

Chaining Procedures and Task Analysis (TA)

By: Adeela Shah, M.ED,LBA,BCBA

- What is a behavior chain?
- What is the difference between shaping and chaining?

Shaping

- ▶ Shaping is a way of adding behaviors to a client's repertoire.
- ▶ Shaping is used when the target behavior does not yet exist.
- ▶ In shaping some approximation of the target behavior can be reinforced.
- ▶ Examples?

Behavior Chain

- ▶ A behavior chain is a specific sequence of discrete responses, where each response is associated with a particular stimulus condition.
- ▶ Each discrete response and the associated stimulus condition serve as an individual component of the chain.
- ▶ When all the individual components are linked together, then it result in a behavior chain.

(Cooper, Heron, & Heward, 2007)



Important Characteristics of a behavior chain

- ▶ A behavior chain involves the performance of a specific series of discrete responses
- ▶ The performance of each behavior in the sequence produces conditioned reinforcement for the preceding response and serves as an SD for the next response
- ▶ Responses within the chain must be performed in a specific sequence.

(Cooper, Heron, & Heward, 2007)



Example of a response chain

SD

- Put on your coat
- Coat in hands
- One arm in sleeves/one arm out
- Coat on

R

- Obtain coat from the closet
- Places one arm in sleeve
- Places second arm in sleeves
- Zip up the coat

Conditioned Reinforcement

- Coat in hands
- One arm in sleeves
- Coat on
- The instructor praise

(Cooper, Heron, & Heward, 2007

Rational for using chaining Procedure

To increase skills of clients such as self-care, vocational, and independent living skills .

Chaining can occasion delivery of positive reinforcement.

Chaining can be easily combined with other behavior change prompting, instructing, and reinforcing procedures to build more complex and adaptive repertoires.

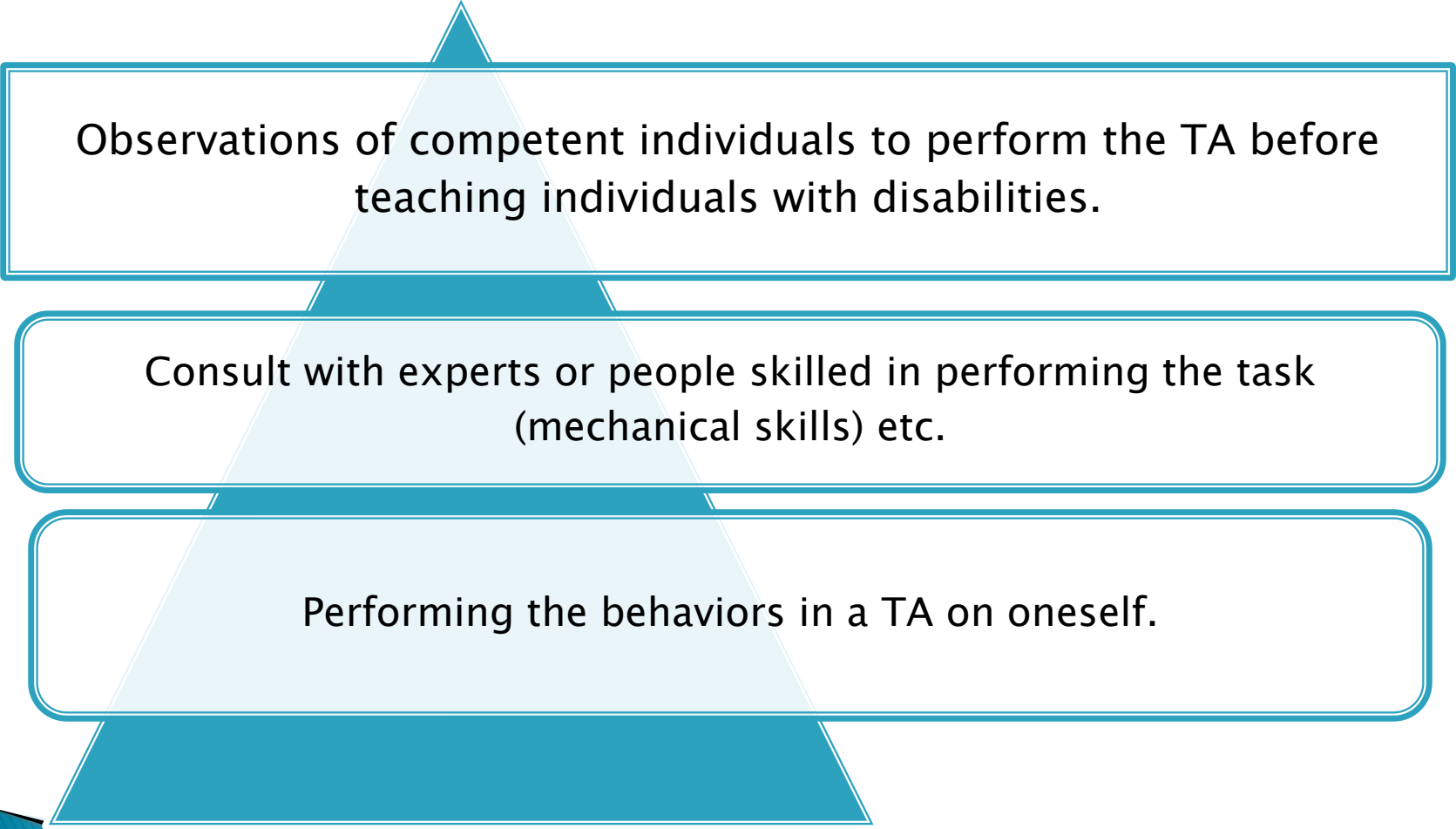
(Cooper, Heron, & Heward, 20

Task Analysis (TA)

- ▶ It involves breaking down of complex skills into smaller and teachable units.
- ▶ A series of sequentially ordered steps or tasks.
- ▶ TA must be individualized according to age, skill level, and prior experience.
- ▶ TA must be constructed and validated in order to determine the sequence of behaviors that are necessary and sufficient to complete a given task efficiently.

(Cooper, Heron, & Heward, 2007

Ways to construct and validate TA



Observations of competent individuals to perform the TA before teaching individuals with disabilities.

Consult with experts or people skilled in performing the task (mechanical skills) etc.

Performing the behaviors in a TA on oneself.

(Cooper, Heron, & Heward, 2007)

Behavior Chaining Methods

- ▶ **Forward Chaining:** behaviors in the TA are taught in naturally occurring order.
- ▶ Relatively easy
- ▶ Each step of the sequence is taught and reinforced when completed correctly.
- ▶ Once the client completes step one with a predetermined criterion of accuracy, then the client is taught the next step of the sequence with reinforcement contingent upon completion of all previous steps.

(Cooper, Heron, & Heward, 2007)



Total Task chaining

- ▶ Also called “ **total task presentation or whole task presentation**)
- ▶ It is a variation of forward chaining procedure in which assistance is provided with any step the client is unable to do independently
- ▶ The chain is trained until the client is able to perform all the steps in a TA independently.
- ▶ This is an appropriate chaining procedure for a client who can perform many of the steps in a chain, but needs to learn them in sequence, or has an imitative repertoire.

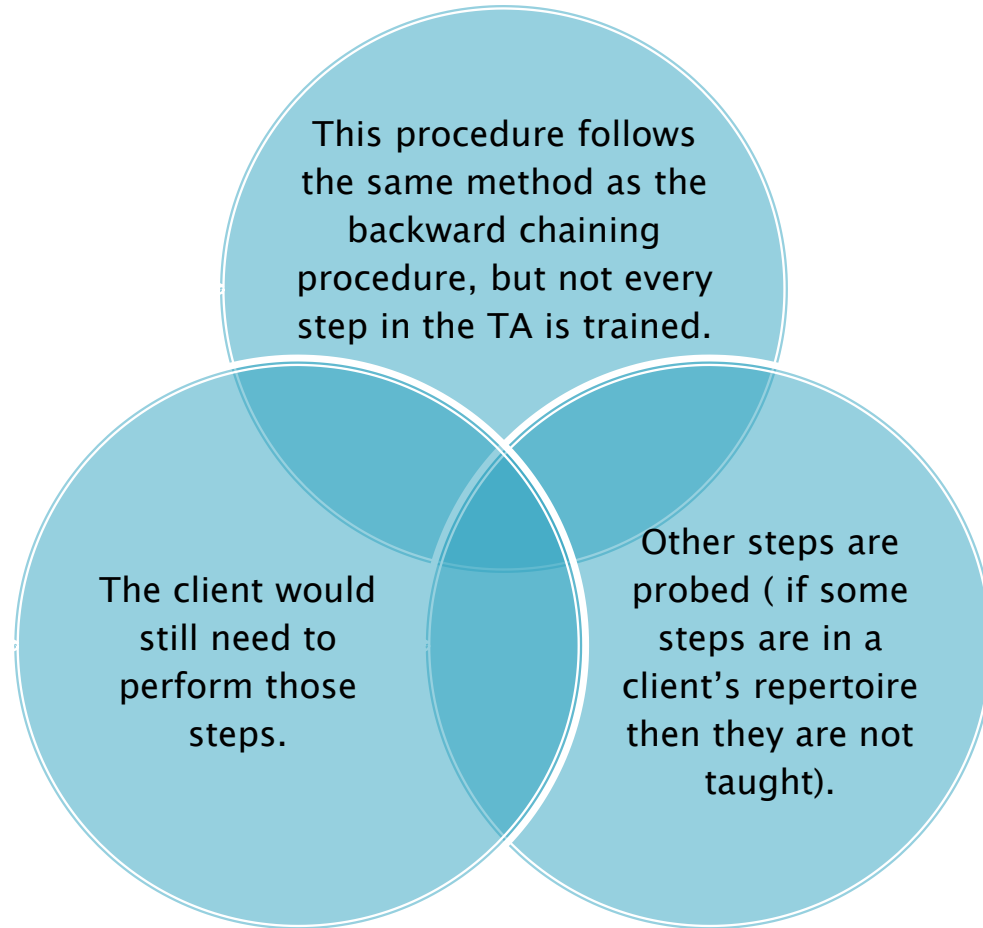
Backward chaining procedure

- ▶ All the steps in the task analysis are introduced in reverse order.
- ▶ In this chaining procedure, all the identified steps in a TA are completed by the behavior technician, except for the final behavior in the chain.
- ▶ When the client performs the final behavior in the sequence at the predetermined criterion level, reinforcement is delivered.
- ▶ Next, reinforcement is delivered when the last and the next-to-last behaviors in the sequence are performed to criterion.

(Cooper, Heron, & Heward, 2007)



Backward Chaining with leap ahead



(Cooper, Heron, & Heward, 2007)

Which to use?

No data to indicate one is more effective over another

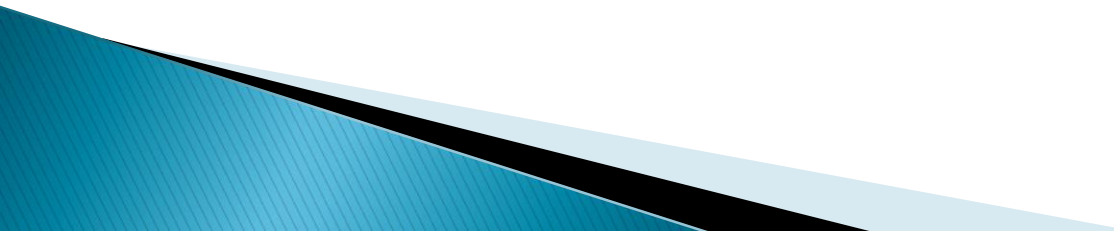
A comparison study conducted to examine the evidence reported between 1980 till 2001 does not show one chaining procedure more effective over another. (Kazdin, 2001)

(Cooper, Heron, & Heward, 2007)

Factors

- ▶ Factors affecting the performance of a behavior chain include:
 - Completeness of the task analysis
 - More complete, detailed task analyses tend to produce better learning
 - Individualize the TA
 - modify if necessary even after constructed.
 - Length or complexity of the chain

Longer chains take more time to learn and master



Factors con't

- Schedule of reinforcement

Consider the number of tasks in a TA before determining when to reinforce

Must use appropriate schedule of reinforcement

- Stimulus variation

Introduce all variations of the stimulus items for generalization of the chain.

For instance: with dress skill (different buttons, zippers etc)

- Response variation

Varying responses along with stimulus variation

(Cooper, Heron, & Heward, 2007)

Sources

- ▶ Cooper, Heron,& Heward. (2007). *Applied Behavior Analysis*. Upper Saddle River , N.J. : Pearson.
- ▶ *Applied Behavior Analysis:*
<http://abaappliedbehavioranalysis.weebly.com/chaining.html>
- ▶ *Shaping and Chaining:*
http://www.bbbautism.com/aba_shaping_and_chaining.htm