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[Book Review] *Transforming Digital Learning and Assessment: A Guide to Available and Emerging Practices and Building Institutional Consensus*, edited by Peggy L. Maki and Peter Shea

With the growth of digitally-driven education due to the global COVID-19 pandemic, a book on digital learning and assessment felt timely to read and review. I suspect many *Teaching & Learning Inquiry* (TLI) readers are also thinking about technology in new ways and are curious about its implications on teaching and learning. This book is a helpful resource to start considering what is possible.

The book features many innovative strategies for using technology throughout higher education institutions, and examples come from different institutions. While the majority of them are from a North American context, they can be applied in a variety of settings, such as the use of learning analytics. A key feature of the book is the variety of ways technology use is highlighted. This is emphasized in the following three sections:

- Part One: An Introduction to Current and Emerging 21st-Century Learning Technologies
- Part Two: Some Representative Examples of Course-Based Use of Emerging Learning Technologies
- Part Three: Adoption and Integration of Learning Technologies Across the Institutions: Case Studies

The editors organized Part One to focus on a "big-picture approach to the evolving learning technology landscape . . . " (8). The editors focused Part Two on technology at the course-level, and Part Three includes chapters "that focus on the challenging processes of integrating technologies across institutions, thus requiring broad stakeholder buy-in" (12).

Within each section are chapters that showcase how technology is being used in different (primarily North American) higher education institutions with a central focus on "the human-technology relationship, [where authors describe] the ways technology can support student learning" (14). Throughout the book, it is made clear how complex the relationship is "between educators and students and learning technologies" (14). The acknowledgement of this complex relationship is valuable for readers coming to the book with a SoTL background. The book does not describe technology as being a rescuer, but instead showcases what technology can do while recognizing how difficult it can be to use educational technology well.

For the TLI reader, it is important to note this is not a book on digital learning in SoTL. Instead, it is meant for campus leaders and administrators in technology, campus experts in technology, and faculty who are designing online or hybrid courses (5). The book explores the use of technology in higher education in a variety of capacities and presents examples that are ripe for SoTL studies. Specifically, chapter 6 addresses using data for improved student interactions in online discussions. The

authors of this chapter share their very interesting work, but I was left wondering what the findings mean for how we teach. Is there a way teachers can facilitate better online discussions based on what we know from the data gathered? Additionally, the authors of chapter 10 discuss the use of electronic portfolios, which left me with similar questions about how using them across an institution may change how we teach. How can faculty incorporate electronic portfolios in ways that feel authentic to students and support their learning?

While each chapter is supported by research and situated within a specific learning context, there were many chapters that had me wondering about the learning that was taking place. I finished the book with new ideas for using technology and new questions about how students experienced increased technology use in individual classrooms and across campuses. For example, after reading about learning analytics in chapter 5, I am interested in exploring this topic further to understand what it can (and cannot) tell me about teaching and learning. I was encouraged by how chapter 5 ends with a reminder that learning analytics are only one view of teaching and learning, and that other qualitative data are important. The authors of chapter 5 also acknowledge issues around privacy and ethics of learning analytics.

In his foreword, Bryan Alexander describes the many challenges facing higher education and wrote that "meeting all of these challenges will require a great deal of creativity from the faculty who teach digitally and the staff who support them" (xii). TLI readers will be familiar with his language when he states that in order to be creative and innovative it means "exploring . . . emerging technologies," and "identifying what works" (xii). Hutchings (2000) wrote a taxonomy of four scholarship of teaching and learning (SoTL) topics, including one called "What works?" Identifying what works in the classroom is a key component of this book as authors describe their successful experiences. The other questions Hutchings explored are: "What is?", "Visions of the possible," and "Formulating new conceptual frameworks."

Another area of interest for TLI readers is that the structure of the book is a look at ways technology is used at the micro, meso, macro, and mega levels of higher education. As mentioned previously, each part of the book is focused on a specific aspect of technology use on different institutions of higher education. However, the inclusion of chapters that focus on the big picture of technology in education, individual courses, and campus-wide initiatives means the four levels of SoTL (Simmons 2020) are represented. This is a unique feature and one that aligns well with SoTL conversations and areas of SoTL research interest. Each level is represented in the following chapters of the book:

Table 1. The Book Organized Using the 4M Framework

Micro	- Chapter 5: Applying a Learning Analytics Approach to Improve Course Achievement - Chapter 6: Data-informed Online Discussion Facilitation - Chapter 7: Teaching, Technology, and Building Trust - Chapter 8: How We May Learn
Meso	- Chapter 9: Enabling A Solution for Assessment and Technology (also Macro) - Chapter 11: Assessment and Technology Use at a Graduate Health University (also Macro)

Macro	- Chapter 1: The Evolving Landscape of 21st Century-Learning Technologies - Chapter 4: A Guide for Successful Integration and Support of Learning Technologies - Chapter 9: Enabling A Solution for Assessment and Technology (also Meso) - Chapter 10: Advancing General Education Assessment Through Faculty and Student Engagement with College-Wide Electronic Portfolios and an Assessment Portfolio - Chapter 11: Assessment and Technology Use at a Graduate Health University (also Meso)
Mega	- Chapter 2: The Learning Sciences and Educational Technology - Chapter 3: Empowering Faculty to Design Technology-Enriched Student Learning

TLI readers who want to consider technology use at a specific level can read these individual chapters.

For TLI readers who would like to use more technology or have been forced to use more technology in the past year, the first chapter of this book provides a thorough overview of available educational technology. Then, in chapter 2, readers are introduced to the learning science underlying educational technology. It is also worth noting that the mega level is most closely associated with chapter 2 where the authors "review three concepts from educational research and demonstrate how they can be used to design effective digital learning experiences" (85). The three concepts the authors review are assessment design, feedback, and principles of metacognition.

SoTL emphasizes that teaching and learning is contextual, which this book underscores by showcasing specific examples of technology use. These specific examples in individual classes are in chapters 5 though 8, which align with the micro-level. In chapter 5, learning analytics are explored in an industrial engineering course, chapter 6 explores the use of an app in an (unnamed) online course to gather data for improved discussions, chapter 7 explores how artificial intelligence can help improve student writing with specific data from an (unnamed) class, and chapter 8 showcases an adaptive learning tool used to instruct on cybersecurity. Chapters that align with the meso- and macro-levels also emphasize the teaching and learning context. While some of the chapters can more easily be adapted for different contexts (i.e., Chapter 10: Advancing General Education Assessment Through Faculty and Student Engagement with College-Wide Electronic Portfolios and an Assessment Portfolio), others share examples of technology use that would be more challenging to adapt to a different context and require high levels of skill (i.e., Chapter 7: Teaching, Technology, and Building Trust: What I've Learned About How Artificial Intelligence Can Improve Student Writing).

Though the book does not explicitly encourage SoTL studies, it highlights the benefits of how others have used technology across many campuses. As such, the editors and chapter authors open the door for SoTL researchers to ask good questions and discover how technology is impacting students, what is happening with learning when technology is used, and how campus technology initiatives impact teaching and learning. As Peggy L. Maki writes in the introduction, "the future of technology in education is much like its past. What will matter most is not the tools, but how humans use them" (16). To me, this was an invitation for SoTL scholars to start their research. Personally, I hope to engage in

more work about how my students experience the use of technology in their learning journeys, and on a meso-level, study how technology use across my program impacts program level learning outcomes.

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