**Differential Reinforcement:**

* *Differential reinforcement is the process of reinforcing a specific response in a particular context and not reinforcing (i.e., extinguishing) other responses* – Zane (2013)
* In other words – give a little reinforcement for something small and a lot of reinforcement for something great
* Used when teaching a new skill
* Used to shape behavior into a refined response (e.g., “coo-ee” vs. “cookie”)

**Shaping:**

*Systematic and differential reinforcement of successive approximations to a desired behavior that is currently not in an individual’s repertoire*

* Systematically: scientific and consistent
* Differentially Reinforce: be selective about what responses are reinforced
* Successive Approximations: reinforce small steps

**Shaping Exercise:**

* Hot/Cold Game with a maraca
* Have someone leave the room (the ‘student’)
* As a group inside the room, hide an object
* Elect someone to be the shaper – give them a maraca
* Call the person back into the room to find the hidden item
* Shaper uses maraca to indicate hot (getting close) or cold (very far)
* If necessary, switch the shaper until the person/student finds the hidden object

**Discussion:**

* What was it like to be the ‘student’?
* What was it like to be the ‘teacher/shaper’?
* What characteristics did you have to have in order to be effective?

**Summary of Shaping Exercise:**

* Confusing and frightening, when you as the learner do not know what response is wanted, but you still try to find a way to the reinforcer
* Need to be in tune with the ‘learner’
* Need to change rate of reinforcer (e.g., tapping slower when in right area but doing it incorrectly)
* Need to closely define when reinforcement is going to happen
* Have to be careful not to overpraise and develop dependence on reinforcer
* Need to have in mind what the EVENTUAL goal is, so do not accidentally *not* reinforce it, and thereby be detrimental to learning

**Characteristics of a Good Shaper:**

* Heightened attention to learner responses (exclusive attention on child’s behavior)
* Heightened attention to own responses
* Modify prompts and feedback levels in response to learner behavior
* Contingent/consistent on what is reinforced
* Fade prompts quickly
* Identify stimulus that function as reinforcers

**Characteristics of a Good Shaper Continued:**

* Remember the last approximation from the previous session
* Consistent yet flexible (flexible enough to go back in chain if necessary)
* Turn on and off reinforcement
* Be contingent in use of reinforcement
* Have goal in mind (terminal behavior = end goal in shaping)
* Loosens contingencies when ready (generalize behavior)
* \*\*Attend to the learner\*\*

**Examples:**

* Knocking over pins while bowling – teach the student to knock down bowling pins by systematically reinforcing successful rolls from positions further and further away from the pins
* Attending to the teacher in class – teach the student to stay on task by systematically reinforcing attending behavior for longer and longer intervals (e.g., first sits in class for last minute, then for last 2 minutes, etc.)
* Desensitization to animals – any ideas?

**Steps of Shaping:**

* (1) Select the target behavior (define)
* (2) Select the initial behavior (define)
* (3) Select powerful reinforcers
* (4) Reinforce initial behavior until it occurs frequently (i.e., define ‘frequently’)
* (5) Reinforce successive approximations systematically (CRS – continuous reinforcement schedule) – define and be consistent!
* (6) Reinforce target behavior (CRS)
* (7) Thin schedule of reinforcement of target behavior

**Maximizing Shaping:**

* Combine SD with shaping
* Combine physical guidance (or another type of prompt) with shaping
* Combine an imitative prompt (model the response) with shaping
* Combine fading with shaping

**Prompting:**

* What is it and why do it?

**Prompts:**

* Supplementary antecedent stimuli that, when presented with a discriminative stimulus, increase the future probability of a response
* In other words: prompts help to facilitate responding

Reinforcement

Response

SD

Prompt

**Prompts May Be…:**

* Verbal
* Physical
* Modeled
* Positional
* Video (model prompt via video)
* Gestural
* Textual (written)
* Photographic/Pictorial
* Audiotaped (model)
* Stimulus Prompts (anything else that is not specified above)

**Fading Prompts:**

* Goal with prompts = FADE!
* Fading: the gradual removal of a prompt
* Identify natural discriminative stimulus – shift responding/transfer stimulus control from the supplementary antecedent stimulus to the natural discriminative stimulus

**Prompt Procedures:**

|  |  |  |
| --- | --- | --- |
| Least Intrusive | Visual | More Independent |
|  | Verbal |  |
| Gestural |
| Modeling |
| Partial Physical |
| Most Intrusive | Full Physical | Less Independent |

**Note:**

* You can fade within sessions, or across sessions
* What is the difference?
	+ Within Sessions: fade prompts during the same teaching opportunity
	+ Across Sessions: fade prompts across days

**How to Fade Prompts:**

* Graduated Guidance: *A technique combining physical guidance and fading in which the physical guidance is systematically and gradually reduced and then faded completely* – Foxx (1982)
* Come in and prompt only when you anticipate an error (used in long response chains) and then remove prompt
* \*\*Make sure to stand behind the student (out of sight)\*\*
* Does anyone know why?

**Fading Physical Prompts:**

* Graduated Guidance
	+ Hand over hand
* Partial Graduated Guidance
	+ Hand over wrist
	+ Hand over elbow
	+ Hand over shoulder
* Shadow
	+ Hover 2-3 inches behind student
	+ Stand 3 feet away
	+ Stand in doorway
	+ Be out of sight
* Make sure to stand behind the student – out of sight
Does anyone know why?

**Fading Text/Picture Cues:**

* Back to front
* 30% faded
* 60% faded
* 90% faded
* Blank card
* 100% faded (no more prompt)

**More Prompt Fading Techniques:**

* Time Delay: errorless
* Stimulus Fading: highlighting/exaggerating one physical dimension of stimulus (exaggerating font)
* Stimulus Shaping: embedded prompt within stimuli (e.g., car drawing to teach reading)

**Rules for Prompting and Prompt Fading (Foxx, 1982):**

* Do not use a prompt that has been faded
* Always begin each training session/day by using the prompts that the student successfully responded to at the end of the previous session/day
* Always remain within arm’s reach of the student during the initial stages of training
* Why? (Let’s discuss!)

**How to Determine Prompts:**

* Define the response (it must be observable and measurable)
* Conduct a prompt assessment to identify the least intrusive prompt that RELIABLY produces the response
* If the prompt does not reliably control the response, change the prompt
* Prompts should be clear, clean, and effective (there should be ambiguity about what response is expected)
* Sometimes a student needs to be taught to respond to a particular prompt (i.e., teaching a student to respond to a language master card)

**Errorless Teaching:**

* Identify the response
* Conduct a prompt assessment to identify the least intrusive prompt that RELIABLY produces the response
* If the prompt does not reliably control the response, change the prompt
* Prompting should be related to the NATURAL discriminative stimulus
* Prompts should be clear, clean, and effective (there should be ambiguity about what response is expected)
* Sometimes a student needs to be taught to respond to a particular prompt (i.e., teaching a student to respond to a language master card)

**Differential Reinforcement in Errorless Teaching:**

* Initially, errorless, prompted responses are reinforced, then it is faded systematically to avoid errors
	+ SD – Prompt – Response – Praise
	+ SD – Faded Prompt – Response – Praise
	+ SD – No Prompt – Response – Tangible

*Expanded Trial: (high probability response)*

* + Then: SD – No Prompt – Response – Tangible

**Prompt vs. Error Correction:**

* Prompt: occurs before a response (predict the error)
* Error Correction: after a wrong response

Reinforcement

Response

SD

Error Correction

Prompt

**Teaching Procedure (Transfer Trials):**

* SD – Prompt – Response – Bx Specific Praise
\*\* no other reinforcement – mark as incorrect\*\*
* Transfer Trial: (no data)
	+ SD – Response – Differential Reinforcement (a little reinforcement)
	+ 3 strikes you’re out (prompt, prompt, prompt) – MOVE ON
* Expanded Trial: (no data)
	+ High-P’s then, re-ask question
* New Trial: data

**Teaching Procedure (Transfer Trials) Continued:**

* When a student errors, correct immediately
* BUT THAT’S NOT ENOUGH
* Throw your pen down and teach
* Do what is called a ‘Transfer Trial’
* Present the SD again – get ready to prompt this time if the student is going to error
* Then provide differential reinforcement based on how much prompting was given

**Teaching Procedure (Transfer Trials) Continued:**

* If you had to give some prompting, do another trial (without data)
* Get ready to prompt again
* Provide differential reinforcement based on how much prompting was given
* Repeat up to 3x until the student is responding independently to the SD
* Go onto something else that the student typically has success with (‘high probability response’)
* Then come back and test the response again

**Sequence:**

* First Trial (data collection):

Mark Incorrect
(no reinforcement)

SD

Prompt/Error

* Transfer Trial (up to 3x, no data):

Predict Error and PROMPT

Differential Reinforcement

SD

* Then: Expanded Trial – high-probability response(s)
* Then: New Trial (data collection):

Reinforcement or Transfer Trial
(data collection)

Response

SD

**References:**

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