

# Chaining

**WHAT IS IT?** An errorless learning teaching procedure. 3 Types of Chaining Procedures:

- **Backward Chaining:** A chaining procedure that begins with the last element in the chain and progresses to the first element. In backward chaining the learner continues to perform the skill in sequential order; however, you teach the elements or links of the chain in reverse order, meaning, the last step in the chain is taught first.
- **Forward Chaining:** In forward chaining, you start teaching at the first step within the chain. Once the learner is able to perform the first step independently, you have them perform the first and second steps and reinforce at the completion of the second step. In forward chaining, you add more elements of the task once the student has learned the previous steps. For the steps of the chain the student is not actively being instructed, the teacher can guide the learner through the rest of the chain, or model the task steps depending on what skill is being taught.
- **Total Task Chaining:** Also called total-task presentation or whole-task presentation is a variation of forward chaining in which the learner receives training on each step in the task analysis during every session. Trainer assistance is provided using prompts with any step that the learner is not able to perform. Examples of prompts could be verbal instructions, modeling, and physical guidance. The chain is trained until the learner performs all the behaviors in the sequence to criterion.

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## WHY IS IT IMPORTANT?



- To teach new skills.
- To reduce errors.
- Greater opportunity for reinforcement due to fewer errors, and consequently, reduced frustration for the student.

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- Used to teach chained behaviors (e.g., a series of behavior that make up a complex skill).
  - A task analysis will be required for chained behaviors such as hand washing.



## WHEN CAN IT BE USED?

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## HOW TO IMPLEMENT?

### Backward Chaining:

- Deliver cue to student.
- Provide hand over hand guidance through task until teaching step (e.g., last step of task).
- Release hands at teaching step to allow for independence.
- Follow prompt hierarchy to teach step.
- Allow 3-5 seconds of response time between prompt levels.
- Reinforce at the completion of the task.
- Move to the second to the last step of the chain once student meets criterion.
- Record data only on the teaching step you are working on.

- Avoid repeating the same prompt more than once. For example, don't give 4 gestural prompts on the same teaching step. Instead, give one gestural prompt if the student doesn't respond, move to the prompt level (e.g., partial physical prompt).
- Avoid overusing verbal prompts. After giving one verbal prompt, silently move to the next prompt level in the hierarchy. Too much talking can confuse and frustrate the learner. Also, verbal prompts are difficult to fade and dependency on the instructor can occur with over usage of verbal prompts.

## HOW TO IMPLEMENT?

### Forward Chaining:

- Deliver cue to student.
- Allow for independence on the first teaching step.
- Allow 3-5 seconds of response time between prompt levels.
- Respond to incorrect responses by moving up the prompt hierarchy.
- On all other steps of the chain, provide guidance or model the task steps being taught.
- Record data only on the teaching step you are working on.
- Avoid repeating the same prompt more than once. For example, don't give 4 gestural prompts on the same teaching step. Instead, give one gestural prompt if the student doesn't respond, move to the prompt level (e.g., partial physical prompt).
- Avoid overusing verbal prompts. After giving one verbal prompt, silently move to the next prompt level in the hierarchy. Too much talking can confuse and frustrate the learner. Also, verbal prompts are difficult to fade and dependency on the instructor can occur with over usage of verbal prompts.

## HOW TO IMPLEMENT?

### Total Task Chaining:

- Deliver cue to student.
- Allow for independence on each teaching step.
- Determine and follow prompt hierarchy on each teaching step.
- Allow 3-5 seconds of response time between prompt levels.
- Respond to incorrect responses by moving up the prompt hierarchy.
- Record data on each task step.
- Avoid repeating the same prompt more than once. For example, don't give 4 gestural prompts on the same teaching step. Instead, give one gestural prompt if the student doesn't respond, move to the prompt level (e.g., partial physical prompt).
- Avoid overusing verbal prompts. After giving one verbal prompt, silently move to the next prompt level in the hierarchy. Too much talking can confuse and frustrate the learner. Also, verbal prompts are difficult to fade and dependency on the instructor can occur with over usage of verbal prompts.

- Currently, there are no research studies to support which chaining procedure should be the method of first choice.
- Each chaining procedure can be effective if matched appropriately to the learner's individualized needs.
- A student that is likely to make many errors, and has few of the prerequisite skills to perform the task, would likely benefit from a backward or forward chaining procedure.
- One advantage of a backward or forward chaining procedure, the learner is only required to learn a small portion of the chain, and gradually build upon those skills. This reduces the task load and may help to reduce frustration when learning a complex task.
- Although overwhelming conclusive data do not favor one chaining method over another, anecdotal evidence and logical analysis suggest that total-task chaining may be appropriate when the student can a.) perform many of the tasks in the chain, but needs to learn them in sequence; b.) has an imitative repertoire; c.) the learner doesn't make many errors; and d.) when the task sequence or cycle is not very long or complex (Cooper, Heron, & Heward, 2007).

## WHICH ONE DO I USE?



To view a short video, scan here:



## REFERENCES

- Alberto, P. A., & Troutman, A. C. (2013). *Applied behavior analysis for teachers (9<sup>th</sup> ed)*. Upper Saddle River, New Jersey: Pearson.
- Chance, P. (2006). *First course in applied behavior analysis*. Long Grove, IL: Waveland Press. Upper Saddle River, New Jersey: Pearson.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis (2<sup>nd</sup> ed)*. Upper Saddle River, New Jersey: Pearson.
- Leach, D. (2010). *Bringing ABA into your inclusive classroom: A guide to improving outcomes for students with autism spectrum disorders*. Baltimore, Maryland: Paul H. Brookes Publishing Company.
- Test, D. W., Spooner, F., Keul, P. K., & Grossi, T. (1990). Teaching adolescents with severe disability to use the public telephone. *Behavior Modification*, 14, 157-171.