Contents

1 Introduction: Participation in Science, Technology, Engineering and Mathematics (STEM) Education: Presenting the Challenge and Introducing Project IRIS .................................................. 1 Ellen Karoline Henriksen

Part I Theoretical Perspectives on Educational Choice

2 Expectancy-Value Perspectives on Choice of Science and Technology Education in Late-Modern Societies .................. 17 Maria Vetleseter Bøe and Ellen Karoline Henriksen

3 A Narrative Approach to Understand Students’ Identities and Choices ................................................................. 31 Henriette Tolstrup Holmegaard, Lars Ulriksen, and Lene Møller Madsen

4 Gender, STEM Studies and Educational Choices. Insights from Feminist Perspectives ............................................. 43 Alessandra Allegrini

Part II Interest and Participation in STEM from Primary School to PhD

5 Attitudes, Interest and Factors Influencing STEM Enrolment Behaviour: An Overview of Relevant Literature ................. 63 Elaine Regan and Jennifer DeWitt

6 Science Aspirations and Gender Identity: Lessons from the ASPIRES Project ....................................................... 89 Louise Archer and Jennifer DeWitt
The Impact of Science Curriculum Content on Students’ Subject Choices in Post-compulsory Schooling .............................. 103
Jaume Ametller and Jim Ryder

A Place for STEM: Probing the Reasons for Undergraduate Course Choices ............................................................... 119
Elaine Regan and Justin Dillon

Short Stories of Educational Choice: In the Words of Science and Technology Students .................................................. 135
Fredrik Jensen and Ellen Karoline Henriksen

Understanding Declining Science Participation in Australia: A Systemic Perspective ..................................................... 153
Terry Lyons and Frances Quinn

Choice Patterns of PhD Students: Why Should I Pursue a PhD? .................................................................................. 169
Tina Hribar and Slavko Dolinšek

The Impact of Outreach and Out-of-School Activities on Norwegian Upper Secondary Students’ STEM Motivations .... 185
Fredrik Jensen

Part III Staying in STEM, Leaving STEM?

Why Do Students in STEM Higher Education Programmes Drop/Opt Out? – Explanations Offered from Research ............. 203
Lars Ulriksen, Lene Møller Madsen, and Henriette Tolstrup Holmegaard

What Makes Them Leave and Where Do They Go? Non-completion and Institutional Departures in STEM .................. 219
Lars Ulriksen, Lene Møller Madsen, and Henriette Tolstrup Holmegaard

The First-Year Experience: Students’ Encounter with Science and Engineering Programmes ........................................... 241
Lars Ulriksen, Lene Møller Madsen, and Henriette Tolstrup Holmegaard

Keeping Pace: Educational Choice Motivations and First-Year Experiences in the Words of Italian Students ............... 259
Giuseppe Pellegrini and Chiara Segafredo

Part IV Applying Feminist Perspectives to Understand STEM Participation

When Research Challenges Gender Stereotypes: Exploring Narratives of Girls’ Educational Choices .............................. 277
Marianne Løken
18 Italian Female and Male Students’ Choices: STEM Studies and Motivations ................................................................. 297
Alessandra Allegrini, Giuseppe Pellegrini, and Chiara Segafredo

19 Being a Woman in a Man’s Place or Being a Man in a Woman’s Place: Insights into Students’ Experiences of Science and Engineering at University ............................................. 315
Lene Møller Madsen, Henriette Tolstrup Holmegaard, and Lars Ulriksen

20 Italian Students’ Ideas About Gender and Science in Late-Modern Societies: Interpretations from a Feminist Perspective ................................................................. 331
Alessandra Allegrini

Part V Conclusions and Recommendations

21 Understanding Student Participation and Choice in Science and Technology Education: The Contribution of IRIS ........... 351
Jim Ryder, Lars Ulriksen, and Maria Vetleseter Bøe

22 Improving Participation in Science and Technology Higher Education: Ways Forward ...................................................... 367
Ellen Karoline Henriksen, Justin Dillon, and Giuseppe Pellegrini

Appendix: The IRIS Questionnaire – Instrument Development, Data Collection and Respondents ........................... 379

About the Editors ................................................................. 407

About the Contributors ...................................................... 409
Understanding Student Participation and Choice in Science and Technology Education
Henriksen, E.K.; Dillon, J.; Ryder, J. (Eds.)
2015, XIII, 412 p. 30 illus., 20 illus. in color., Hardcover
ISBN: 978-94-007-7792-7