Solutions for Creating the Learning Spaces Students Deserve

Harnessing Technology for Deeper Learning



Scott McLeod
Julie Graber

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Printed in the United States of America



Library of Congress Cataloging-in-Publication Data

Names: McLeod, Scott, 1968- author. | Graber, Julie, 1969- author.
Title: Harnessing technology for deeper learning / Scott McLeod and Julie Graber.
Description: Bloomington, IN : Solution Tree Press, [2018] | Series: Solutions series | Includes bibliographical references.
Identifiers: LCCN 2018020649 | ISBN 9781943874088 (perfect bound)
Subjects: LCSH: Educational technology. | Education--Effect of technological innovations on. | Education--Aims and objectives.
Classification: LCC LB1028.3 .M3985 2018 | DDC 371.33--dc23 LC record available at https://lccn.loc.gov/2018020649

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Solution Tree Press
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About the Authors



Scott McLeod, an associate professor of educational leadership at the University of Colorado Denver, is widely recognized as one of the United States' leading experts in preK–12 school technology leadership. He is the founding director of the University Council for Educational Administration's Center for the Advanced Study of Technology Leadership in Education (CASTLE), the only university center in the United States dedicated to the technology needs of school administrators. He is the co-creator of the *Did You Know? (Shift Happens)* video series and the 4 Shifts technology integration discussion protocol.

Scott has worked with hundreds of schools, districts, universities, and other organizations and has received numerous awards for his technology leadership work, including the 2016 Award for Outstanding Leadership from the International Society for Technology in Education (ISTE). In 2015, he was one of three finalists to be the director of the Iowa Department of Education. In 2011, he was a visiting faculty fellow at the University of Canterbury in New Zealand. Scott was one of the pivotal figures in Iowa's grassroots one-to-one computing movement, which has resulted in more than 220 school districts providing their students with powerful learning devices, and he founded the annual Iowa 1:1 Institute and EdCampIowa.

Scott blogs regularly about technology leadership and shares numerous resources through his Digital Leadership Daily SMS service, Twitter account, blog, and other information channels. Scott is a frequent keynote speaker and workshop facilitator at regional, state, national, and international conferences. He has written over 170 articles and other publications, coauthored the book *Different Schools for a Different World*, and coedited *What School Leaders Need to Know About Digital Technologies and Social Media*.

To learn more about Scott's work, visit his blog, *Dangerously Irrelevant* (http://dangerouslyirrelevant.org), or follow @mcleod on Twitter.

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Julie Graber is an instructional technology consultant on a technology innovation team for Prairie Lakes Area Education Agency in Iowa where she supports educators with effective teaching, learning, leading, and technology practices. She is a passionate educator who is most interested in seeing teachers and administrators improve authentic learning opportunities for students. Her many areas of expertise include deeper thinking with technology, authentic learning, curriculum design, and performance tasks and assessments. Prior to Julie being a teaching, learning, and technology consultant, she spent thirteen years as a technology coordinator and business and computer teacher.

Julie is an Authentic Intellectual Work (AIW) coach and has coached elementary, middle, and high school teams of teachers on how to use the framework in order to increase the level of intellectual demand as well as the authenticity of the work that students are asked to do. She has served on several state leadership teams, including the North Central Science, Technology, Engineering, and Math (STEM) Hub Advisory Board and the Design Team for the Iowa Competency-Based Education Collaborative, and has provided guidance for schools to increase STEM education in their classrooms and move them toward competency-based and personalized learning. Julie is certified in the Instructional Practices Inventory and provides training for Defined STEM, a K–12 curriculum resource with engaging project-based lessons on real-world scenarios. Jay McTighe, author and speaker, asked Julie to join his consulting group, McTighe and Associates, to conduct workshops for educators using the Understanding by Design curriculum framework. Julie is the co-creator of the 4 Shifts discussion protocol and a regular local, state, and national presenter focusing on authentic work and student-centered, personalized and project-based learning.

To learn more about Julie's work, follow @jgraber on Twitter.

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Foreword

By William M. Ferriter

Can I ask you a tough question? How many students in your classrooms are truly satisfied with the learning spaces you have created for them? If your students reflect the national average, the answer is bound to be discouraging. Fewer than four in ten high schoolers report being engaged in their classes, and students often list boredom as the primary reason for dropping out of school (Busteed, 2013). Over 70 percent of students who don't graduate report having lost interest by ninth grade and, worse yet, the majority of dropouts are convinced that motivation is all that prevented them from earning a diploma (Azzam, 2007).

These numbers are troubling for anyone passionate about schools. They indicate systemic failure on the part of practitioners to inspire learners and warn us of the immediate need to transform education—a warning that school leadership expert and series contributor Scott McLeod (2014) issues:

> If we truly care about preparing kids for life and work success—we need schools to be different. If economic success increasingly means moving away from routine cognitive work, schools need to also move in that direction. If our analog, ink-on-paper information landscapes outside of school have been superseded by environments that are digital and online and hyperconnected and mobile, our information landscapes inside of school also should reflect those shifts. If our students' extracurricular learning opportunities often are richer and deeper than what they experience in their formal educational settings, it is time for us to catch up.

Scott is right, isn't he? Our schools really do need to catch up if they are going to remain relevant in a world where learning is more important than schooling—and catching up can only start when we are willing to rethink everything. We need to push aside the current norms defining education—that teachers are to govern, direct, and evaluate student work; that mastering content detailed in predetermined curricula is the best indicator of student success; that assessment and remediation are more important than feedback and reflection; that the primary reason for investing in tools and technologies is to improve on existing practices.

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It's time to implement notions that better reflect the complexity of the world in which we live.

That is the origin of this series. It is my attempt to give a handful of the most progressive educators that I know a forum for detailing what they believe it will take to *make schools different*. Each book encourages readers to question their core beliefs about what teaching and learning look like in action. More important, each title provides readers with practical steps and strategies for reimagining their day-to-day practices. Here's your challenge: no matter how unconventional ideas may seem at first, and no matter how uncomfortable they make you feel, find a way to take action. There is no other way to create the learning spaces that your students deserve.

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Introduction
Framing the Challenge

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Let's face it: most schools struggle with their technology integration efforts. They ardently believe that they need to utilize digital devices and online environments in their classrooms. They have attempted to invest in the digital tools that they think are necessary for student success in the 21st century. And yet most are failing to realize the hopes and dreams that accompanied their technological purchases. In almost every school, administrators, teachers, parents, and especially students will tell you that—with the exception of a few isolated pockets of innovation—digital technologies are not really transforming the learning experience.

Education researchers and commentators have noted for many years how most learning technologies lack impact. Stanford professor Larry Cuban (2001) chronicles his skepticism regarding digital learning tools in publications spanning a decade and a half, most famously in his book *Oversold and Underused: Computers in the Classroom*. He notes that educators continue to do the same things that they always have done in their classrooms, only with more expensive digital devices. Because teachers typically implement learning technologies as "add-ons to solve deep and abiding problems in . . . schools," they "remain a band-aid promising solutions to ill-framed problems" (Cuban, 2016).

The popular press and national news media are awash with headlines that echo this skepticism regarding the power of learning technologies. *The Atlantic*, for example, asks whether classrooms should ban smartphones (Barnwell, 2016). Similarly, a feature story in *The Washington Post* argues that smart students shouldn't use laptops in their classes (Guo, 2016). Writers and reporters for *The New York Time*s (Richtel, 2010), PBS (Oppenheimer, 2010), and National Public Radio (Hamilton, 2008) all express concern about the negative impact of technology on our thinking, attempting to dispel the notion that humans can multitask. Andreas Schleicher, education director for the Organisation for Economic Co-operation and Development (OECD), states that technology "is doing more harm than

good" (Bagshaw, 2016). Even Clay Shirky (2014), one of America's most noted internet experts, asks his students to put their laptops away during class, a request that Dan Rockmore (2014) echoes in *The New Yorker*.

Techno-skepticism isn't confined to the domain of education. Numerous technology critics routinely express their concern about the negative impacts of the digital world on our daily lives. For example, Andrew Keen's (2007) *The Cult of the Amateur* was an alleged "wake-up call" to the "freewheeling, narcissistic atmosphere that pervades the Web" (back cover). Mark Bauerlein (2008), author of *The Dumbest Generation*, states that the digital age is stupefying young Americans and jeopardizing our future. Technologist Jaron Lanier (2010) argues that technology is shaping us rather than the other way around. Michael Bugeja (2005) claims that *interpersonal divides* occur when people spend too much time in virtual rather than "real" communities. Sherry Turkle (2011) contends that our relentless digital connection is actually leading to new forms of solitude. Nicholas Carr (2010) posits that the internet is eroding our ability to engage in deep and creative thought. These examples only scratch the surface; the list is seemingly endless. Humans are adept at manufacturing anxieties and fears—both real and perceived—whenever seismic changes are afoot.

And yet, despite all of the anxious hand-wringing and reflexive teeth-gnashing, most of us also seem to understand quite deeply that these new digital tools and environments bring us great power. If they didn't, they wouldn't have pervaded our homes and offices so quickly. They wouldn't have infiltrated our attention and our energy and our enthusiasm. There must be something there, right?

The Benefits of Technology

Of course there is. We now have the ability to communicate almost instantaneously with people all over the planet. We can learn anytime, anywhere, from anyone, about anything we want. We are able to create content, reach others, and collaborate in ways that were previously unimaginable to noncorporate or nongovernment entities. We can access almost all of human knowledge through the small mobile devices that we carry in our pockets and purses. The power that we have as learners and teachers these days would have been inconceivable to our ancestors just a couple of generations ago. To say that mobile phones, laptops, tablets, apps, virtual and augmented reality, interactive games and simulations, adaptive learning systems, online websites, multimedia feeds, and other digital environments have little to no place in education is ludicrous. There is no better way to cement schools' irrelevance than to ignore the digital transformations that are reshaping the rest of society.

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The key, then, is to figure out how to use these digital tools and to use them well. Instead of arguing that they should be banned or kept from our students, educators and parents should be determining how students should use them and for what purposes. Our thoughtful intentionality can shape our students' learning in positive ways. If the primary criticism of technology integration is that schools will continue to see limited impacts from their digital learning investments until they change, then the solution is to rethink learning and teaching and schooling, not to ignore or ban our powerful technologies.

About This Book

In this book, we describe our approach to this challenge and model how we are working with teachers, administrators, instructional coaches, and technology integrationists to transform digital learning opportunities for students. The main driver of our efforts, and this book, is the 4 Shifts Protocol, a discussion tool that we developed to help educators better integrate technology into their classrooms.

Chapter 1 offers a review of current frameworks and their advantages and disadvantages. In chapter 2, we introduce the 4 Shifts Protocol as a potential solution to the complex challenges of classroom technology integration. The next two chapters illustrate how to use the 4 Shifts Protocol to redesign lessons and units for elementary schools (chapter 3) and middle and high schools (chapter 4). Chapter 5 provides two examples of how to design lessons and units from scratch using the protocol. In chapter 6, we conclude with valuable tips and strategies for using the 4 Shifts Protocol and close with an epilogue that invites you, the reader, to engage with us further.

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Chapter 1
Seeking a New Approach

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The ongoing criticisms of educators' current technology integration practices are deadly accurate. Although most schools have a lot of technology, they rarely use it well. As a result, they usually find that their technology-related efforts aren't paying off as they had hoped, leaving them open to understandable and easily anticipated questions about time, energy, and financial cost. There is a *lot* of replicative use—doing the same things that educators used to do in analog classrooms, only with more expensive tools—and many schools and educators are using technology simply for technology's sake. Until schools can get beyond basic replication with the digital devices that they've purchased, they are never going to satisfy the questions and concerns of their parents, communities, and outside critics.

Educators need better resources in order to move toward more transformative technology environments in which students and teachers use digital tools to actually do things that they couldn't previously do in analog learning spaces. In this chapter, we review several conceptual models that are worth understanding, but they also are insufficient for most school systems.

Current Frameworks

Instructional technology professors in colleges and universities primarily use the Technological Pedagogical Content Knowledge (TPACK) framework (figure 1.1, page 6).

TPACK evolved from professor Lee Shulman's (1986, 1987) work regarding *pedagogical content knowledge* which, in a nutshell, says that effective teachers live at the intersection of content knowledge (CK) and pedagogical knowledge (PK).