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Nota di contenuto	Front Matter -- Copyright page -- Acknowledgements -- List of Figures and Tables -- Notes on Contributors -- Introduction: stem Education: An Emerging Field of Inquiry / Tasos Barkatsas , Nicky Carr and Grant Cooper -- What Is in an Acronym? Experiencing stem Education in Australia / Sharon Fraser , Jennifer Earle and Noleine Fitzallen -- Delivering stem Education through School-Industry Partnerships: A Focus on Research and Design / Jan H. van Driel , Tessa E. Vossen , Ineke Henze and Marc J. de Vries -- Reading stem as Discourse / Kathy Jordan -- Implementing Virtual Reality in the Classroom: Envisaging Possibilities in stem Education / Grant Cooper and Li Ping Thong -- Multiplicative Thinking: A Necessary stem Foundation / Dianne Siemon , Natalie Banks and Shalveena Prasad -- Possibilities and Potential with Young Learners: Making a Case for STEAM Education / Andrew Gilbert and Lisa Borgerding -- Inquiry-Based Learning in Statistics: When Students Engage with Challenging Problems in stem Disciplines / Theodosia Prodromou and Zsolt Lavicza -- Values in stem Education: Investigating Macau Secondary Students' Valuing in Mathematics Learning / Chunlian Jiang , Wee Tiong Seah , Tasos Barkatsas , Sao leong Leng Sylvia and Io Keong Cheong -- Perspectives on stem Education in Preservice Primary Teacher Education / Wendy Nielsen , Helen Georgiou , Sarah Howard and Tricia Forrester -- Primary Pre-Service Teachers' Perceptions of stem Education:

Conceptualisations and Psychosocial Factors / Grant Cooper and Nicky Carr -- Building stem Self-Perception and Capacity in Pre-Service Science Teachers through a School-University Mentor Program / Amanda Berry , Tricia McLaughlin and Grant Cooper -- Building Academic Leadership in stem Education / Tricia McLaughlin and Belinda Kennedy -- Epilogue: What Now for stem? / Linda Hobbs.

Sommario/riassunto

The second decade of the 21st century has seen governments and industry globally intensify their focus on the role of science, technology, engineering and mathematics (STEM) as a vehicle for future economic prosperity. Economic opportunities for new industries that are emerging from technological advances, such as those emerging from the field of artificial intelligence also require greater capabilities in science, mathematics, engineering and technologies. In response to such opportunities and challenges, government policies that position STEM as a critical driver of economic prosperity have burgeoned in recent years. Common to all these policies are consistent messages that STEM related industries are the key to future international competitiveness, productivity and economic prosperity. This book presents a contemporary focus on significant issues in STEM teaching, learning and research that are valuable in preparing students for a digital 21st century. The book chapters cover a wide spectrum of issues and topics using a wealth of research methodologies and methods ranging from STEM definitions to virtual reality in the classroom; multiplicative thinking; STEM in pre-school, primary, secondary and tertiary education, opportunities and obstacles in STEM; inquiry-based learning in statistics; values in STEM education and building academic leadership in STEM. The book is an important representation of some of the work currently being done by research-active academics. It will appeal to academics, researchers, teacher educators, educational administrators, teachers and anyone interested in contemporary STEM Education related research in a rapidly changing globally interconnected world. Contributors are: Natalie Banks, Anastasios (Tasos) Barkatsas, Amanda Berry, Lisa Borgerding, Nicky Carr, Io Keong Cheong, Grant Cooper, Jan van Driel, Jennifer Earle, Susan Fraser, Noleine Fitzallen, Tricia Forrester, Helen Georgiou, Andrew Gilbert, Ineke Henze, Linda Hobbs, Sarah Howard, Sylvia Sao Leng leong, Chunlian Jiang, Kathy Jordan, Belinda Kennedy, Zsolt Lavicza, Tricia Mclaughlin, Wendy Nielsen, Shalveena Prasad, Theodosia Prodromou, Wee Tiong Seah, Dianne Siemon, Li Ping Thong, Tessa E. Vossen and Marc J. de Vries.
