

# SHAPING AND CHAINING

UTILIZING SHAPING AND CHAINING TO INCREASE INDEPENDENT AND ADAPTIVE LIVING SKILLS



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# GOALS OF TRAINING

- Define shaping and chaining
- Understand why shaping and chaining are utilized
- Understand the steps to implement shaping and chaining
- Understand the different types of chaining
- Understand how to utilize shaping and chaining to teach your child adaptive and daily living skills

# WHAT IS SHAPING?

- **Technical Definition:** Process by which successively closer approximations of a behavior are reinforced
- Shaping involves teaching your child a skill, by providing them with reinforcement for each step that is closer and closer to the final target skill. This may be a skill that your child has already partially learned or has some parts of the skill within their repertoire, but can't complete accurately, consistently.
- **Successive approximations**
  - steps toward the target behavior, the behavior you want to shape.
  - New response class that emerges during shaping as the result of differential reinforcement

# WHY IS SHAPING USED?

- Approach to add behaviors and skills to a child's repertoire
- Shaping allows reasonable goals to be set and gives the child many chances for success to learning a new, challenging behavior.

# SHAPING

## The most important points about shaping:

- Shaping reinforces successive approximations of a skill
- Behavior must be “in the ball park” before you can use shaping
- The target behavior is infrequently or never displayed
- You must decide what the behavior is to be “shaped up.”
- The target behavior is “shaped up” by reinforcing the nearest approximations of that behavior.
- Only reinforce the last, closest approximation of the target behavior
- These levels of skill should be progressively more demanding.

# RULES FOR SHAPING

1. Identify a target behavior and determine the final goal
2. Identify child's present level of performance – determine a starting point for shaping
3. Create Step Analysis (the shaping steps)
4. Reinforce successive approximations
5. Monitor results - move through the steps at a proper pace; be prepared to move backwards

## STEP ANALYSIS

- Breaking down a target behavior into smaller, more manageable steps (Tas)
- Shaping is used to teach relatively simple tasks by breaking the task down into smaller components.
- By breaking down the target behavior, each step brings the child successively closer to the desired target behavior.
- The goal is for the child to work towards completion of the first step, for which he/she is reinforced.
- In shaping, reinforcement is delivered all throughout the steps.
- When he/she masters that step, the next step becomes the new goal and the child is differentially reinforced until the second goal is mastered, etc.

# DIMENSIONS OF SHAPING

- **Topography** (form of the behavior)
- Frequency (number of responses per unite of time)
- **Latency** (time between onset of the antecedent stimulus and the occurrence of the behavior)
- **Duration** (total elapsed time for occurrence of the behavior)
- **Amplitude/Magnitude** (response strength or force)



# SHAPING EXAMPLE

- For example, John never does his math homework. You would like to have him complete his homework on a daily basis. You realize that if you wait for him to complete his homework before you reinforce him in some way, you may never (or infrequently) have the opportunity to administer a positive consequence.

## SHAPING EXAMPLE

- John will write his name at the top of the worksheet.
- John will complete one problem of his choice.
- John will complete five problems of his choice.
- John will complete either all the odd numbered problems or all the even numbered problems.
- John will complete all problems except one.
- John will complete all problems.

## SHAPING EXAMPLE #2

Current Level: John can currently play independently for three minutes, but needs three or four prompts to stay in play area

Goal: John will play independently for 10 minutes with two or fewer prompts

## SHAPING EXAMPLE #2 STEP ANALYSIS

- John will play for two minutes with two or fewer prompts
- John will play for four minutes with two or fewer prompts
- John will play for six minutes with two or fewer prompts

# SHAPING & REINFORCEMENT

- Shaping reinforces successive approximations of a skill
- Shaping involves reinforcement to reach a new behavior
- Only reinforce the LAST, closest approximation of the target behavior

## QUESTIONS TO ASK

- Are you seeing progress toward the target behavior?
- Is the behavior that occurs now closer to the target behavior?
- Has the behavior begun to break down?
- Should you move back to the previous level?
- Is it time to hold out for a closer approximation?

# FINAL COMMENT ON SHAPING

- Time consuming
- Progress is not always linear
- Requires consistent monitoring of learner
- Can be misapplied
- Harmful behavior can be shaped

# WHAT IS CHAINING?

- **Technical Definition:** Teaching procedure in which less complex elements of a specific task or behavior are taught in the sequence they are performed.
- Chaining involves breaking down a skill that requires multiple, distinct steps (such as tying shoes, washing dishes, sweeping the floor, etc.) and teaching the steps one at a time to your child.
- The goal of chaining behavior is to have the student perform each component behavior of a complex task independently.



# HOW CAN YOU DEVELOP A CHAIN TO TEACH YOUR CHILD?

- There are multiple ways to break down a skill into a chaining procedure so that you can focus on teaching your child one step at a time:
  - Observe a competent individual perform the task
  - Consult with experts or persons skills in performing the task
  - Perform the task yourself

# EXAMPLE OF CHAINING: ZIPPING

- 1) Student holds zipper so each half of the zipper touches the other.
- 2) Student demonstrates step 1 and connects the two halves together.
- 3) Student completes steps 1-2 and pulls zipper to top.
- 4) Student demonstrates ability to complete task independently.

# CHAINING: IMPORTANT POINTS

- Appropriate for all ages and skill levels. Anyone, at any level can be taught a skill through a chaining process.
- Baseline the chained sequence first; identify where the student can perform the chain independently. Assess where you will begin teaching in the chain.

## CHAINING: IMPORTANT POINTS

- No verbal direction is given after the initial Sd (any additional verbal directives would be considered a verbal *prompt*).
- Task analysis must be completed before chaining two or more component behaviors together.
- Decide which type of chaining procedure will be used.

# TYPES OF CHAINING

## I. Forward Chains –

- Task analysis is taught beginning with the first step
- Reinforcement is delivered when the first behavior in the sequence is achieved.
- Each succeeding step requires the cumulative practice of all previous steps in the proper order.

# FORWARD CHAINING

- Effective in teaching the first steps of a skill when they are less complex and easily acquired than the later steps.
- Used to teach a skill when an individual is able to complete most of the initial steps.

# FORWARD CHAINING: EXAMPLES

- Play skills
- Self- help
  - Shaving
  - Showering
  - Clean-up
  - zipping

# TYPES OF CHAINING

## 2. Backward Chains –

- Task analysis is taught in reverse order (last step first) until all steps are completed independently.
- All of the behaviors identified in the task analysis are completed by the teacher, except for the final behavior in the chain.
- Allows a student to be reinforced immediately after the task is complete; as student sees the result, he/she is reinforced by the completion of the task itself.



# BACKWARD CHAINING • EXAMPLES

- Washing Hands
- Shoe Tying
- Play skills
  - puzzles

# BACKWARD CHAIN: SHOETYING

- 1) Student pulls loops tight
- 2) Student pulls loops tight, and pulls left lace through to form second loop.
- 3) Steps 1-2, student crosses left lace around right loop.
- 4) Steps 1-3, student makes right loop.
- 5) Steps 1-4, student makes knot preceding loop making.
- 6) Steps 1-5, student crosses laces.
- 7) Student independently ties a bow.

# SIMILARITIES BETWEEN BACKWARDS AND FORWARD CHAINING PROCEDURES:

- Both procedures teach a chain or series of behaviors.
- Both teach one component of the behavior at a time and chain the behaviors together.
- Both use the appropriate prompting and fading techniques to teach each component.

## DIFFERENCES IN CHAINING PROCEDURES:

- When using backwards chaining, the student completes each component or step of the behavior or task, each time it is performed.
- Each step is not completed in a forward chaining procedure until the individual has demonstrated independence in the previous step.
  - This requires the use of appropriate reinforcement until the last component behavior is learned. Natural reinforcement occurs only after the final step is learned and student is independent in the task.

# TYPES OF CHAINING

## 3. Total Task Presentation –

- Child completes all of the steps in the task in sequences
- Child must know all or most of the subtasks
- Teacher assistance is provided with any step that the individual is not able to perform
- Typically used with children who are considered less severe
  
- For example, use to teach generalization of talking on phone. Child can talk on home phone, teach to use cell phone, pay phone, etc.

# VIDEO – TASK ANALYSIS / CHAINING

- [http://www.youtube.com/watch?v=gjH37NaThSo&playnext=1&videos=CYCBCaAKQzl&feature=mfu\\_in\\_order](http://www.youtube.com/watch?v=gjH37NaThSo&playnext=1&videos=CYCBCaAKQzl&feature=mfu_in_order)
- Start 1:57, end 3:20

# FACTORS AFFECTING BEHAVIOR CHAINS

- Completeness of the TA
- Length or complexity of chain
- Schedule of reinforcement
- Stimulus variation
- Response variation