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Modelling and Applications in Mathematics Education

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About this book

The overall goal of *Modelling and Applications in Mathematics Education* is to provide a comprehensive overview of the state-of-the-art in the field of modelling and applications in mathematics education. Key issues are dealt with, among which are the following:

Epistemology and the relationships between mathematics and the "rest of the world"; the meaning of mathematical modelling and its process components; the respect in which the distinction between pure mathematics and applications of mathematics make sense

Authenticity and Goals dealing with modelling and applications in mathematics teaching; appropriate balance between modelling activities and other mathematical activities; the role that authentic problem situations play in modelling and applications activities

Modelling Competencies: characterizing how a student's modelling competency can be characterized; identifiable sub-competencies, and the ways they constitute a general modelling competency; developing competency over time

Mathematical Competencies: identifying the most important mathematical competencies that students should acquire, and how modelling and applications activities can contribute toward building up these competencies; the meaning of "Mathematical Literacy" in relation to modelling

Modelling Pedagogy: appropriate pedagogical principles and strategies for the development of modelling courses and their teaching; the role of technology in the teaching of modelling and applications

Implementation and Practice: the role of modelling and applications in everyday mathematics teaching; major impediments and obstacles; advancing the use of modelling examples in everyday classrooms; documenting successful implementation of modelling in mathematics teaching

Assessment and Evaluation: assessment modes that capture the essential components of modelling competency; modes available for modelling and applications courses and curricula; appropriate strategies to implement new assessment and evaluation modes in practice

The contributing authors are eminent members of the mathematics education community. *Modelling and Applications in Mathematics Education* will be of special interest to mathematics educators, teacher educators, researchers, education administrators, curriculum developers and student teachers.

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