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# The Mathematics Teacher in the Digital Era. An International Perspective on Technology Focused Professional Development.

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# Review

Clark-Wilson, A., Robutti, O. & Sinclair, N. (Eds.) (2014). *The Mathematics Teacher in the Digital Era. An International Perspective on Technology Focused Professional Development*, Springer Science+Business Media, Dordrecht.

This book is an edited volume about uses of technology in Mathematics Education with a particular focus on the teacher. The book is a useful resource providing the reader with a succinct pluralistic insight into what we know so far about the mathematics teacher in technology-based educational practice and professional development. It affords reading from multiple perspectives and promises to be a good tool for teacher education and post-graduate courses. It will also serve as an informative basis on which to engage in further research and acquire sensitivity to new contexts and technological developments for mathematics education. The editors' experience makes this volume particularly informative in three distinct ways.

1) In their choice of authors and papers that portray a set of succinct studies focusing on the teacher, whilst also using a wide lens to reveal the complexity of the phenomenon of educational practice based on the use of digital media.

2) In the way in which the papers are structured and grouped in the book which entices the reader to gain personal experience in considering mathematical activity with digital media (chapter by J. Mason) and then proceeds from static views on the role of the teacher in classroom practice based on the uses of digital media to more dynamic views of teacher evolution in the classroom and in teacher education programs. The book finally groups two papers with a critical - synthetic view of the various theoretical frames and approaches adopted in the previous papers, which reflect on research on the teacher in the past 15 years or more.

3) In providing three synthetic over-view papers, one from D. Pimm as a foreword and two written by the editors. The first of the latter two provides a structured summary setting the scene and main frameworks and assumptions made in the papers and the second a more reflective synthesis on the different research stances suggesting some possible uses of the book in teacher education or post graduate courses. These three interventions provide the reader with a lot more than just a set of well chosen pieces of research allowing for alternative readings of the book and a general sense of understanding at different levels of what we know about the teacher in technology-mediated practices. What follows is a summary of the book contents given by means of a summary of the three synthetic papers.

This book is certainly a very good read. It is useful to anyone who wants to get a clear picture of what we know about the uses of technology through the lens of the teacher in real mathematics classrooms, that is in traditional schooling or at most in classrooms welcoming manageable innovation interventions. It unravels the complexity of how meanings are mediated between teacher, medium and students and how teachers influence the kinds of mathematics put to use by students at many levels. It also highlights the teacher as a developing professional called upon to evolve and innovate, design and organize in often unwelcoming contexts. The book thus provides a good basis for further considerations of four dimensions which were inherent but maybe not made so explicit in the three synthetic chapters. First, the problematic issue of using theoretical constructs in mathematics education across diverse contexts. Researchers recently show concerns regarding the problems caused by fragmentation of the diverse theories and frameworks in the uses of technology in mathematics education. How the understanding of the growth of our knowledge may in fact be slowing down by the amphisemy of constructs and terms and their dependence on the specificities of the contexts from which they emerged. Second is the changing sense of identity of the teacher, who now operates more and more in diverse communities, enhances her role as designer and innovator is called upon to adopt brokering capacities and engage in the operationalization of innovations. Thirdly, there is not much deliberation on teacher engagement with on-line professional development initiatives, placing them in diverse socio-technical communities and changing the parameters of time and place. Fourthly, there is a growing need to gain understanding of the role of the

teacher and of teacher development in this new era for tensions. After the ones between mathematical expressivity and curricular specificity, we now anticipate those between widely available video and LMS infrastructures and meaning making with expressive media

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