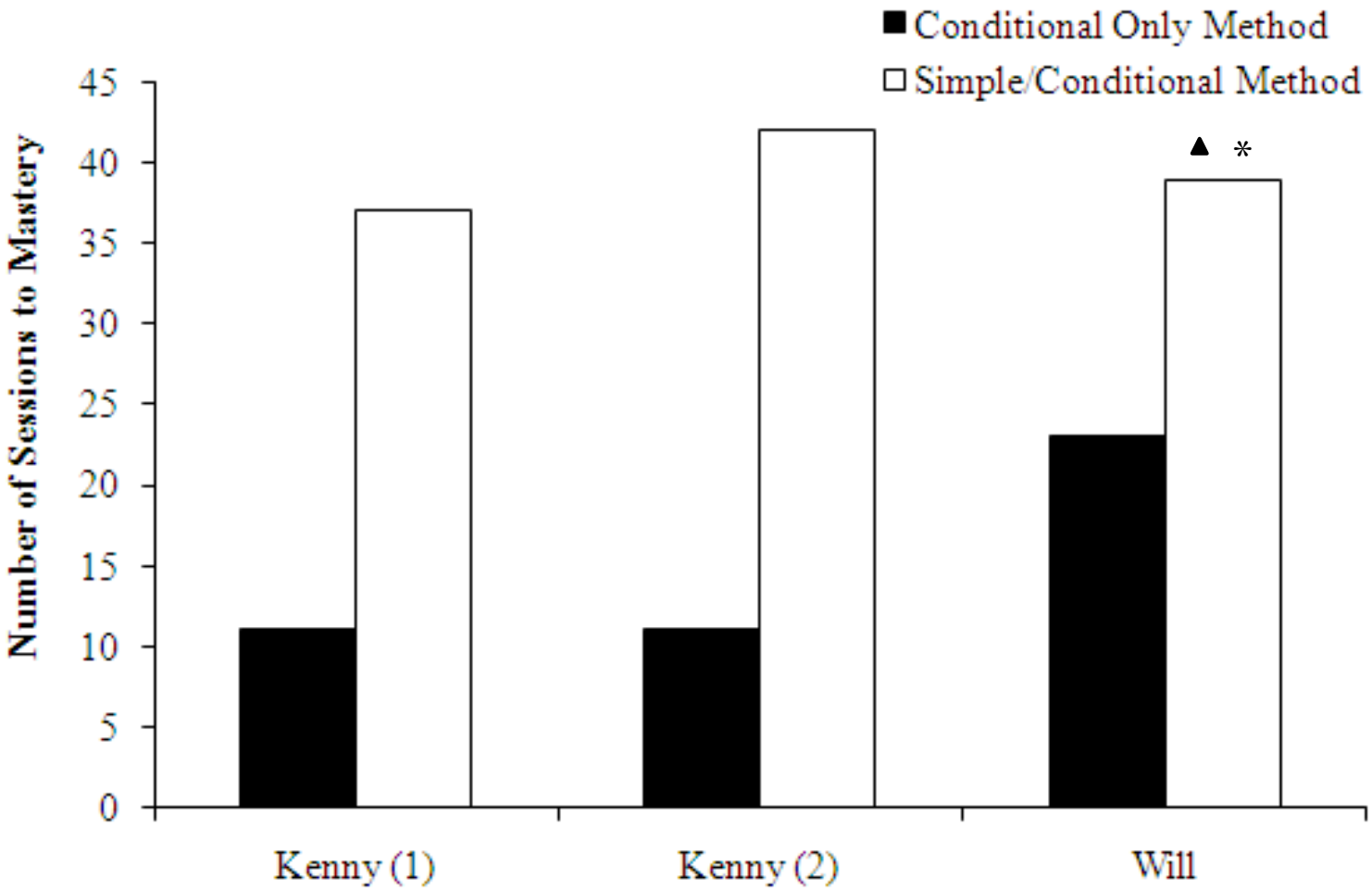
Rationale and Empirical Basis for the Simultaneous Method

- Previous research indicates that the simultaneous method is more efficient than the sequential method (Grow et al., 2011; Grow, Kodak, & Carr, in preparation)

Overall Results of Grow et al., 2011



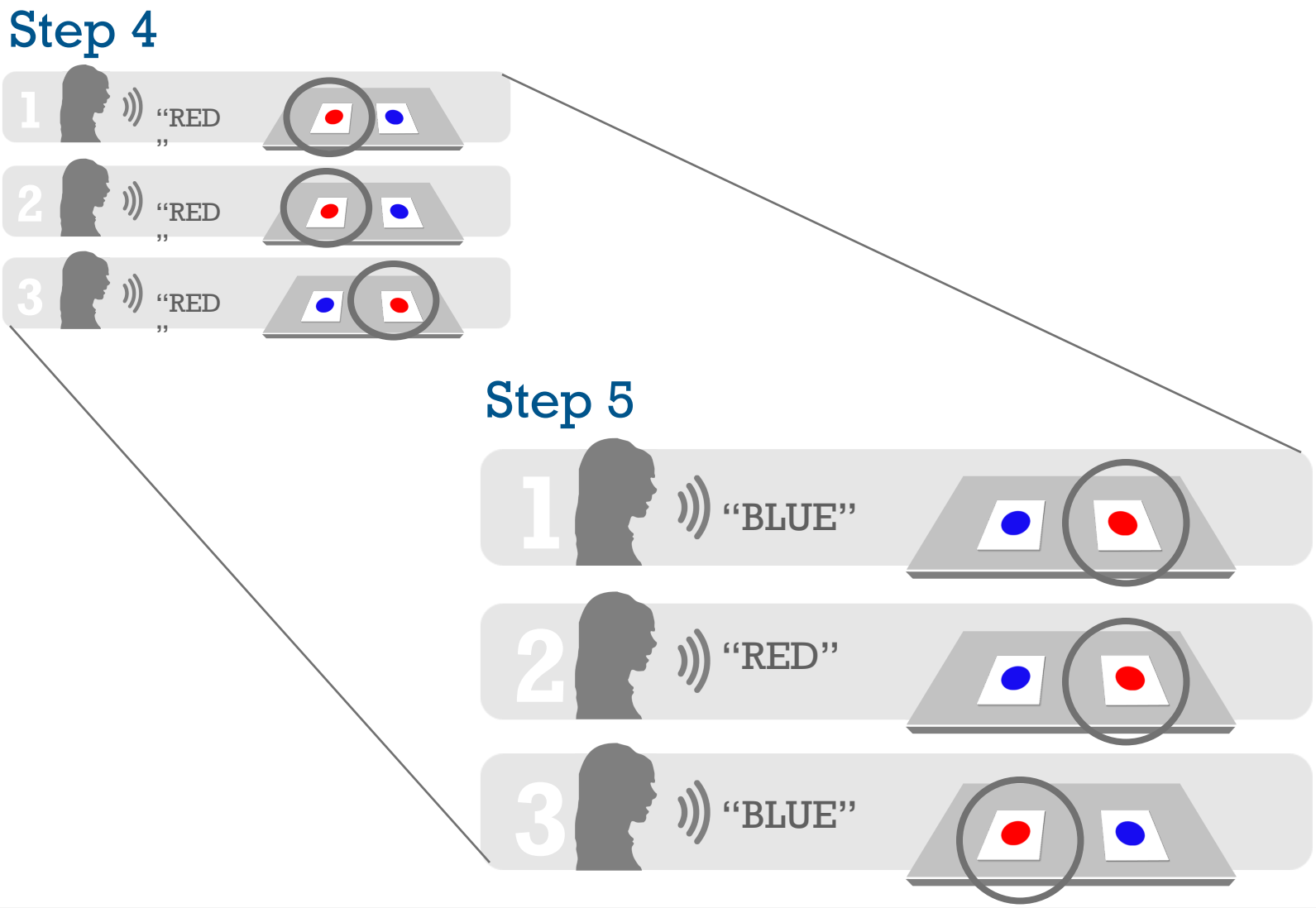
Overall Results from Grow, Kodak, & Carr (IP)



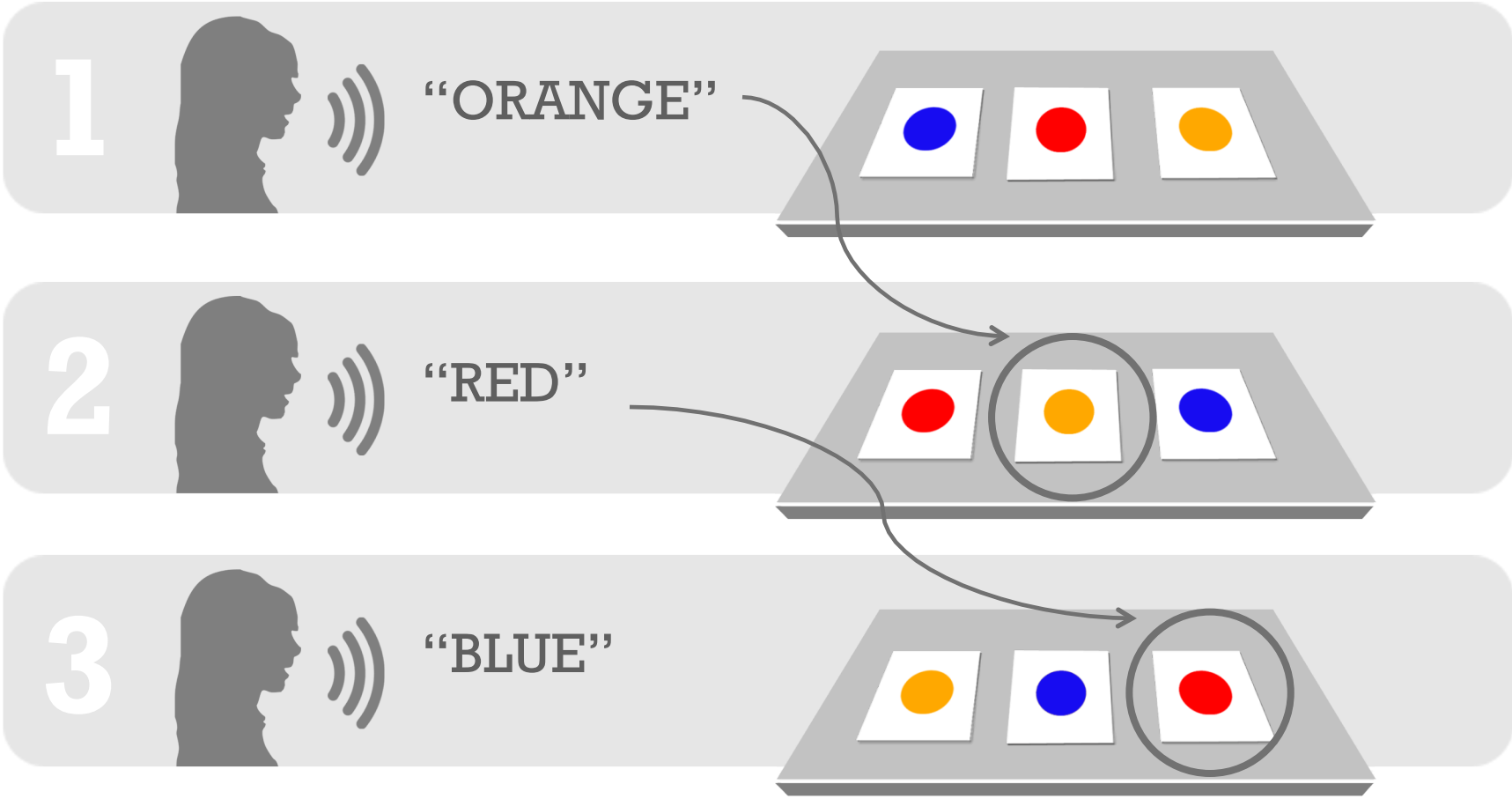
Rationale and Empirical Basis for the Simultaneous Method

- The simultaneous method is more efficient than the sequential method (Grow et al., 2011; Grow, Kodak, & Carr, in preparation)
- Some steps of a sequential method do not facilitate skill acquisition (Gutierrez, Hale, O'Brien, Fischer, Durocher, & Alessandri, 2009)
- An instructional history of the sequential method may promote errors (Grow et al., 2011)

Molar Win-Stay Errors



Molecular Win-Stay Responses



Right Side Bias

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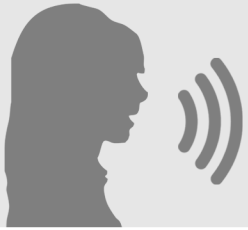
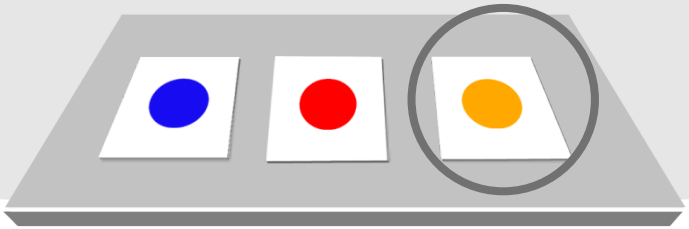


"ORANGE"



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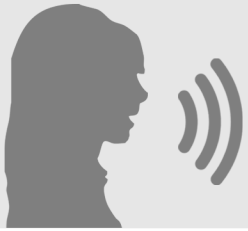
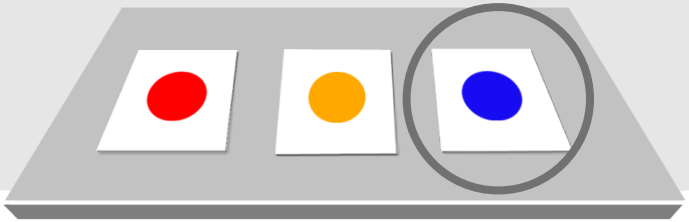


"RED"



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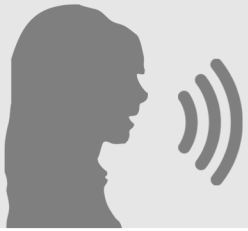
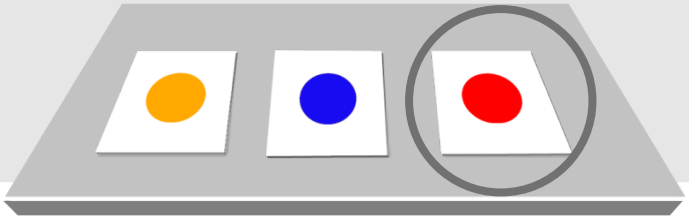


"BLUE"



3. Present Clear and Concise Instructions

- Instructions should only contain the relevant information

Program	Avoid	Ideal
Making eye contact	"Will you look at me please?"	"Look" or "Look at me"
Receptive ID: objects	"I'd like you to point to red" or "Point to the truck for me"	"Red" or "Point to truck"
Receptive ID: abstract features	"Which one belongs in the toys group" or "Show me the big one"	"Which one is a toy" or "Big"

4. Thoughtfully Counterbalance Visual Stimuli

- Important to proportionally rotate:
  - The targeted items across the comparison array positions (e.g., left, middle, and right positions)
  - The position of the correct item (i.e., discriminative stimulus).
- Without planning, the teacher is likely to present the items in a way that promotes errors
- Example
  - The act of placing the correct item in a particular position most often may result in a side bias

Example Datasheet

Trial	**Receptive ID of food categories**		
1	vegetable	fruit	**meat**
2	**fruit**	meat	vegetable
3	meat	**vegetable**	fruit
4	**vegetable**	fruit	meat
5	fruit	**meat**	vegetable
6	meat	vegetable	**fruit**
7	vegetable	**fruit**	meat
8	fruit	meat	**vegetable**
9	**meat**	vegetable	fruit

5. Reduce or Eliminate Teacher Cues

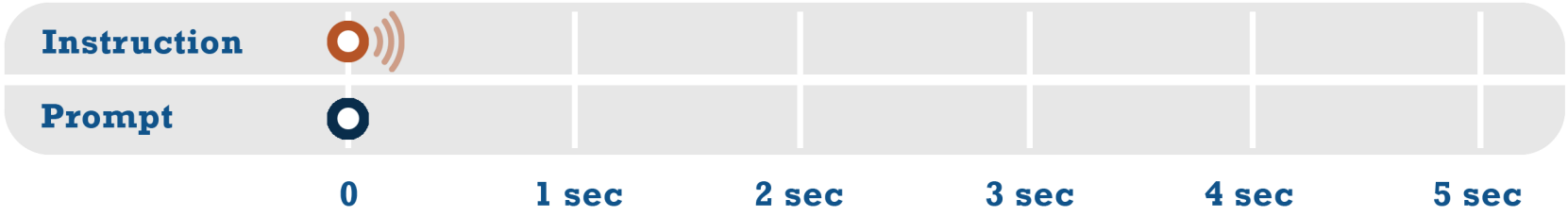
- Teachers may inadvertently provide assistance
- Examples:
  - Looking at the correct item in the array
  - Placing the correct item in the array first
  - Minor body mannerisms during instruction-following tasks
- When in competition, a child will often learn to follow the cues instead of learning the task!

6. Use Effective Prompting Procedures

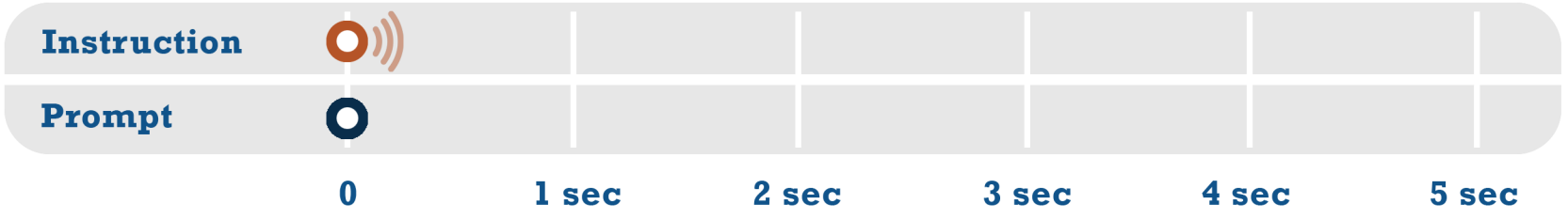
- "Errorless" learning procedures
  - Time-delay (Touchette & Howard, 1984)
  - Graduated guidance (Sisson, Kilwein, & Van Hasselt, 1988)

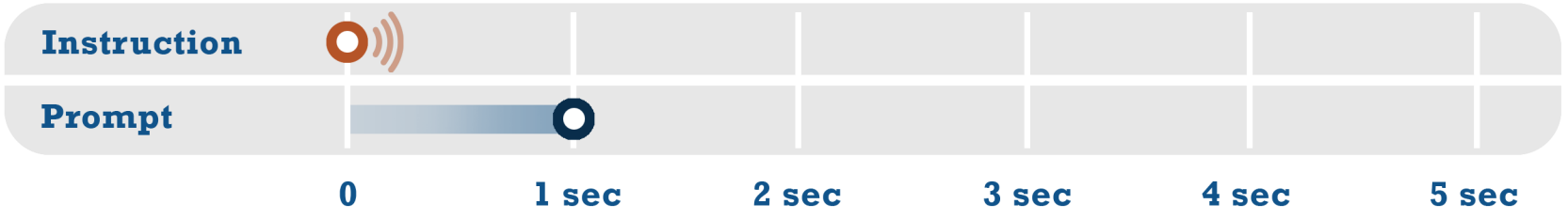
- Benefits
  - Reduce or eliminate errors
  - Increase in instruction time
  - Prevent or reduce problem behavior

Progressive Time-Delay Procedure

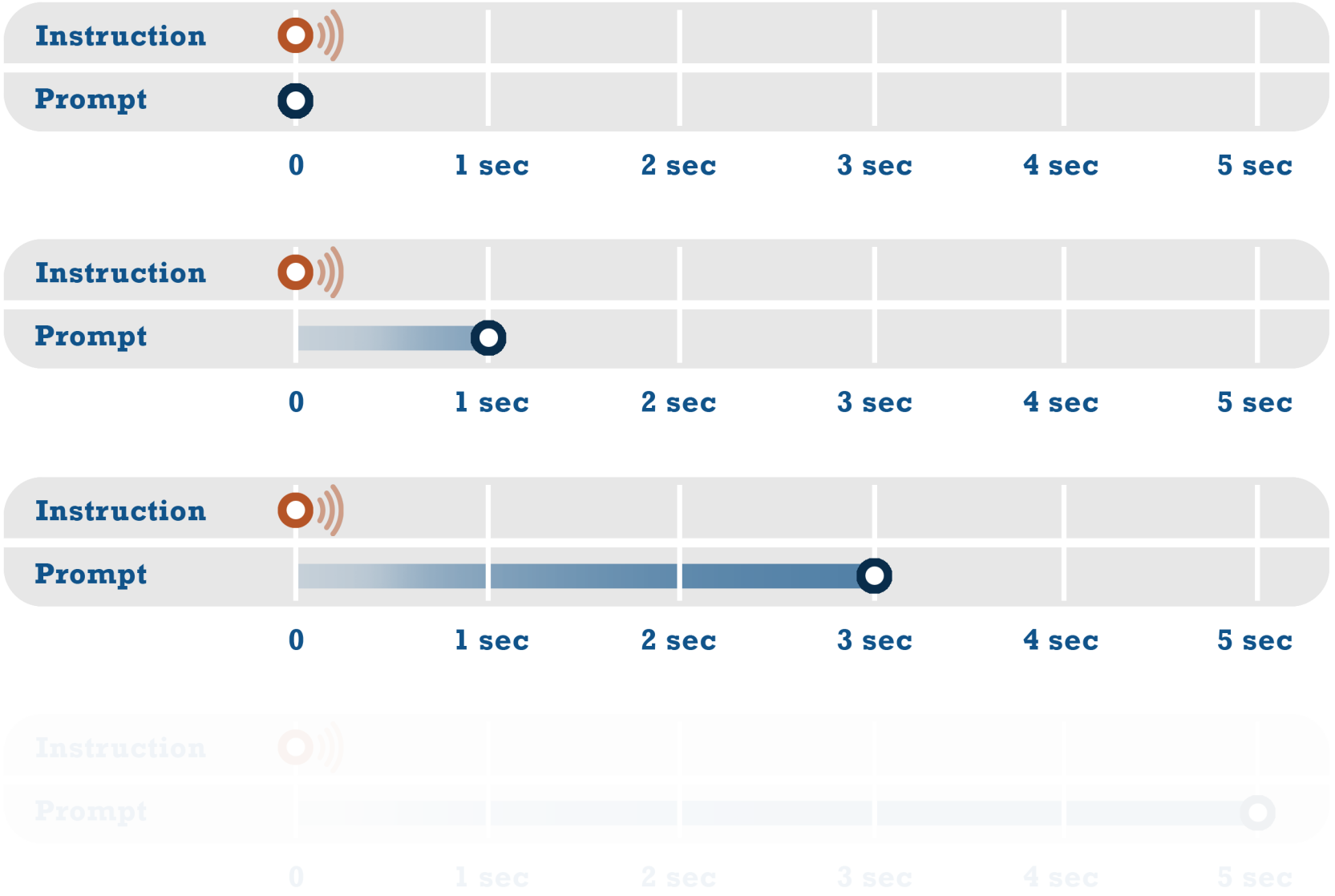


Progressive Time-Delay Procedure

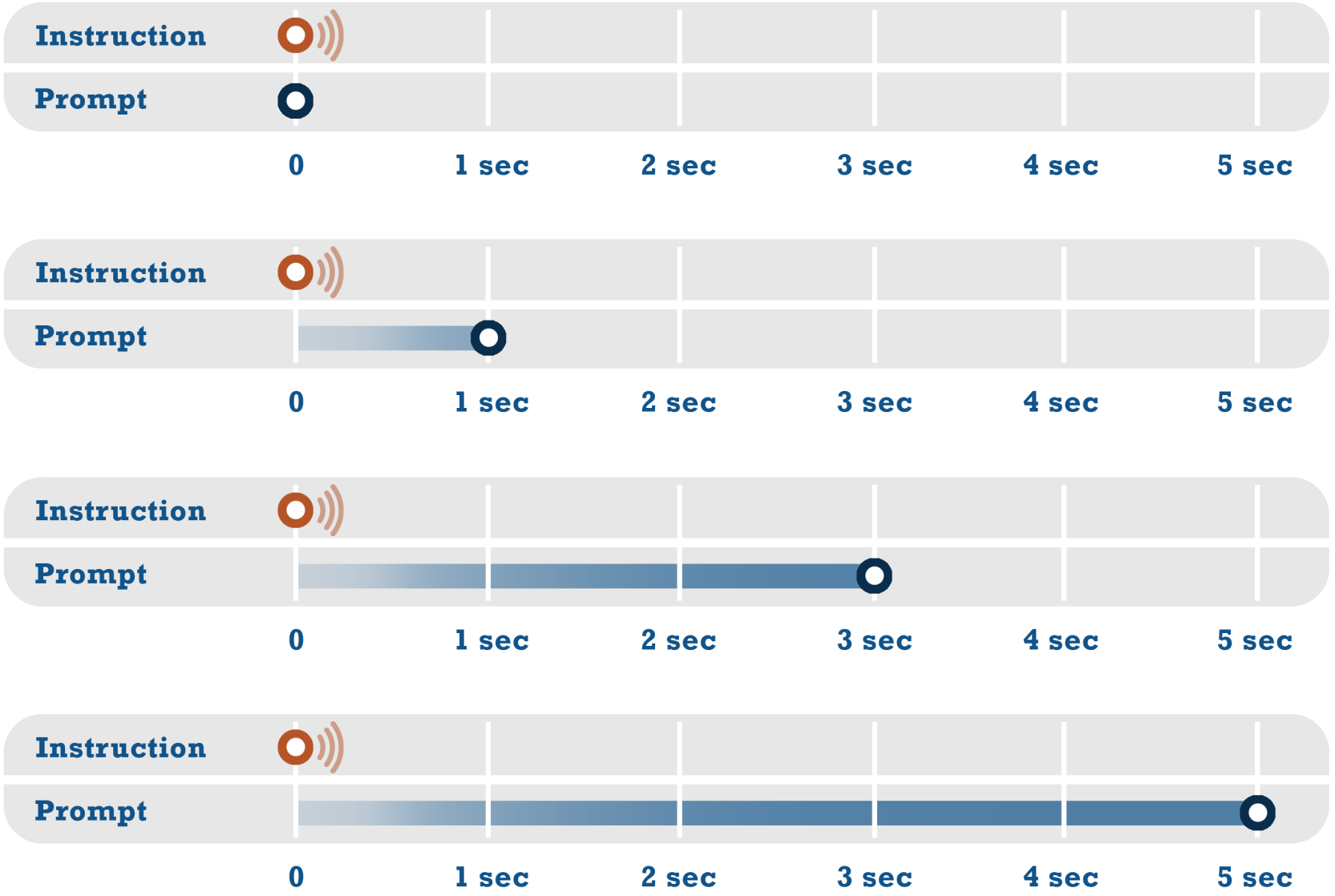




Progressive Time-Delay Procedure



Progressive Time-Delay Procedure



7. Use Effective Reinforcers

- Assess preference for different foods, toys, and activities frequently
- Formal methods:
  - Paired-choice preference assessment (Fisher et al., 1994)
  - Multiple-stimulus without replacement assessment (MSWO; DeLeon & Iwata, 1996)
  - Brief MSWO (Carr, Nicolson, & Higbee, 2000)
- Informal method:
  - Offer choices among reinforcers (visual, verbal)
  - Ask them what they like

Directions for Future Research

- Most studies only include one exemplar of each item
  - Incorporating multiple exemplars may:
    - Attenuate some of the issues with the sequential method
    - More closely mimic current clinical practice
    - Promote generalization to untrained items
- Additional research is needed in this area

General Recommendations

1. Ensure the child is attending
2. Teach the targets simultaneously
3. Present clear and concise instructions
4. Thoughtfully counterbalance stimuli
5. Reduce or eliminate unintentional teacher cues
6. Use effective prompting procedures
7. Use effective reinforcers

Directions for Future Research

- Evaluate clinical variations of sequential methods
- Compare simultaneous and sequential methods of instruction for other skills (e.g., imitation, matching)
- Exploration of methods for alleviating stalled progress during receptive language programs

Thank you !

Questions?