PROGRESSIVE APPROACH TO TEACHING

John McEachin, Ph.D
Seal Beach, CA
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WHAT IS DISCRIMINATION?

• Learning associations
  – Categories
    • Cow goes with horse
    • Apple goes with banana
  – Where things go
    • Shoes go on feet
    • Spoon goes in the sink
  – Names of body parts
  – Describing action

Simple discrimination

• Item itself is SD for response (indicates which response to make in order to get reinforcement)
  • Certain jelly beans taste good
    – Pink Jelly Beans Taste Good; Red Ones Taste Bad
  • Target in isolation:
    – toy car is SD for driving; if you push the car you will receive reinforcement
Conditional discrimination

- When the rule changes
- More information is necessary to know which response is correct
  - Jar A has jelly beans from Jelly Belly
  - Jar B has jelly beans from
- Drive car only gets you reinforcement if teacher says “drive the car”.

Conditional Discrimination:

- Most cognitive tasks require conditional discrimination
- If we are not careful we end up teaching something other than what we intended to teach
  
  Ex: *NVI OBJECT MANIPULATION* with only one item present or only one action performed with item
  
  - This is not conditional discrimination

COMPONENTS OF A DISCRETE TRIAL

- Instruction or event
- Prompt (only if needed)
- Opportunity to respond (approx. 3-5 secs.)
- Feedback or other consequence
- Intertrial interval

Three Term Contingency

- Need to have a temporal link between components
  - if response is not linked to antecedent stimulus then there is no discrimination

Three Term Contingency

- Antecedent S
  - S1: cookie
  - S2: bubbles
- Response
  - says “cookie”
  - says “bubbles”
- Consequence S
  - gets reinforcement
  - no reinforcement

Should These Items Be Part Of The SD?

- Person (which teacher)
- Setting variables
  - Environment
  - Persons
  - Time
Role Of Context As Part Of The SD:

• Different free operant behavior in church vs. playground
• Repeated trials (Massed trials) works because of context
  — but response may be linked to context, not intended SD
• You know it’s OK to drink this cup of coffee because you recently placed your cup in that location

EXTRANEOUS VARIABLES THAT NEED TO BE CONTROLLED

• When those features are absent the remaining (intended) SD is less likely to occasion the intended R
  — e.g., instructions given in a booming voice
• Context as a prompt
  — repeated trials
  — If drill context is not faded then it becomes part of the SD

SELECTING PROMPTS

THE GOLDEN RULE

*IF THERE IS AN EASIER WAY TO GET THE CORRECT R, YOUR STUDENT WILL PROBABLY FIGURE IT OUT*

• Each trial conducted with the S-prompt present, serves to strengthen the function of the prompt as SD
  — this will make it harder to fade the prompt
SELECTING PROMPTS

• Other aspects of the teaching situation can also become part of the SD

EXTRANEOUS VARIABLES THAT NEED TO BE CONTROLLED

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SELECTING PROMPTS

• Prompt dimensions
  – Intrusiveness
  – Assistiveness
  – Fadeability
  – Scalability (vs. ALL or NONE)

PROMPTING DECISIONS

• Deciding prompt type
  – Which prompt?
  – Scaleable vs. All-or-none
  – Intrusiveness vs. Fadeability

COMMONLY USED PROMPTS

• Physical guidance (e.g. hand-over-hand)
• Verbal
• Gestural/pointing
• Modeling/Demonstration
• Proximity
• Recency

PROMPTING DECISIONS

• Deciding prompt type
  – Which prompt?
  – Scaleable vs. All-or-none
  – Intrusiveness vs. Fadeability
• Deciding timing of prompt
  – Before trial?
  – Simultaneous with SD?
  – Delayed?
WAYS OF FADING PROMPTS

• Reduce intensity
  – Less physical pressure
  – Decrease volume
  – Fainter visual image
• Eliminate part of the prompt
  – Partial verbal or auditory prompt
  – Backward or forward chaining
    • Spelling a word

WAYS OF FADING PROMPTS

• Shorter duration
  – Brief display of visual
• Delay onset of prompt
• Slow down progression of prompt
  – Guide student slowly to target

FLEXIBLE PROMPT FADING

• Deciding to fade prompt
  – How soon to Retest following prompted trial?
  – Can you provide reduced level of prompt on retrial (fading)?

Differences Among Various Teaching Procedures

• Aim to minimize errors?
• Proactive decision to prompt vs. reactive (error correction)
• Assume learning progresses in straight line trajectory?

Differences Among Various Teaching Procedures

• When can a prompt occur?
  – Simultaneous or very slight delay
  – Longer delay but before incorrect R
    • May necessitate teaching student to wait
    – Prior to commencement of trial
    – After incorrect R: this is error correction

Differences Among Various Teaching Procedures

• Direction of prompt hierarchy
  – Most to least
  – Least to Most
• Willingness to use variations in prompt schedule as differential reinforcement for certain aspects of learning behavior
Differences Among Various Teaching Procedures

- Use of Differential Consequences
- Preamble (verbal explanation that precedes trial or series of trials)
  - For receptive labels, name each item as you put it into the field

Differences Among Various Teaching Procedures

- Aim to minimize errors?
- Proactive decision to prompt vs. reactive (error correction)
- Assume learning progresses in straight line trajectory?

PROCEDURES WHICH MINIMIZE ERRORS

- Simultaneous (0 sec. delay)
- Constant Time Delay
- Progressive Time Delay
- Most-to-Least Prompt Fading

PROCEDURES WHICH ALLOW ERRORS

- Least-to-Most Prompt Fading
- Flexible Prompt Fading
- Wrong-Wrong-Prompt
- Error Correction

PROCEDURES BASED ON TEMPORAL ARRANGEMENT

- Trace Prompts (memory trace of very recent event)
- Priming
- “MASSED” TRIALS
- Expanding Trials

Differences Among Various Teaching Procedures

- Aim to minimize errors?
- Proactive decision to prompt vs. reactive (error correction)
- Assume learning progresses in straight line trajectory?
DIFFERENCES AMONG VARIOUS TEACHING PROCEDURES
• When can a prompt occur?
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  – Longer delay but before incorrect R
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  – After incorrect R: this is error correction

PROCEDURES WHICH MINIMIZE ERRORS
• Simultaneous (0 sec. delay)
• Constant Time Delay
• Progressive Time Delay
• Most-to-Least Prompt Fading

CONSTANT TIME DELAY
• Controlling Prompt
  – Ensures correct responding at 90% or above
  – Least intrusive controlling prompt is used
• Initially, the controlling prompt is provided simultaneous to
task directive (0 s delay)
  – Initial session or specified block of trials
• A fixed delay interval is used until criterion is met
  – 4 s prompt delay interval is the most common

CONSTANT TIME DELAY
• All correct responses (prompted or unprompted) result in reinforcement
• Incorrect or no responses can result in the following consequences:
  – Verbal feedback (e.g., “No”)
  – Removal of the stimulus
  – A short time-out (e.g., looking away for 10 s)
  – A reminder to wait
  – Assistance
  – A combination of the above

CONSTANT TIME DELAY
• The order in which the target stimuli are presented and
  arranged for each trial is determined prior to each
  instructional session (see data sheet)
• New targets are introduced following criterion level
  responding
• After criterion, targets are placed on a review list
• If a student fails to maintain criterion level responding, an
  intermix condition is run

CONSTANT TIME DELAY
• If the student makes consecutive errors before the controlling
  prompt is provided, then the prompt delay is reduced
  – The prompt delay is systematically increased following consecutive
    correct responding
  – If the student continues to make errors, then a waiting baseline is
    recaptured
• Progressive time delay is used to teach student to wait for
  controlling prompt (Waiting Baseline)
**PROGRESSIVE TIME DELAY**

- PTD is similar to CTD except that the prompt delay interval gradually increases instead of remaining constant across trials.
- PTD begins with 0 s delay trials.
- The prompt delay interval can be increased by inserting either equal (e.g., 1, 2, 3 s) or varying (e.g., 1, 3, 5 s) increments of time.

**PROGRESSIVE TIME DELAY**

- The prompt delay interval is increased after:
  - each instructional session
  - following a certain number of trials
  - when a certain number of correct responses occur
- Increasing the prompt delay interval can continue until a maximum prompt delay interval is reached (constant time delay)
  - or a response criterion is met

**PROGRESSIVE TIME DELAY**

- One can decrease the prompt delay interval following student errors:
  - return to 0 s delay trials and progressively increase again
  - present one 0 s delay trial and then return to the delay interval used before the error
  - reduce the delay interval to the level used right before the student made an error

**MOST-TO-LEAST PROMPT FADING**

- Also known as decreasing assistance
- Assumes student should receive high level of assistance from the outset. Systematically reduce assistance by moving down the hierarchy
  1. Controlling prompt
  2. Reduced level of assistance
  3. Verbal directive alone without prompts
- Criterion for progressing to a less intrusive level in the hierarchy will be specified
  - percent or number of prompted correct responses

**MOST-TO-LEAST PROMPT FADING**

- When the student achieves criterion responding, probe trials are conducted using the next prompt level in the hierarchy
- If the student responds correctly with a less intrusive prompt, this level of assistance is provided until the student meets the criterion
  - at which time another probe is conducted
- If the student does not respond or responds incorrectly, the teacher returns to a more intrusive level in the prompt hierarchy

**MOST-TO-LEAST PROMPT FADING**

- This process continues until the teacher progresses through the hierarchy or until the student is able to respond correctly to the target stimulus
EXAMPLE OF MTL PROMPT HIERARCHY

• Full Verbal: “Patriots”
• 2-choice: “Patriots or Falcons?”
• Discriminative Stimulus: “What team is this?”

LEAST-TO-MOST PROMPT FADING

• Also known as system of least prompts and increasing assistance
• Prompt hierarchy needs a minimum of three levels:
  1. Target stimulus
  2. Increased level of assistance
  3. Controlling prompt
• The response interval and consequences for each student response must be determined before instruction

LEAST-TO-MOST PROMPT FADING

• Each prompt should accompany the target stimulus (antecedent prompt), but can also occur after a student responds (consequent prompt)
• Reinforcement must follow all correct responses (prompted and unprompted)
  — differential reinforcement can also be used depending on the level of assistance provided

PROCEDURES WHICH ALLOW ERRORS

• Least-to-Most Prompt Fading
• Flexible Prompt Fading
• Wrong-Wrong-Prompt
• Error Correction

LEAST-TO-MOST PROMPT FADING

• LTM procedure begins with the presentation of the task directive alone
• Prompts are only provided following a student error or if the student does not respond during the specified response interval
• This process continues until the student responds correctly or all the prompts in the hierarchy have been delivered
FLEXIBLE PROMPT FADING

• Differs from other prompting strategies: NOT prescriptive or formula-based
• Teacher is given a procedural framework and must make decisions on a moment-to-moment basis
• It is a dynamic teaching approach that allows room for teacher discretion and use of judgment
• Does not assume learning progresses in straight line trajectory

FLEXIBLE PROMPT FADING

• Wide Variety of Prompts May be Utilized
  – Organized into hierarchy
  – Give just enough assistance to ensure success, but never more than needed
  – Adapt to the participants ability to successfully use prompts

FLEXIBLE PROMPT FADING

• Wide Variety of Prompts May be Utilized
  – Aim for student to average 80% correct responding over 5-10 trials
  – Wide teacher discretion about when to prompt and which prompt to use

FLEXIBLE PROMPT FADING

• The Golden Rule
  – If I do not prompt on this trial, what is the likelihood that he will get it right on his own?
  – Can you afford to miscalculate?

FLEXIBLE PROMPT FADING

• Prompted trial should be quickly followed by retest
  – Immediately?
  – After 1-2 distractor trials?
  – Prompt as a reinforcer for quality responding (effort)

FLEXIBLE PROMPT FADING

• Fade prompts systematically
• Need to probe to evaluate readiness for reduced assistance
• Prompted trial should be quickly followed by retest
  – Immediately? After 1-2 distractor trials?
  – Prompt as a reinforcer for quality responding (effort)
FLEXIBLE PROMPT FADING
- Being correct after having made an error should be regarded as a prompted response
- Consecutive trials of the same target is also a prompted response
- Overprompting
- Enforcement prompts vs. assistive prompts

Flexible Prompt Fading
- Being correct after having made an error is actually a prompted R.
- Consecutive trials of same target is also a prompted R.

Both types of prompts need to be faded systematically.

Flexible Prompt Fading
- Prompt as reinforcer
  - factoring in behavior when deciding whether to prompt
  - be stingy with prompts if student has made an error due to inattention or off-task behavior

NO-NO-PROMPT
- Where did the "No-No-Prompt" come from?
  - Don’t allow repeated errors
  - Do allow opportunity to learn from mistakes
- Little to No Empirical Research
- Described in
  - Teaching Receptive Language (Pelios & Sucharzewski, 2001)
  - A Work in Progress (Leaf & McEachin, 1999)

NO-NO-PROMPT
- Used Clinically With Great Variation
  - Number of Stimuli
  - Magnitude of the No
  - Whether or not teaching begins with Massed Trials

NO-NO-PROMPT
- Wrong-wrong-prompt-test makes more sense to use after there has been progress toward mastery
  - Would cause too many errors
  - Can cause prompt dependency or frustration
  - Exception: you are deliberately trying to establish trial and error learning
In some ways it is close to Trial and Error Learning

However when based upon a TWO part discrimination it is a sophisticated prompting system

— Because the No should serve as a Prompt to choose the other item

Receptive Discrimination (field of 2):

Trial 1: “Where’s the shoe?”

Student incorrectly selects Apple

Feedback: “No, try again”

Student incorrectly selects Apple (again)
WHAT DOES THIS TELL YOU?

Student now correctly selects Apple. Was that an unprompted response?

Teacher Says:

- Touch Stimuli 1
- Teacher Provides Controlling Prompt
- Teacher SR+ with Token and Toy
- Teacher: NO
- Teacher: Look at data sheet to determine which stimulus to teach
- Teacher Says: Touch Stimuli 1
- Does Student Touch Stimuli 1? Yes
- Teacher SR+ with Toy
- Teacher Provides Controlling Prompt

WHAT ABOUT A FIELD OF THREE?

Trial 1: “Where’s the shoe?”

Teacher Says:

- Touch Stimuli 1
- Teacher Provides Controlling Prompt
- Teacher SR+ with Toy
- Teacher: NO
- Teacher: Look at data sheet to determine which stimulus to teach
- Teacher Provides Controlling Prompt
- Teacher SR+ with Toy

WHAT ABOUT A FIELD OF THREE?

Student incorrectly selects Apple

Feedback: “No, try again”

WHAT ABOUT A FIELD OF THREE?

Trial 2: “Where’s the shoe?”
WHAT ABOUT A FIELD OF THREE?

Trial 2: Student incorrectly selects Dog. 

Prompt or don’t prompt on next trial?

ERROR CORRECTION STRATEGIES

• No proactive prompting
• Always begin with opportunity to perform independently
• May or may not provide feedback
• Correction = Providing information about the correct response
• May simply be Passive Exposure or require Active Response in subsequent retriial

ERROR CORRECTION

Teacher provides SD: "Find the Policeman" 5 seconds to respond

Student responds correctly

Student responds incorrectly

Tangible item

Corrective Feedback and Prompt

Social Reinforcement

Next Predetermined Trial

Teacher provides SD: "Find the Policeman" 5 seconds to respond

Student responds correctly

Student responds incorrectly

Next Predetermined Trial

Proactive Prompting vs. Error Correction?

• It is a widespread belief that teaching procedures should minimize errors:
  – Error Correction should Not be Used When Teaching New Skills (e.g., Gast, 2012)
  – That Errorless Learning Is More Effective than Error Correction (e.g., Gast, 2012)
• However research does not support this practice
  – Leaf 2010 Study (NNP vs. Simultaneous)

NNP vs. SIMULTANEOUS PROMPTING: LEAF et al., 2010

<table>
<thead>
<tr>
<th>Participant</th>
<th>Procedure</th>
<th>Pair 1</th>
<th>Pair 2</th>
<th>Pair 3</th>
<th>Pair 4</th>
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<tbody>
<tr>
<td>Study 1</td>
<td>No prompting</td>
<td>1, 2, 6, 7</td>
<td>1, 6, 7</td>
<td>3, 7, 8</td>
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<td>ACHE</td>
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<td>4, 5, 6, 8</td>
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<td>No prompting</td>
<td>1, 2, 3, 4</td>
<td>2, 3, 4, 5</td>
<td>2, 3, 4, 5</td>
<td>2, 3, 4, 5</td>
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<td>Tangible Item</td>
<td>No prompting</td>
<td>1, 2, 3, 4</td>
<td>2, 3, 4, 5</td>
<td>2, 3, 4, 5</td>
<td>2, 3, 4, 5</td>
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<tr>
<td>Snow Day</td>
<td>No prompting</td>
<td>1, 2, 3, 4</td>
<td>2, 3, 4, 5</td>
<td>2, 3, 4, 5</td>
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EFFICIENCY & EFFECTIVENESS OF NNP VS SP

<table>
<thead>
<tr>
<th></th>
<th># of Targets Attempted</th>
<th># of Targets Successful</th>
<th>Maint % trials/targ</th>
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<tr>
<td>Brady NNP</td>
<td>8</td>
<td>8</td>
<td>88.0%</td>
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<tr>
<td>Ashley NNP</td>
<td>6</td>
<td>6</td>
<td>96.0%</td>
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<tr>
<td>Jeremy NNP</td>
<td>6</td>
<td>6</td>
<td>94.0%</td>
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<tr>
<td>Brady CTD-0</td>
<td>8</td>
<td>2</td>
<td>58.0%</td>
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<tr>
<td>Ashley CTD-0</td>
<td>6</td>
<td>0</td>
<td>55.0%</td>
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<tr>
<td>Jeremy CTD-0</td>
<td>6</td>
<td>0</td>
<td>36.0%</td>
</tr>
</tbody>
</table>

EXPANDING TRIALS

• Learning new vocabulary is a memory task
• Strengthening memory requires repeated recall
• Immediate recall is very easy
  – 0:00 T: “What is this?” (shows spoon)
  – 0:02 T: “Spoon”
  – 0:04 S: “Spoon”
  – 0:05 T: “right”
  – 0:10 T: “What is this?” (shows spoon)
  – 0:12 S: “Spoon”

SELECTING PROMPTS

What is this? ➔ Response ← Consequence S
T:”Spoon”

• Students may actually ignore the S that is intended to be the eventual S
  – salience
  – previous history
EXPANDING TRIALS

- Increase delay between opportunities to practice skill
- Increase distracting or interfering activity during the delay interval

### Trials 1-8

<table>
<thead>
<tr>
<th>SD</th>
<th>Prompt</th>
<th>R</th>
<th>Feedback</th>
<th>ITI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trial 1</td>
<td>&quot;What is this?&quot;</td>
<td>&quot;Spoon&quot;</td>
<td>&quot;Right&quot;</td>
<td>5 secs</td>
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<tr>
<td>Trial 2</td>
<td>&quot;What is this?&quot;</td>
<td>&quot;Spoon&quot;</td>
<td>&quot;Right&quot;</td>
<td>1 min.</td>
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<td>Trials 2-7</td>
<td>&quot;Spoon&quot;</td>
<td>&quot;Right&quot;</td>
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<td>Trial 8</td>
<td>&quot;What is this?&quot;</td>
<td>&quot;Spoon&quot;</td>
<td>&quot;Right&quot;</td>
<td></td>
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</tbody>
</table>

EXPANDING TRIALS

Short term memory: 15-30 secs. without rehearsal
- Rehearsal keeps memory alive and moves information into long term memory
- Recall is easy over short duration
- Learning is optimal when recall occurs at the brink of forgetting

Ease of recall (and likelihood of success) is affected by:
- Duration since last recall
- Interfering mental activity
- Expanding trials is systematic approach to fading trace prompts
  - Target
  - Distractor
- Degree of expansion
EXPANDING TRIALS

- Degree of expansion
  - T = Target
  - D = Distractor (e.g. previously mastered target)

<table>
<thead>
<tr>
<th>TRIALS</th>
<th>Degree of Expansion</th>
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<tr>
<td>1</td>
<td>T</td>
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<tr>
<td>2</td>
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<td>D</td>
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<tr>
<td>7</td>
<td>T</td>
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<tr>
<td>8</td>
<td>T</td>
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How do we know which procedures we should be using?

A Better Question . . .

- How do we know:
  - Which procedures
  - With which students
  - For teaching which skills

Measuring Advantages and Disadvantages of Procedures

- Fewer trials to mastery
- Shorter time to mastery
- Easier to implement
- Easier to train
- Teacher preference
- Fewer errors during acquisition????

Measuring Advantages and Disadvantages of Procedures

- Higher occurrence of positive side effects
  - Learning to learn
    - ability to learn from trial and error
    - Can use process of elimination
  - Visual attention, scanning entire field
  - Self-directed, sustained on task behavior
  - Higher level of affective engagement
Measuring Advantages and Disadvantages of Procedures

- Lower occurrence of negative side effects
  - Reduction of off-task and disruptive behavior
  - Prompt dependency?

Measuring Advantages and Disadvantages of Procedures

- Fewer errors during acquisition may be a redundant measure
  - If time to mastery is not longer, then this is only an issue if there are negative side effects
  - Sometimes errors are good
    - Can learn more from an error than correct R
    - Helps determine maximum acquisition curve

### QUEST FOR EFFICIENCY

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**TARGETED SKILLS:**

**EXPRESSIVE LABELING**

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<th>Participants Name</th>
<th>Targets for Most-to-Least</th>
<th>Targets for Flexible Prompt Fading</th>
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</thead>
<tbody>
<tr>
<td><strong>Billy</strong></td>
<td>Notre Dame &amp; Colts</td>
<td>White Sox’s &amp; Bluejays</td>
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<tr>
<td></td>
<td>Timberwolves &amp; Diamondbacks</td>
<td>Broncos &amp; Marlins</td>
</tr>
<tr>
<td></td>
<td>Orioles &amp; Tennessee Volunteers</td>
<td>Twins &amp; Grizzlies</td>
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<tr>
<td><strong>Sawyer</strong></td>
<td>Alfred &amp; Riddler</td>
<td>Penguin &amp; Poison Ivy</td>
</tr>
<tr>
<td></td>
<td>Jaba the Hut &amp; Chewbacca</td>
<td>Darth Maul &amp; The Emperor</td>
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<td>Cyclophs &amp; Magneto</td>
<td>Wolverine &amp; Storm</td>
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<td><strong>Amanda</strong></td>
<td>Marlene &amp; King Julian</td>
<td>Mort &amp; Maurice</td>
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<td>Skeeter &amp; Brain</td>
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<tr>
<td></td>
<td>Angelica &amp; Grimm</td>
<td>Waffle &amp; Dexter</td>
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**Efficiency FPF vs MTL**

<table>
<thead>
<tr>
<th>Participant</th>
<th>Total Number of Sessions FPF</th>
<th>Total Number of Sessions MTL</th>
<th>Total Number of Teaching Trials FPF</th>
<th>Total Number of Teaching Trials MTL</th>
<th>Total Amount of Time FPF</th>
<th>Total Amount of Time MTL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Billy</strong></td>
<td>14</td>
<td>21</td>
<td>233</td>
<td>370</td>
<td>34 min.</td>
<td>57 min.</td>
</tr>
<tr>
<td><strong>Sawyer</strong></td>
<td>10</td>
<td>14</td>
<td>180</td>
<td>252</td>
<td>26 min.</td>
<td>37 min.</td>
</tr>
<tr>
<td><strong>Amanda</strong></td>
<td>40</td>
<td>31</td>
<td>720</td>
<td>558</td>
<td>84 min.</td>
<td>73 min.</td>
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</table>
**TARGETED SKILLS: MUPPET CHARACTERS EXPRESSIVE**

<table>
<thead>
<tr>
<th>Participants Name</th>
<th>Targets for FPF</th>
<th>Targets for Error Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jimmy</td>
<td>Scooter &amp; Honeydew, Sweetums &amp; Camilla, Floyd &amp; Lew</td>
<td>Beaker &amp; Janice, Rizzo &amp; Sam, Dr. Teeth &amp; Animal</td>
</tr>
<tr>
<td>Rob</td>
<td>Beaker &amp; Janice, Lew &amp; Sweetums, Dr. Teeth &amp; Zoot</td>
<td>Scooter &amp; Honeydew, Rizzo &amp; Sam, Camilla &amp; Floyd</td>
</tr>
<tr>
<td>Billy</td>
<td>Beaker &amp; Janice, Rizzo &amp; Pepe, Dr. Teeth &amp; Zoot</td>
<td>Scooter &amp; Honeydew, Sweetums &amp; Camilla, Floyd &amp; Lew</td>
</tr>
<tr>
<td>Kenny</td>
<td>Fozzie &amp; Waldorf, Zoot &amp; Lew, Dr. Teeth &amp; Statler</td>
<td>Sweetums &amp; Camilla, Rowlf &amp; Floyd, Rizzo &amp; Sam</td>
</tr>
</tbody>
</table>

**QUEST FOR EFFICIENCY**

<table>
<thead>
<tr>
<th>MTL</th>
<th>EC</th>
<th>FPF</th>
</tr>
</thead>
<tbody>
<tr>
<td>JL n=3</td>
<td>1</td>
<td>--</td>
</tr>
<tr>
<td>LD n=4</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>AA n=4</td>
<td>--</td>
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</tbody>
</table>
### FPF vs EC

Table 1: Efficiency data

<table>
<thead>
<tr>
<th>Participant</th>
<th>Total number of sessions (FPF)</th>
<th>Total number of sessions (EC)</th>
<th>Total number of trials (FPF)</th>
<th>Total number of trials (EC)</th>
<th>Total amount of time (FPF)</th>
<th>Total amount of time (EC)</th>
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</thead>
<tbody>
<tr>
<td>Jimmy</td>
<td>10</td>
<td>14</td>
<td>280</td>
<td>280</td>
<td>67:16</td>
<td>89:51</td>
</tr>
<tr>
<td>Rob</td>
<td>10</td>
<td>16</td>
<td>280</td>
<td>280</td>
<td>66:19</td>
<td>89:22</td>
</tr>
<tr>
<td>Billy</td>
<td>12</td>
<td>11</td>
<td>240</td>
<td>220</td>
<td>85:38</td>
<td>82:48</td>
</tr>
<tr>
<td>Kenny</td>
<td>11</td>
<td>14</td>
<td>220</td>
<td>280</td>
<td>92:20</td>
<td>130:12</td>
</tr>
<tr>
<td>Across all participants</td>
<td>45</td>
<td>49</td>
<td>810</td>
<td>980</td>
<td>310:55</td>
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### Efficiency FPF vs EC

<table>
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<tr>
<th>Participant</th>
<th>Total number of Sessions FPF</th>
<th>Total number of Sessions EC</th>
<th>Total number of Teaching Trials FPF</th>
<th>Total number of Teaching Trials EC</th>
<th>Total Amount of Time FPF</th>
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### QUEST FOR EFFICIENCY

<table>
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<td>1</td>
</tr>
<tr>
<td>AA n=4</td>
<td>--</td>
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### Targeted Skills

<table>
<thead>
<tr>
<th>Participants Name</th>
<th>Type of Skill</th>
<th>Targets for Error Correction</th>
<th>Targets for Most-to-Least</th>
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<tbody>
<tr>
<td>Mort</td>
<td>Receptive</td>
<td>3 Muppet Characters</td>
<td>3 Muppet Characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Shrek Characters</td>
<td>3 Shrek Characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Toy Story Characters</td>
<td>3 Toy Story Characters</td>
</tr>
<tr>
<td>Ty</td>
<td>Receptive</td>
<td>3 Actions</td>
<td>3 Actions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Locations</td>
<td>3 Locations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3 Community Helper</td>
<td>3 Community Helper</td>
</tr>
<tr>
<td>Bailey</td>
<td>Expressive</td>
<td>2 Cars Characters</td>
<td>2 Cars Characters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2 Muppet Characters</td>
<td>2 Muppet Characters</td>
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<tr>
<td></td>
<td></td>
<td>2 Toy Story Characters</td>
<td>2 Toy Story Characters</td>
</tr>
<tr>
<td>Huck</td>
<td>Expressive</td>
<td>2 Batman Characters</td>
<td>2 Batman Characters</td>
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<td></td>
<td></td>
<td>2 Comic Book Characters</td>
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### Efficiency

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Number of Sessions EC</th>
<th>Total Number of Sessions MTL</th>
<th>Total Number of Teaching Trials EC</th>
<th>Total Number of Teaching Trials MTL</th>
<th>Total Amount of Time EC</th>
<th>Total Amount of Time MTL</th>
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</thead>
<tbody>
<tr>
<td>MORT</td>
<td>28</td>
<td>25</td>
<td>504</td>
<td>450</td>
<td>238:29</td>
<td>230:00</td>
</tr>
<tr>
<td>TY</td>
<td>13</td>
<td>18</td>
<td>234</td>
<td>324</td>
<td>108:58</td>
<td>156:16</td>
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<tr>
<td>BALEY</td>
<td>18</td>
<td>32</td>
<td>396</td>
<td>576</td>
<td>191:08</td>
<td>352:40</td>
</tr>
<tr>
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<td>234</td>
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<td>77:55</td>
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</table>
### Efficiency EC vs MTL

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<td>3</td>
</tr>
<tr>
<td>AA n=4</td>
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<td>3</td>
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</tr>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>2/7</th>
<th>4/8</th>
<th>5/7</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>29%</td>
<td>50%</td>
<td>71%</td>
</tr>
</tbody>
</table>

### DID YOU REALLY REMOVE THE UNWANTED PROMPT?

Receptive discrimination task:

"Find banana"
DID YOU REALLY REMOVE THE UNWANTED PROMPT?
Receptive discrimination task:

Student Points to Middle Picture

DID YOU REALLY REMOVE THE UNWANTED PROMPT?
Receptive discrimination task:

Instructor scrambles field

DID YOU REALLY REMOVE THE UNWANTED PROMPT?
Receptive discrimination task:

“Find banana”

DID YOU REALLY REMOVE THE UNWANTED PROMPT?
Receptive discrimination task:

Student Points to Middle Picture

WHAT ARE YOU REALLY TEACHING?
Spell your name using location prompt

A N I E L
D _ _ _ _ _

WHAT ARE YOU REALLY TEACHING?

Mass trials for teaching receptive labels
– if you can say “blah, blah, blah” and the student makes correct R . . .
• Two step receptive out of chair:
  – if student makes a mistake, prompting him through will not help him learn to remember
  – teach him to verbally direct himself through the steps
WHAT ARE YOU REALLY TEACHING?
Two item object retrieval (field of 2):

“Get the shoe and the apple”

WHAT ARE YOU REALLY TEACHING?
Compose quantity with exact field prompt:

“Make it three”

WHAT ARE YOU REALLY TEACHING?

• Object manipulation NVI with only one object or only one action

— “do what you’re supposed to do” would work equally well as SD

TASK SEQUENCING VS. CONTROLLING PROMPTS

• Leading students to discover the concept you are trying to teach
• Controlling prompts do not assure this
• May be able to conduct rational analysis of task
• Otherwise dependent on trial and error testing

TASK SEQUENCING VS. CONTROLLING PROMPTS

“Which number is bigger?”

“Put these in order”
TASK SEQUENCING VS. CONTROLLING PROMPTS

"Which is biggest?"  "Which is smallest?"

"Put these in order"

"Put these in order"  "Which one is bigger?"