1. Record Nr. UNINA9910845483103321

Titolo	Disciplinary and Interdisciplinary Education in STEM : Changes and Innovations / / edited by Yeping Li, Zheng Zeng, Naiqing Song
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	9783031529245 3031529243
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (348 pages)
Collana	Advances in STEM Education, , 2520-8624
Disciplina	620.0071
Soggetti	Science - Study and teaching Technical education Mathematics - Study and teaching Science Education Engineering and Technology Education Mathematics Education
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Chapter 1. Changes and Innovations in Disciplinary and Interdisciplinary Education in STEM: Multiple Perspectives and Approaches -- Chapter 2. Mathematics and STEM: Preparing Students for Their Future -- Chapter 3. Promoting Effective Interactions between Mathematics and Science: Challenges of Learning through Interdisciplinarity -- Chapter 4. The Power of Convergence: STEM Education in the Era of Artificial Intelligence (4) -- Chapter 5. Construction and Practice of STEM Education System for Primary and Secondary Schools -- Chapter 6. A Systematic Literature Review of the Empirical Studies on STEAM Education in Korea: 2011-2019 -- Chapter 6. Designing for Epistemic Development -- Chapter 7. Designing with Mathematics in Fifth-Grade STEM Education -- Chapter 8. Using an Alternative Conceptualization of STEM to Design an Engineering and Mathematics Instructional Sequence -- Chapter 9. Learning by Solving Environmental Problems: Primary Students' Experiences of E-STEM Activities -- Chapter 10.Connecting Mathematics and Science in an Elementary STEM Curriculum -- Chapter 11. Broadening STEAM

Education through Cross-Curricular Collaboration: The Case of Argumentation in Science and Religious Education -- Chapter 12. Creating New STEM Opportunities in Schools: Teachers as Curriculum Designers -- Chapter 13. Teacher Factors Contributing to an Innovative Hong Kong School-Based Experience of STEM Curriculum Design via Teacher Agency Perspectives -- Chapter 14. Mathematics as a Central Focus in STEM – Theoretical and Practical Insights from a Special Study Program within Pre-service (Prospective) Teacher Education.

Sommario/riassunto

This book provides an international platform for educators from different STEM disciplines to present, discuss, connect, and develop collaborations in two inter-related ways: (1) sharing and discussing changes and innovations in individual discipline-based education in STEM/STEAM, and (2) sharing and discussing the development of interdisciplinary STEM/STEAM education. Possible relationships and connections between individual disciplines (like mathematics or physics) and STEM education remain under explored and the integration of traditionally individual discipline-based education in STEM education is far from balanced. Efforts to pursue possible connections among traditionally separated individual disciplines in STEM are not only necessary for the importance of deepening and expanding interdisciplinary research and education in STEM, but also for the ever-increasing need of reflecting on and changing how traditional school subjects (like mathematics or physics) can and should be viewed, taught, and learned. Scholars from eight countries/regions provide diverse perspectives and approaches on changes and innovations in STEM disciplinary and interdisciplinary education. Disciplinary and Interdisciplinary Education in STEM will be a great resource to students and researchers in STEM education as well as STEM curriculum developers and teacher educators internationally.