

ZMATH 2016f.00464

Williams, Julian; Roth, Wolff-Michael; Swanson, David; Doig, Brian; Groves, Susie; Omuvwie, Michael; Borromeo Ferri, Rita; Mousoulides, Nicholas

Interdisciplinary mathematics education. A state of the art.

ICME-13 Topical Surveys. Cham: Springer (ISBN 978-3-319-42266-4/pbk; 978-3-319-42267-1/ebook). vii, 36 p. open access (2016).

Publisher's description: This book provides an essential introduction to the state-of-the-art in interdisciplinary Mathematics Education. First, it begins with an outline of the field's relevant historical, conceptual and theoretical backgrounds, what "discipline" means and how inter-, trans-, and meta-disciplinary activities can be understood. Relevant theoretical perspectives from Marx, Foucault and Vygotsky are explained, along with key ideas in theory, e.g. boundaries, discourses, identity, and the division of labour in practice. Second, the book reviews research findings of mainly empirical studies on interdisciplinary work involving mathematics in education, in all stages of education that have become disciplined. For example, it reports that a common theme in studies in middle and high schools is assessing the motivational benefits for the learner of subsuming disciplinary motives and even practices to extra-academic problem-solving activities; this is counter-balanced by the effort needed to overcome the disciplinary boundaries in academic institutions, and in professional identities. These disciplinary boundaries are less obviously limitations in middle and primary schools, and in some vocational courses. Third and finally, it explores selected case studies that illustrate these concepts and findings, both in terms of the motivational benefits for learners and the institutional and other boundaries involved.

Classification: D30 D40 M10

doi:10.1007/978-3-319-42267-1