

Wednesday, November 8, 2017

8:00 a.m. - 11:30 a.m.

PC4 Mathematical Literacy: Creating Instructional Models That Meet the Needs of Students With Dyslexia and Related Learning Disabilities

Chair: Marilyn Zecher, M.A., CALT, Math Specialist, ASDEC, Affiliate Instructor Loyola University Maryland

We have long known that students with dyslexia and related learning disabilities often struggle in more than one academic area. Though we have developed models for delivering successful reading and language instruction in both initial and remedial instructional settings, we have not as yet developed a more unified approach to instruction for these individuals in mathematics. Just as evidence from neuroscience has validated approaches to literacy instruction, it has offered monumental revelations about a core deficit in mathematics. This evidence has profoundly shaped how we approach teaching mathematics at developmentally appropriate levels. When combined with our knowledge of the impact of language on learning, it suggests some universal guidelines for instruction. This symposium explores the impact of dyslexia and related learning disabilities in mathematics. It offers evidence-based practices for supporting students and suggests some strategies or “lessons learned” from our shared history of structured literacy instruction. Symposium presentations examine the challenges of initiating, building, and sustaining an instructional model that serves this specific population. Each presentation offers insights, examples, and evidence of successful instructional models, as participants collectively glean some universal truths about educating this population in the area of math. Audience participation is part of this practical symposium as we explore the meaning of an explicit, synthetic, analytic, structured, sequential, cumulative, and thorough approach to teaching mathematics. Finally, we offer resources and models of what is possible for educating in a way that is appropriate for all, but essential for some.

Addressing the Impact of Dyslexia and Related Learning Disabilities on the Teaching and Learning of Mathematics: Lessons From Structured Literacy

Marilyn Zecher, M.A., CALT

Those in the field of structured literacy are aware of the impact of dyslexia and learning disabilities on reading and language skills, but many are unaware of the specific ways these disabilities impact learning and performance in mathematics. Like the science behind phonemic awareness, the contributions of neuroscience on the concept of numeracy has fundamentally changed the way we teach math. This presentation focuses on the specific symptoms of dyslexia that impact learning and the acquisition of skills. It examines strategies from structured-literacy instruction and a multisensory evidence-based methodology that can be utilized to teach all students. Implications for supporting students in individual sessions along with small-group remedial settings and inclusion classes are examined.

A Public Charter School for Students With Dyslexia: The Multisensory Math Model—Completing the Square

Miles Baquet

The Louisiana Key Academy is a public charter school dedicated to serving students with language-based learning disabilities/dyslexia in grades 1–6. At its inception, the school established a comprehensive structured-literacy program for students who struggle with reading and language. The school sought to establish a complementary approach to math for educating its student population. This presentation focuses on the development of an appropriate instructional model, a sustainable program of professional development, and the challenges faced by a public charter school seeking to implement a multisensory math model. It highlights both the possibilities and challenges of designing such a program for special education students who must be offered a standards-based curriculum.

The Shefa School—Incorporating Multisensory Math From the Beginning

Linda Maleh

Jamie Hooper

The Shefa School is a relatively new community Jewish Day School serving students with language-based learning disabilities in grades 1 through 8. This presentation focuses on the initial development of a comprehensive multisensory math approach designed to work in conjunction with an Orton-Gillingham-based structured-literacy program to form a cohesive academic instructional model. The presentation includes examples of the initial screening and grouping of students; assessments; adaptations in curriculum, instruction, and materials; and ongoing professional development. The math curriculum focuses on the core hierarchy of math concepts addressed in standards-based curricula but individualized and delivered to meet student needs in small-group instruction. One focus of the presentation is on building an ongoing teacher training and professional development community built on modeling, feedback, and consultation.

Applying the Principles and Format of the Structured Literacy Lesson to Multisensory Math

Matthew Buchanan

J. Concha Wyatt, Fellow/AOGPE, CALT

The Key School, an independent school serving students with language-based learning disabilities in grades 1–8, is also an accredited training center. Its program has included a multisensory math component for more than ten years. This brief, practical overview of the Key School MSM lesson walks participants through the actual components of the Key lesson plan and models and provides video clips of the parts of the lesson. The presentation offers a concise explanation of the visual and auditory review, the diagnostic and prescriptive aspect of review and reinforcement of previously taught concepts, and the introduction of new concepts through the concrete, representational, and abstract instructional sequence (CRA). The Key School's approach to pre- and post-testing and monitoring of student progress is reviewed along with the nuances of ongoing professional development.

Engaging Struggling Learners in Meaningful Mathematics

Jen McAleer

Peter Morris

Struggling students often aren't given opportunities to experience meaningful mathematics. They get caught in a cycle in which math learning becomes increasingly teacher-directed, disconnect grows

between skills and context, engagement lags, and the gap widens between struggling students and their peers. Problem-solving and software programs that develop both computational and conceptual skills are crucial parts of the Carroll math program. This session explores how Carroll's focus on meaningful, engaging mathematics informs our interactions with curriculum, assessment, and professional development. The Carroll School serves students with dyslexia in grades 1 through 9 in both lower school and middle school settings.

Where Do You Find the Average Learner? You Don't.

Christopher Woodin, Ed.M.

Landmark School is an independent school serving students with language based learning disabilities in grades 2 through 12. This presentation focuses on how the Landmark math program addresses the needs of its students by using a diagnostic prescriptive approach with targeted, student based strategies. Assessment and grouping of students for optimum growth is discussed. Explorations include why some students can make rapid growth with minimal intervention while others require more time to develop skills and fill gaps, but "bloom" after a few years in a program that features a hybrid of necessary foundational concepts and skill-based development when it is coupled with a core group of high frequency skills and concepts.

Free links to resources are available at the conclusion of the symposium.

Disclosure: Marilyn Zecher, Miles Baquet, Linda Maleh, Jamie Hooper, Matthew Buchanan, J. Concha Wyatt, Jen McAleer, Peter Morris, and Christopher Woodin have no relevant financial or nonfinancial relationships to disclose.