



## ***Using Self-Management Instruction to Teach Math***

### **What is the evidence base?**

- This is a research-based practice for **students with disabilities** based on four methodologically sound single-subject studies across 18 students with disabilities.
- This is a research-based practice for **students with emotional and behavioral disorders** based on three methodologically sound single-subject studies across 10 students with emotional and behavioral disorders.

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

The best place to find out how to implement self-management instruction to teach math is through the following research to practice lesson plan starters:

- [Using Self-Monitoring to Improve Accuracy and Productivity \(Carr & Punzo, 1993\)](#)

### **With who was it implemented?**

- Students with:
  - **Emotional and Behavioral Disorders (EBD; 3 studies, n=10)**
  - Attention Deficit Hyperactivity Disorder (ADHD; 1 study, n=1)
  - Learning Disability (LD; 1 study, n=4)
  - LD and ADHD (1 study, n=3)
- Ages ranged from 11-15
- Males (n=16), females (n=2)
- Ethnicity
  - African American (n=3)
  - Caucasian (n=6)
  - None reported (n=9)

### **What is the practice?**

Self-management has been defined as monitoring or evaluating personal behavior in order to change and control subsequent behavior (Cooper et al., 2007). Self-management strategies involve self-monitoring, self-evaluation, self-instruction, goal setting, and strategy instruction to

allow students to monitor and assess academic and behavioral performance. Self-management instruction for math may include explicit methods for students to manage, monitor, record, and/ or assess their behavior or academic achievements as self-management interventions (Wolgemuth, Cobb, & Dugan, 2007).

The studies used to establish the evidence base for using self-management instruction to teach math included using:

- Self-management instruction and parent participation on the accuracy and completion of math homework and math achievement in the areas of math computation and application of skills to solve problems (Cancio, West, & Young, 2004).
- Self-monitoring on the academic accuracy and productivity, as well as, on-task behavior of students with disabilities. Math skills included addition and subtraction with regrouping and multiplication and division problems with regrouping (Carr & Punzao, 1993).
- Self-monitoring on the academic accuracy and productivity, as well as, on-task behavior of students with disabilities. Math skills included pre-algebra concepts for middle school students. Students also increased their skills of computing percentages, graphing, and analyzing graphs when self-monitoring themselves and collecting their own data (Shimabukuro, Prater, Jenkins, & Edelen-Smith, 1999).
- Self-management instruction on math fluency of high school students during independent math practice of three-digit by three-digit addition and subtraction problems (Farrell & McDougall, 2008).

### **Where has it been implemented?**

- Special Education classroom (4 studies)

### **How does this practice relate to Common Core Standards?**

#### **Compute fluently with multi-digit numbers and find common factors and multiples.**

Fluently divide multi-digit numbers using the standard algorithm.

[CCSS.MATH.CONTENT.6.NS.B.2](#)

Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. [CCSS.MATH.CONTENT.6.NS.B.3](#)

Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. For example, express  $36 + 8$  as  $4(9 + 2)$ .

[CCSS.MATH.CONTENT.6.NS.B.4](#)

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

## Finance Career Cluster

- Utilize mathematical concepts, skills and problem solving to obtain necessary information for decision-making in the finance industry.
- Utilize tools, strategies and systems to plan, monitor, manage and maintain the use of financial resources.

## References used to establish this evidence base:

Cancio, E. J., West, R. P., & Young, K. R. (2004). Improving mathematics homework completion and accuracy of students with EBD through self-management and parent participation. *Journal of Emotional and Behavioral Disorders, 12*, 9-22.

Carr, S. C., & Punzao, R. P. (1993). The effects of self-monitoring of academic accuracy and productivity on the performance of students with behavioral disorders. *Behavioral Disorders, 18*, 241-250.

Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Pearson.

Farrell, A., & McDougall, D. (2008). Self-monitoring of pace to improve math fluency high school students with disabilities. *Behavior Analysis in Practice, 2*, 26-35.

Shimabukuro, S. M., Prater, M. A., Jenkins, A., & Edelen-Smith, P. (1999). The effects of self-monitoring of academic performance on students with learning disabilities and ADD/ADHD. *Education and Treatment of Children, 22*, 397-414.

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