## EVIDENCE-BASED PRACTICE

### BACKWARD CHAINING

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<th>Subject Area(s)</th>
<th>Life Skills/ Functional Skills/Academic Skills</th>
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<td>Grade Level(s)</td>
<td>K-adulthood</td>
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<td>Brief Summary</td>
<td>Backward chaining is an algorithm for successfully completing a goal by breaking down the task into smaller sub tasks. Backward chaining typically starts with the last skill that entails learning the skill in reverse order.</td>
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**Expanded Description**

Backward chaining is an instructional method that breaks a task into its parts and requires the student to finish the task from progressively earlier points in the sequence of events. Historically this approach was used to address the needs of students with and without disabilities; however, there is a heavier use for students with more significant disabilities. Practitioners should be aware and consider the prerequisite skills of the students/participants and the target behavior when choosing an intervention to teaching these skills (Rayner, 2011).

Backward chaining has traditionally been implemented in school environments at the elementary, middle school, and high school level primarily with students with disabilities. Several types of tasks have been completed using this approach. For example, it was very effective in enabling one participant to reach mastery in tying shoe laces (Rayner, 2011).

Backward chaining could prove to be ineffective for students who use or prefer to learn in a chronological order. Backward chaining appeals to both teachers and specialists because it can be implemented quickly. The tasks simply must be understood and defined into backward steps. The steps can be implemented with numerous students across various settings. Both backward and forward chaining procedures were preferred over a baseline condition without prompting, but the participants did not prefer a specific type of chaining (Slocum, S., & Tiger, J., 2011).

Backward chaining aims to improve a student’s ability to complete a task from learning steps in reverse chronological order. Students are increasing their ability to follow directions while developing a skill or several skills. The student is able to self-monitor their progress while preforming the task. Research has shown that individuals with autism and intellectual disabilities that used backward chaining to independently access a specific website showed an increase in following training (Jerome, Frantino & Sturmey, 2007).
Essential Components/ “How to” Information

- **Prerequisites for Personnel**
  - **Forming a team**
    - Can consist of 1 person/student to a whole class
    - Responsibilities include: recognizing deficits in specific task determining students in need of intervention, overseeing implementation, and monitoring progress,
    - Teachers: special education/ general education, behavior specialists, occupational therapist, parents/guardians and counselors can be valuable members of this team.
  - **Determining a facilitator**
    - Most important component of the intervention would be to have a clear definition of the steps in the correct order in a common way that is easiest to follow.
    - It’s critical that there is consistency of training with the student so that the process is routine.
    - Anyone directly working with a student can successfully implement this intervention strategy.
  - **Selection of Participants**
    - Students who display a deficit in following directions, and completing a task in proper order to obtain a finished product.
    - This evidence based strategy not only works with students with and without disabilities but it also works with animals.
    - This strategy works well with students who need a visual or verbal prompting.
  - **Personnel and Material Prerequisites**
    - **Training:**
      - Anyone can implement this strategy as long as they know the background of the student’s skill deficit by completing a task analysis.
      - No official training is needed but the individual implementing the strategy must be aware of the child’s specific needs and where the greatest deficit is. The individual implementing the strategy should be familiar with the concept of backward chaining through online resources.
    - **Materials:**
      - Preparation includes designing a task analysis in which all the skills can be listed out. From there you would look at the last skill in the task analysis and work your way backwards from the last skill to the first skill.
Reinforcements for meeting point/goals will be established.

Steps

- **Step 1:** Identify the student who has a specific skill deficit who needs explicit teaching of each skill, one skill at a time
  - **Criteria to participate:**
    - This technique is ideal for individuals who have learning disabilities, autism, or cognitive impairments. Also for those who benefit from visual, written and auditory prompting.
    - A task analysis must be completed on a specific skill set in order to determine where they are currently functioning at. From there work from the last skill in the final step of the task analysis to the skill the individual already knows and has mastered.

- **Step 2:** Determine the individual’s current level of functioning.
  - Ask the individual to perform a specific task (e.g. shoe tying) to the best of their ability.
  - After the student performs a task, provide the student with step-by-step pictures out of order, and ask the student to place the pictures in sequential order of how the task needs to be completed.

- **Step 3:** After the task analysis is complete and it is determined where the student is functioning greatest, begin instruction from there.
  - Start with the last skill
  - Build your way to current skill competency

- **Step 4:** Provide the individual with rewards after each step is successfully completed.

- **Step 5:** The individual will be asked to work through all the steps in reverse order.

- **Step 6:** The individual will be asked to perform the task in chronological sequential order.

  Slocum, & Tiger (2011).

**Implications for Practice**

- Task analysis provides a baseline to determine where instruction should start.
- Remember to give auditory, visual, and written prompts.
- Make sure procedures fit the time frame (schedule) and make the interventions sustainable.
### Possible Adaptations/Modifications

- Provide visual cues
- Prompting
- Rewards system
- Written steps

### Foundational References


### Additional Links/Sources

- [www.youtube.com/watch?v=LJ2XNge11gI](http://www.youtube.com/watch?v=LJ2XNge11gI)
- [http://www.bbbautism.com/aba_shaping_and_chaining.htm](http://www.bbbautism.com/aba_shaping_and_chaining.htm)

### Research Compiled By

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