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Design of Technology-Enhanced Learning: Integrating Research and Practice, 2017. By Matt Bower, Emerald Publishing Inc. 455 pages. ISBN 9781787141827

Reviewed by Marguerite Koole

Introduction

In this book, Matt Bower, Associate Professor in the Department of Educational Studies at Macquarie University, draws upon his 15+ years of experience to provide an in-depth overview of current research and practices in the field of technology-enhanced learning (TEL). He pays particular attention to Web 2.0, social networking, mobile learning, and 3D virtual worlds. The book is intended to bridge the gap between research and practice. The practical recommendations, derived from Bower's overview of the literature, provide wisdom for boots-on-the-ground educators wishing to design activities using currently available technologies.

This book comprises 455 pages and is divided into 12 chapters. The hardcover book, binding, and paper are all of high quality. The images, while appropriately selected, are difficult to decipher at times because the text is often too small and too faint. The table of contents and index are well organized. The prose is nicely written, pleasant to read, and interesting.

Potential Audience

Targeting practicing educators, pre-service teachers, postgraduate education students, and learning technology researchers, this book covers a broad expanse of information and tools. While practical recommendations should be of high usefulness to practicing educators, the lack of historical and philosophical positioning might render it problematic to researchers and doctoral students.

Scope of Book

As a field, TEL struggles with a lack of clear and consistent definitions (Jones, 2015). In this book, no definition of *TEL*, *technology*, or *learning* is offered; therefore, it is difficult to ascertain the boundaries of the field—that is, what should be included and/or excluded in this book on a theoretical or practical level. Nonetheless, the book covers a common set of learning theories including behaviourism, cognitivism, constructivism, social constructivism, and connectivism. In alignment with the pedagogically neutral stance of learning design (Dalziel et al., 2012), there is no obvious partiality towards any particular learning theory. On a practical level, Bower links these learning theories to different technologies and their educational uses.

It is difficult to ascertain the author's philosophical perspective; only at the very end of the book does Bower indicate a tendency towards *instrumentalism* and *uses-determinism*. He states, "technology is just the means via which we distribute knowledge and facilitate experience" (p. 421). This statement suggests that technology is viewed as neutral. To an extent, this position is commensurate with the field of TEL. As Parchoma (2011) suggests, "TEL is primarily determinist and is not aligned with a particular teaching philosophy in practice" (p. 80). However, the sleuthing required to uncover the author's perspective betrays a need for a chapter to situate the work amongst other areas such as blended learning (BL), computer-supported collaborative learning (CSCL), distance education (DE), and networked learning (NL). The reader is left wondering if there are any ontological, epistemological, or teleological trends that guide TEL-based educators.

Content and Organization

Outside of the introduction and conclusion (chapters 1 and 12), there are three main content sections. In the first section, Bower provides a balanced overview (benefits and criticisms) of Mishra and Koehler's (2006) TPACK in chapter 2. He then uses it to guide his discussion of pedagogy in the subsequent three chapters on pedagogical knowledge (PK), technological knowledge (TK), and content knowledge (CK). In the second section, Bower introduces design thinking and learning design (Chapter 6). The final section provides a discussion of four different technologies: Web 2.0, social networking, mobile learning, and 3D virtual worlds.

Content Review

Strengths

Among the many strengths of this book is its balanced presentation and critical review of the theories and technologies in each chapter. Chapter 11, in particular, provides useful tables that summarize the benefits, issues, and recommendations for regarding specific technologies. The author acknowledges some current controversies surrounding the term *digital natives* and the issue of *technological determinism*. (A nod to other forms of determinism and instrumentalism would make the section more complete.) Although Chapter 3 discusses *affordances*, Bower maintains focus on the use of technology in teaching and learning rather than on the specific characteristics of the technologies themselves. He brings to attention the importance of the learner and designing "optimal conditions for learning to occur" (p. 129). He also reminds the reader of the difference between designing a task (what is planned) and the emergence of activity (what actually occurs).

Criticisms

A criticism of this work is the need for clear definitions. Beyond the key terms listed above, there are some other terms that require careful treatment. In Chapter 4, the term *affordances* is referred to as a framework. Later in the chapter, the author refers to it as "action potentials" (p. 65) and "features and benefits" (p. 67). As such, it is more of a concept than a framework. Similarly, in Chapter 5, it would be helpful to see a clear differentiation between the terms *learning objects* and *open educational resources*. Finally, in Chapter 6, there is one

passing reference to the field of instructional design. In order to appeal to a North American audience, some explanation of the difference between learning design and instructional design is also recommended.

When writing in the field of educational technology, it is important to cite current sources. The references throughout Bower's book are very recent; many references are within the last five years. In being too current, there is a danger of missing some of the seminal research from previous decades that still hold wisdom in today's technological ecology. In fact, there is a significant body of literature in the field of distance education that could inform the chapters. For example, an acknowledgement of the *no-significant-differences* debate between Clark (1994) and Kozma (1994) in the early 1990s could help problematize the issue of technological neutrality. In addition, the research on presence, such as that of the community of inquiry model (Garrison, Anderson, & Archer, 2001), would complement the chapter on virtual worlds.

Finally, abstraction reduces the details and allows patterns to emerge. The summaries in Chapter 11 are useful, but, as Bower acknowledges, there is a risk of oversimplification. Therefore, readers must be mindful of the complexities of learning situations while referring to the summary tables.

Summary

The technologies highlighted (Web 2.0, social networking, mobile learning, and 3D virtual worlds) are current and relevant. They appear to have been selected based on the author's expertise and experience. There is room—perhaps in a future book—for other technologies such as immersive learning tools (augmented and virtual reality as well as other forms of 3D [3D modelling and printing]). Although not as provocative or fashionable, learning management systems (virtual learning environments) are still highly used in all levels of education and, therefore, deserve some consideration.

While it does not break new ground, this book provides solid guidance to practitioners who wish to learn more about current uses of technology in education. The book contains some solid recommendations to guide the use of technology whilst maintaining a focus on appropriate learning design.

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