Using Constant Time Delay to Teach Banking Skills

What is the evidence base?

- This is a research-based practice for **students with moderate intellectual disabilities** based on two methodologically sound single-subject studies across 7 participants with disabilities conducted by two different research teams and across two different geographical areas.

Where is the best place to find out how to do this practice?

The best place to find out how to implement CTD is through the following research to practice lesson plan starters:

- Using CTD to teach banking
  - Cashing Checks and Using ATM (McDonnell & Ferguson, 1989)

With who was it implemented?

- Students with
  - Moderate intellectual disability (2 studies, n=7)
- Ages ranged from 14 - 20
- Males (n=2), females (n=1), not specified (n=4)
- Ethnicity
  - None reported (n=7)

What is the practice?

Constant time delay is a variation of time delay, a prompting procedure that uses variations in the time intervals between presentation of the natural stimulus and the response prompt. Time delay transfers stimulus control from a prompt to the natural stimulus by delaying the presentation of the prompt following the presentation of the natural stimulus. Constant time delay is implemented by presenting several trials using a 0-second delay between the presentation of the natural stimulus and the response prompt. The trials that follow the simultaneous prompt condition apply a fixed time delay (e.g., 3 seconds or 5 seconds; Cooper, Heron, & Heward, 2007).

In the studies used to establish the evidence base for using CTD to teach banking skills, CTD included using a:

- Three second constant time delay (Branham, Collins, Schuster, & Kleinert, 1999; McDonnell & Ferguson)

In the studies used to establish the evidence base for using CTD to teach banking skills included using a:

- Three second time delay was used in combination with video modeling, community-based instruction, and simulation to teach
  - Cashing a check (Branham, Collins, Schuster, & Kleinert, 1999)
- Three second time delay was used to teach
  - Writing a check
  - Using an ATM (McDonnell & Ferguson, 1989)

Where has it been implemented?

- Self-contained classroom and community (1 study)
- Community bank (1 study)

How does this practice relate to Common Core Standards?

- Understand ratio concepts and use ratio reasoning to solve problems (Ratios and Proportional Relationships, Grade 6)
  - Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations
- Comprehension and Collaboration (Speaking and Listening, Grade 8)
  - Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally
- Knowledge of Language (Language, Grade 8)
  - Use knowledge of language and its conventions when writing, speaking, reading, or listening

How does this practice relate to the Common Career Technical Core?

- Demonstrate mathematics knowledge and skills required to pursue the full range of post-secondary education and career opportunities (Academic Foundations)
  - Identify whole numbers, decimals, and fractions

- Demonstrate use of relational expressions such as: equal to, not equal, greater than, less than, etc.
- Demonstrate knowledge of basic arithmetic operations such as: addition, subtraction, multiplication, and division

References used to establish this evidence base:

Branham, R. S., Collins, B. C., Schuster, J. W., & Kleinert, H. (1999). Teaching community skills to students with moderate disabilities: Comparing combined techniques of classroom simulation, videotape modeling, and community-based instruction. *Education and Training in Mental Retardation and Developmental Disabilities, 34,* 170-181.

McDonnell, J., & Ferguson, B. (1989). A comparison of time delay and decreasing prompt hierarchy strategies in teaching banking skills to students with moderate handicaps. *Journal of Applied Behavior Analysis, 22, 85-91.*

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