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BOOK REVIEWS

Digital technology in physical education: global perspectives, edited by Jeroen Koekoek and Ivo van Hilvoorde, Abingdon, Routledge, 2018, 284 pp., £115.00 (hbk), ISBN 978-1-138-56988-1

The use of technology within education, and more specifically physical education, has seen much debate in recent times (Christensen & Knezek, 2008; Gard, 2014; Lupton, 2015). Despite increasing availability of digital technology, and growing research in this area, questions still remain amongst practitioners and researchers as to how we gain maximum benefit from the array of technology at our disposal. Casey, Goodyear and Armour (2016, p. 247) called for teachers to 'be brave' in spite of the challenges sometimes faced when trying to integrate technology into lessons with the intention of supporting and enhancing learning. This book responds to that call. When scanning the contents page you are presented with a host of contributions from around the world, offering a plethora of examples as to how digital technology can be integrated into practice to enhance teaching and learning in a wide range of contexts. Importantly, though, the authors offer critical reflection on the impact of technology to potentially improve teaching practice and pupil progress.

The book is split into four sections, with fifteen chapters in total. The first section seeks to explore the integration of technology with a focus on skill acquisition and assessment; the second analyses the use of technology as part of a models-based approach to physical education; the third section delves deeper into the concepts of, and critically reflects on, the use of technology in physical education, whilst the final section tackles some of the issues surrounding professional development in this area. The breadth is impressive and this enables many practitioners and scholars to contribute to this burgeoning area of research. However, the cost of this breadth is that further investigation beyond this title might be needed to fully understand some of the topics covered, although in my experience this is often the case with edited books such as this. A benefit of the format is that each chapter (or indeed section) can be read in isolation and so it provides an accessible starting point for analysis of the topics covered dependent on the reader's own interests. Each chapter also provides useful links to further reading in the topic area which is a useful signpost for additional research.

The opening chapter from the editors, Jeroen Koekoek and Ivo van Hilvoorde, provides a rationale for the text and sets the foundations for each of the subsequent sections. The central foci for the book are the pedagogical implications of incorporating technology in physical education, with claims that 'the kind of technological innovation that we are dealing with at the moment, is revolutionary' (van Hilvoorde & Koekoek, 2018, p. 2). Here, we are introduced to the Technological Pedagogical Content Knowledge (TPACK) framework, which illustrates the range of knowledges needed to effectively integrate technology into lessons. The framework 'emphasises the connection, interactions, affordances, and constraints between and among content, pedagogy and technology' (Mishra & Koehler, 2006, p. 1025). Three key areas make up the framework: technical knowledge, content knowledge, and pedagogical knowledge, and the authors explain well how these combine to produce impactful use of technology. This framework provides a useful reference tool to review each of the chapters.

The first section in the book consists of five chapters linked to the topic of skill acquisition and assessment. It provides several concrete examples of digital technology integration such as the use of video feedback and the use of apps for assessment purposes. The chapter authored by Tom Van Rossum and David Morley provides some of the most 'teacher friendly' and accessible content in the book through their exploration of using technology to assess movement competence in primary school lessons. Their review of the practical principles for technology use is clear, helpful and provides a valuable framework for practitioners to consider technology use in this setting. Another notable contribution in this section comes from Julia Sargent and Ashley Casey. Recent

research has often highlighted the barriers to implementation of digi-tech in PE (see Bodsworth & Goodyear, 2017; Villalba, González-Rivera, & Díaz-Pulido, 2017), however this chapter uses an appreciative inquiry approach to identify the factors that have enabled success for one teacher when integrating technology into physical education within an English community college. It touches on some important aspects such as teacher mindset, a commitment to continuing professional development, and a whole school culture around technology, all of which allow the teacher in question to develop his practice in this area. I particularly valued the 'keep it simple' message that came out during the chapter and this is a mantra that those trying things for the first time would be advised to consider.

In the second section, three chapters are presented that seek to investigate the integration of technology within models-based approaches. Given the significance attached to models-based approaches in recent physical education research (Casey, 2014; Kirk, 2013; Mitchell & Fisette, 2016), this section has the potential to provide practitioners and student teachers with a range of ideas to further enhance their practice. The first two chapters link technology use to the Sport Education Model (Siedentop, Hastie, & Van der Mars, 2011) which seems an apt choice given that the model is widely understood, utilised, and philosophically justified (Kirk, 2013). In the first of these chapters, authored by Oleg Sinelnikov, the use of technology is presented and aligned with the objectives of the model, which I believe serves as a good approach to ensure that the model's fidelity is maintained despite the use of technology. The subsequent chapter by Mauro André provides a deeper analysis of social media use within the Sport Education Model and, given the rapid growth of social media and its use by young people, so called 'digital natives' (Prensky, 2001, p. 1), it makes for interesting reading. Several ideas are presented utilising different social media platforms, such as the use of team Facebook pages and wikis. However, the need to generate high levels of pupil commitment for some of these ideas to have maximum impact is also illustrated. This chapter provides a particularly powerful of example of the utility of the discussion questions and further reading presented at the end of each chapter. I found these to provide an excellent scaffold for reflection, something which is particularly useful whether you find yourself working as a practitioner, teacher educator or researcher.

The third section is entitled '*Concepts and critical reflections on digi-tech in PE*' and includes four chapters linked to that theme. The first chapter here analyses the use of opaque (physically or socially obvious) and transparent (less intrusive, unnoticeable) technologies and their impact on pupil learning. With this in mind, I found myself placing technologies on a continuum as to how intrusive technology could be in certain contexts or when used in particular ways. Seamless integration is often desired but not always possible. Interestingly, here, the authors suggest the conceptualisation of this continuum, initially presented by Clark (2003), could serve as alternative to the TPACK framework discussed earlier. Chapter 11 looks to increase understanding by matching the use of digital technology to pupils' learning phases. Grounded in skill learning theory (Davids, Button, & Bennett, 2008; Newell, 1986) the chapter takes the reader through three phases of motor learning (coordination, control and skill) and provides examples of how technology could support each phase, often with the same technology (video feedback, multimedia instruction books) being used in different ways dependent on the learning phase. One key message that came to the fore centred on ensuring technology, and information derived from it, does not overwhelm the learner in the early stages. Subsequently, in the latter stages of learning, technology can be used to encourage greater exploration of skill development by applying skills in new ways or testing the boundaries of one's ability. This chapter struck a good balance between theoretical underpinning and practical application that would be useful to both scholars and practitioners.

The final part of the book focuses on the use of technology in professional development, particularly in pre-service physical education programmes. From the use of virtual reality to create simulations for trainee teachers (Chapter 13), to the use of iPads to enhance learning (Chapter 14) and finally an overview of e-mentoring (Chapter 14). This section provides 'food for thought' for teacher educators, who need to be at the forefront of development in this area. With a new wave of supposed 'digital natives' now making their way into the profession, it could be argued that the

integration of technology within physical education will see rapid growth if trainees are provided with the right opportunities and support.

Be aware, this is not a 'how to integrate digital technology in physical education' book. Whilst many ideas are presented, you will not find step-by-step guides. The book does, however, provide a good link between pedagogy, technology and the many areas that should be considered when integrating technology in practice. In addition, there is a healthy amount of critical debate, theory and research that instils confidence and adds weight to the rationales and arguments for application of digi-tech. Collectively, these chapters present a wealth of examples that highlight the growing importance and influence that technology is having on the way physical education is delivered. Considering the key messages that a reader might take away from the text, I come back to the TPACK model initially discussed by the editors in chapter one. The relationship between technology, pedagogy, and content is vitally important and pedagogues could revisit this framework to inform decisions when considering fully embedding technology into teaching and learning practice. A final chapter from the editors would have been a good addition to draw together some of these key messages for the reader though, notwithstanding this, the book does provide an excellent collection of examples that are well articulated and potentially beneficial to students, teachers and researchers in this area.

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