

Assouline, S., & Lupkowski-Shoplik, A. (2005). *Developing math talent: A guide for educating gifted and advanced learners in math*. Waco, TX: Prufrock. (ISBN: 1-59363-159-6)

How can parents and teachers encourage their schools to raise standards for mathematics achievement for all students without creating a ceiling for those who are mathematically gifted? *Developing Math Talent: A Guide for Educating Gifted and Advanced Learners in Math*, by Susan Assouline and Ann Lupkowski-Shoplik, addresses vital questions about appropriate differentiation for gifted students in the current standards-driven educational environment. The authors target both educators and parents as interactive advocates for the needs of mathematically talented students who learn more quickly than their peers and understand mathematical concepts at a deeper and more advanced level. While focusing on the development of mathematical talent, the book also addresses general issues surrounding curriculum delivery and reform, including specific subtopics such as ability grouping, social/emotional development, and twice exceptional-students, as well as the impact of their recommendations on the whole child.

This book's acknowledged purpose is to promote informed advocacy among both parents and educators. To this end, the authors draw on their own extensive knowledge base to present well-defined insights, reflections, and suggestions. Both Assouline and Lupkowski-Shoplik began their professional careers as postdoctoral students at the Center for Talented Youth at Johns Hopkins University, working on programs for mathematically talented youth, under the mentorship of Dr. Julian Stanley. Stanley, who wrote the "Foreword" for this book, credits the authors with expanding the focus of the Study of Mathematically Precocious Youth (SMPY) from seventh- and eighth-grade students to include those much younger, even kindergartners. In addition to the legacy of their early work with Stanley, the authors also acknowledge their experiences with parents, educators, and students at the Connie Belin & Jacqueline N. Blank International Center for Gifted Education and Talent Development at the University of Iowa and the Carnegie Mellon Institute for Talented Elementary and Secondary Students.

The book's format is straightforward and comprehensive, with ample resources, tables, and figures that

expand the narrative and make it more accessible to the reader. Each chapter begins with a list of key points that compose the conceptual framework for the content that follows. The structure of the book also provides a logical pattern of emphases, shifting from information for parents to resources for teachers. The authors clearly intend to convey the message that information particular to either group is still pertinent to both stakeholders in each student's progress.

After a readable chapter on common myths about mathematically talented students, the book plunges into its main focus, informed advocacy. Using the model of Colangelo and Dettman (1982; see also Colangelo, 2003), the book explores the range of interactions between parents and educators, from Type I, Cooperation, in which both parents and teachers discuss common concerns about the child, through three additional types, Conflict, Interference, and Natural Development, which fall short according to the actions of the stakeholders. A detailed case study of one parent's struggle to attain appropriate instruction for her child renders the theoretical information concrete and easily comprehended, as does a table of common roadblocks with suggestions for effective responses by parents to the resistance they may encounter in trying to advocate for their children. Detailed strategies for effective advocacy on behalf of the child round out this chapter, which the authors state is the *raison d'être* (p. xix) for the entire book.

Advocacy based on a strong knowledge base permeates the rest of the volume. Straightforward explanations of assessment and diagnostic testing clarify confusion that might result from the alphabet soup of testing and the jargon that frequently surrounds identification procedures in schools. The narrative includes clear descriptions of the content and scoring of individually administered general ability tests, such as the Woodcock-Johnson III Tests of Cognitive Abilities, and group-administered tests, such as the Otis-Lennon School Ability Test. Math-specific tests, such as the Test of Mathematical Ability for Gifted Students, are also explained with the benefits and drawbacks of each. Once more a table provides a clear outline of individual

tests, what they cover and how they are scored, so that the reader can begin to make sense of psychometrics as it is applied to gifted students. The authors expand on this knowledge base by providing their own model (Directive Testing → Prescriptive Instruction Model), which elaborates on the use of testing to delineate appropriate learning experiences for students. This model necessarily involves the teachers, reinforcing once more the partnership of parents and teachers in determining and meeting the needs of gifted students.

Because mathematical ability manifests itself early, the book includes a comprehensive chapter on talent searches for elementary students, replete with explanations of entrance criteria and testing protocols. These programs are vital resources for parents seeking to meet the needs of their children outside of the normal school curriculum and as the children progress through the K-12 environment. Knowledge of these programs is critical for teachers also striving to address their highly able students' talents. A competent summary of research-based findings on elementary talent centers provides a strong base for the credibility of these programs.

With persuasive and authoritative style, Assouline and Lupkowski-Shoplík urge teachers to acquire a thorough knowledge of mathematics curriculum and National Council of Teachers of Mathematics standards. The standard curriculum option of offering algebra in eighth grade to gifted students is refuted, bolstering the work of researchers who challenge the assumptions of traditional mathematics curriculum policies (Spielhagen, 2005). The authors also recommend that teachers combine curriculum acceleration with enrichment experiences to create the maximum impact for their students. Although Assouline is one of the coauthors of *The Templeton National Report on Acceleration* (Colangelo, Assouline, & Gross, 2004), no mention is made of that important summary of how and why schools resist acceleration, likely because the publication and production of both volumes were occurring simultaneously.

Teachers will particularly appreciate the chapters on programming, curricula, and materials that they can use in their classrooms to bolster their students' progress. The summary of programs for mathematically talented students is detailed and well referenced, providing tables that contain external program opportunities as well as internal program modifications that teachers can make themselves. Moreover, the curriculum resources in this book are clear in their

focus and readily usable for both acceleration and enrichment purposes. In fact, the chapter on curricula and materials could easily stand alone as a handbook and desk reference for classroom teachers.

This book's equally compelling chapter on teaching mathematically talented students grapples with the essential role played by competent and conscientious teachers in academic development. The authors vigorously take on sensitive issues, such as the lack of mathematical expertise among elementary school teachers and the time crunch that defines instruction in the early grades. They further accent the importance of the opportunities gained or lost in the middle grades, as well as the attitudes of unprepared teachers toward the challenge of mathematically talented youngsters. Citing the findings of Csikszentmihalyi, Rathunde, and Whalen (1993), this book also credits teachers with providing environments in which young adolescents either become engaged with mathematical exploration or simply give up. Strong content knowledge, innovative pedagogical expertise, and positive attitudes toward talent development are critical factors in the development of mathematical talent among students. The authors of this book make no apology for this rigorous recipe for success.

Case studies bring to life the reality of living with and teaching mathematically talented youngsters. Vivid descriptions of five students illustrate the concepts developed throughout the book and the paths each child and his or her parents followed to acquire appropriate learning experiences in math. From Christopher, who learned about negative numbers at age 3 using a calculator on his own, to Elizabeth, whose parents didn't want her to be different from her age mates but also wanted her to be intellectually engaged, the case studies allow the reader to apply the theoretical knowledge that has been presented in the rest of the book. The authors guide the reader through the varied measures taken by parents and teachers to address the needs of these five students. The reader does take note of the fact that four of the five case studies are boys. Girls are referenced in other parts of the book, but specific emphasis on development of female mathematical talent is not a major focus of this book.

Developing Math Talent: A Guide for Educating Gifted and Advanced Learners in Math, by Susan Assouline and Ann Lupkowski-Shoplík, is readable, compelling, and convincing. The authors provide pragmatic and concrete suggestions for identifying mathematically

talented students, as well as tools for instructional planning and programming suggestions. They enhance their already comprehensive text with appendices that include a detailed list of resources, a well-defined glossary, and a set of challenging mathematics problems from the 1998-1999 Mathematical Olympiad. In so many ways, this book has it all. It is a reference book that offers valuable information for educators and parents alike, while providing research-based information that is useful for curriculum developers and policy analysts exploring mathematics curriculum reform. This book is an important addition to the library of anyone seeking to advocate knowledgeably for mathematically talented students.

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