Step Toward Functional Independence

Teaching Shoe Tying Through Video Modeling and Task Analysis

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INTRODUCTION

The Recreational Education Center (REC) provides services in Applied Behavior Analysis (ABA) to children, adolescents, and young adults with autism spectrum disorder, attention-deficit hyperactivity disorder, and other disabilities.

- After an evaluation, a Board Certified Behavior Analyst collaborates with the child's caregiver(s) to create an individualized comprehensive treatment plan.
- Programs are data driven and generalization of skills across settings is emphasized.
- The REC uses Natural Environment Teaching to teach a variety of social and life skills through many different activities such as play, arts and crafts, games, music, movement, cooking, and vocational skill practice (Recreational Education Center, 2018).

Video modeling is underutilized at the REC, and shoe tying is a functional life skill which students with disabilities often find challenging to learn.

Recreational Education Center

INTERNSHIP PROJECT OBJECTIVE

- To increase participant independence in a functional life skill (shoe tying) by using a video model and task analysis in Applied Behavior Analysis sessions.
- To demonstrate the effectiveness of video modeling as a method of teaching functional skills.
- To develop a program that can be implemented with future students to enhance fine motor skill development.

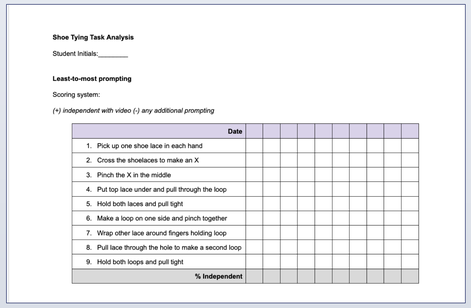
RELATED LITERATURE

- "Fine motor skills are related to coordination between eyes and hands, eyes and feet, or eyes, hands, and feet, as well as the ability to move fingers. Madrona stated that the aim of motor development is to achieve the control of one's own body so that we can exploit all its possibilities of action"(Sutapa, Pratama, Rosly, Ali, & Karakauki, 2021, p. 3).
- "Alberto and Troutman describe a task analysis as breaking down a complex skill into its simpler sub-components and systematically chaining the steps in the response together until the individual completes the entire complex task independently"(Stabnow, Rieger, & Sweeney, 2023, p. 170).
- "Least-to-most prompting allows the student a specific amount of time prior to implementing a more restrictive prompt to complete a task or steps in a task-analyzed activity"(Stabnow, Rieger, & Sweeney, 2023, p. 170).
- "Video modeling is a method to deliver instruction where the learner watches a video that teaches a skill.... Video modeling has been effective in teaching skills and behaviors to children and adolescents with typical development, developmental disorders, emotional and behavioral disorders, intellectual disabilities, and autism spectrum disorder"(Morgan & Judge, 2023, p. 45).

MATERIALS & METHODS

Materials:

- A pair of sneakers
- Long, colored laces to enhance accessibility for students with hand-eye coordination challenges
- Task analysis sheet for data tracking
- Computer to show video
- Video model from YouTube



Shoe Tying Task Analysis

Student Initials:_____

Least-to-most prompting

Scoring system:

(+) independent with video (-) any additional prompting

Date										
1. Pick up one shoe lace in each hand										
2. Cross the shoelaces to make an X										
3. Pinch the X in the middle										
4. Put top lace under and pull through the loop										
5. Hold both laces and pull tight										
6. Make a loop on one side and pinch together										
7. Wrap other lace around fingers holding loop										
8. Pull lace through the hole to make a second loop										
9. Hold both loops and pull tight										
% Independent										

Task analysis sheet used to track data (Left).
Scan QR code to watch video model (Right).

Methods:

- Searched for and identified a highly rated shoe-tying video model from YouTube featuring a child of similar age to potential participants demonstrating the skill
- Developed a task analysis; breaking down each step of shoe tying based on the video model (see task analysis sheet above)
- Identified student candidate based on criteria:
  - Unable to tie shoes at time of recruitment
  - Physically capable of learning the skill
- Obtained parent consent for student participation in the project
- Collected baseline data pre-intervention
- Began intervention trials:
  - Showed video model to student
  - Paused the video after each instruction to allow time for student to attempt
  - Used least-to-most prompting, only providing additional assistance after the student has attempted independently
  - Recorded a "+" if student completed a step independently with the video, or a "-" if any further prompting was needed
  - Repeated these steps until student consistently scored 100% independence
- Collected post-intervention data without use of the video model or prompting

ACKNOWLEDGMENTS

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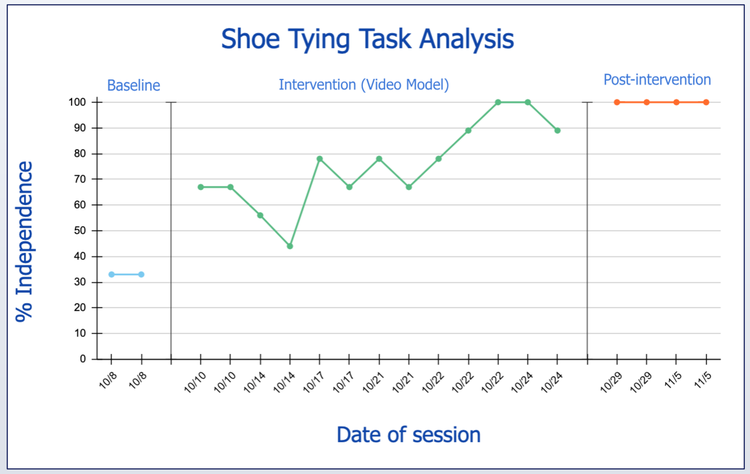
RESULTS



Findings:

- Participant scored 33% on both baseline trials
- 13 trials conducted with the video model intervention
- Post-intervention, participant scored 100% independence across 4 trials

Other observations:

- Score often dropped on second trial of session
- Possible association between score and participant daily attitude towards program/ attention to video model

CONCLUSIONS

- Video modeling is an effective teaching method for shoe tying.
- This finding suggests that video modeling could potentially be effective for other functional skills.
- The REC now has a successful shoe tying program that can be implemented with future students.

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  *Most recent information available
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