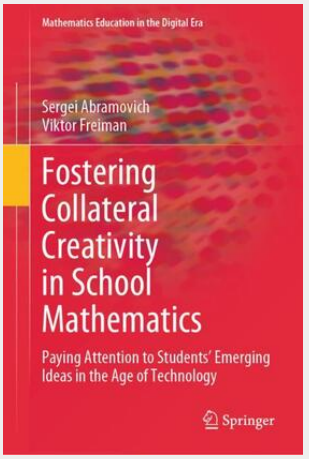
Freiman / Abramovich

Fostering Collateral Creativity in School Mathematics

Paying Attention to Students¿ Emerging Ideas in the Age of Technology



This book explores the topic of using technology, both physical and digital, to motivate creative mathematical thinking among students who are not considered ‘mathematically advanced.’ The book reflects the authors’ experience of teaching mathematics to Canadian and American teacher candidates and supervising several field-based activities by the candidates. It consists of eight chapters and an Appendix which includes details of constructing computational learning environments. Specifically, the book demonstrates how the appropriate use of technology in the teaching of mathematics can create conditions for the emergence of what may be called ‘collateral creativity,’ a notion similar to Dewey’s notion of collateral learning. Just as collateral learning does not result from the immediate goal of the traditional curriculum, collateral creativity does not result from the immediate goal of traditional problem solving. Rather, mathematical creativity emerges as a collateral outcomeof thinking afforded by the use of technology. Furthermore, collateral creativity is an educative outcome of one’s learning experience with pedagogy that motivates students to ask questions about computer-generated or tactile-derived information and assists them in finding answers to their own or the teacher’s questions. This book intends to provide guidance to teachers for fostering collateral creativity in their classrooms.

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