Increasing Fact Fluency in Secondary Education

Course Syllabus

Course Description

In an ideal world, all students would fully understand their basic math facts, ensuring they are prepared for the next concept they will be taught. However, mathematics education in the United States has been in decline for decades, doing a poor job of meeting the needs of today's learners. This course will explain why our current system no longer works and the corrective measures we need to take. There have been efforts by many in the math community to increase fact fluency and the efficacy of our mathematics education, this course covers some of them.

This course enhances classroom teaching effectiveness and supports improved student outcomes by introducing new knowledge in building math fact fluency and implementing research-informed strategies to address systemic challenges in mathematics education.

Course Objectives

At the end of this course you should be able to:

1. Identify examples of fact fluency in various grades.
2. Identify the components of fluency.
3. Describe the practice for effective math instruction.
4. Identify educational gaps and their causes.
5. Identify different methods for teaching addition.
6. Identify various methods for subtraction and why the algorithm should be taught last.
7. Identify several strategies for teaching multiplication and why the standard algorithm should be last.
8. Identify several strategies for teaching division and reasons we should teach additional methods outside the standard algorithm

Modules

- Module 1: What is Fact Fluency?, Quiz 1
- Module 2: What are the Components of Fluency?, Quiz 2
- Module 3: National Council for Teachers of Mathematics: Effective Math Practice, Quiz 3
- Module 4: How Has Math Learning Evolved Over Time?, Quiz 4
- Module 5: Addition Strategies, Quiz 5
- Module 6: Subtraction For All, Quiz 6
- Module 7: Multiplication For All, Quiz 7
- Module 8: Division For All, Quiz 8

Grading

Each quiz must be passed at an 80% or higher (three attempts allowed).

Format

This is a self-paced, asynchronous (no required live meetings) course. Throughout the PD course, you will find it helpful to take notes along the way to assist with the quizzes. Within each module, you will find reflection assessments that are not graded but will help in your journey through the course. There is an interactive forum in the course to help you connect with peers and instructors, share ideas, and collaborate on best practices throughout your learning journey.