Contents

Part I Introduction

1 Spatial Cognition: Key to STEM Success ............................................. 3
   Myint Swe Khine

Part II Measurement and Development of Spatial Ability

2 Validity of Spatial Ability Tests for Selection into STEM
   (Science, Technology, Engineering, and Math) Career Fields:
   The Example of Military Aviation ......................................................... 11
   James F. Johnson, Laura G. Barron, Mark R. Rose, and Thomas R. Carretta

3 Spatial Ability: Measurement and Development ................................. 35
   Rita Nagy-Kondor

4 Measuring Spatial Visualization: Test Development Study ................ 59
   Nazan Sezen Yüksel

5 Various Spatial Skills, Gender Differences, and Trainability
   and Transferability of Spatial Skills...................................................... 85
   Lu Wang

Part III Research and Practices in Spatial Ability

6 What Innovations Have We Already Lost?: The Importance
   of Identifying and Developing Spatial Talent ...................................... 109
   Jonathan Wai and Harrison J. Kell

7 Empowering Visuo-spatial Abilities Among Italian Primary
   School Children: From Theory to Practice ......................................... 125
   Maria Chiara Fastame
8 The Improvement of Spatial Ability and its Relation to Spatial Training ................................................................. 143
   Yi-Ling Cheng

9 A Spatial-Semiotic Framework in the Context of Information and Communication Technologies (ICTs) ............................. 173
   Melih Turgut

10 Gender Differences in Spatial Ability: Implications for STEM Education and Approaches to Reducing the Gender Gap for Parents and Educators ........................................ 195
   David Reilly, David L. Neumann, and Glenda Andrews

11 Ranking and Predicting Results for Different Training Activities to Develop Spatial Abilities ........................................... 225
   Jorge Martín-Gutiérrez and M. Montserrat Acosta González

12 How Does Space Interact with Numbers? ...................................................... 241
   Virginie Crollen and Marie-Pascale Noël
Visual-spatial Ability in STEM Education
Transforming Research into Practice
Khine, M.S. (Ed.)
2017, VI, 263 p. 72 illus., Hardcover
ISBN: 978-3-319-44384-3