# Book Reviews

**ENHANCING THE ART & SCIENCE OF TEACHING WITH TECHNOLOGY** by Sonny Magaña and Robert J. Marzano. Bloomington, IN: Marzano Research Laboratory, 2014. 195 pages. Paperback; $29.95. ISBN: 098589024X.

When is technology most effective at improving student achievement? What do educators need to know to enhance their instructional strategies with technology? How can teachers keep up with the blazing speed of technological change in their schools and classrooms? Teachers seek relevant answers to these questions as digital technologies continue to shape the future of teaching and learning. In response to the demand for timely, evidence-based instructional practices for incorporating technology in the classroom, Sonny Magaña and Robert J. Marzano wrote *Enhancing the Art & Science of Teaching with Technology*. The book is an addition to the series of books entitled The Classroom Strategies Series that aims to provide practical, research-based instructional strategies for teachers and administrators in elementary and secondary education. The authors organized the book with educators in mind, appealing to the need for practical information informed by research.

The book begins with the undeniably appealing and too often unarticulated message that teachers and teaching strategies, not technology, should lead the conversation. Technology's greatest potential can only be achieved when teachers leverage technology to supplement highly effective pedagogy.

The first chapter extends Magaña and Marzano's central theme by introducing supporting research. The chapter provides a very brief but helpful overview of some of the major theories, definitions, and research findings about educational technology that are the foundation for the strategies introduced throughout the book. Collectively, the introduction and first chapter provide the promise that by focusing first on effective, evidence-based research practices, teachers will develop a solid foundation upon which to integrate technology to best support teaching and learning.

Following the first chapter, the authors launch into the heart of the text. Chapters 2–10 each introduce specific research-based instructional strategies, provide practical examples of how to enhance teaching using a variety of digital technologies, and conclude with a detailed vignette of how a single teacher integrates technology tools into his or her unit or lesson. Each chapter also includes a series of questions to review content and foster comprehension. Answers to the questions are provided in an appendix. The consistency of format within each chapter and the supportive text features ensure that teachers and administrators make the most of the book.

The strategies introduced in chapters 2–10 are grouped into broad categories and include communicating learning goals, tracking student progress, celebrating success, establishing classroom rules and procedures, interacting with new knowledge, practicing and deepening knowledge, generating and testing hypotheses, engaging students, recognizing levels of adherence to rules and procedures, maintaining effective relationships with students, and communicating high expectations. Each chapter then introduces multiple strategies within each category. For example, the single chapter devoted to practice and deepening knowledge provides seven distinct strategies ranging from reviewing content to examining errors.

It is here in the heart of the text that Magaña and Marzano become too ambitious about what a single book can offer. The engaging promise of *Enhancing the Art & Science of Teaching with Technology* is that effective technology use is based on evidence-based teaching and learning strategies. Unfortunately, the authors then provide only a limited introduction to the strategies before diving into practical ways that technologies support the specific teaching and learning strategy. The chapters overflow with varied examples of how technologies such as videos, online graphic organizers, presentation software, polling software, screencasts, and more might support specific strategies. The focus on multiple technology examples for each of the forty-one teaching and learning strategies is simply overwhelming. Lacking more detailed attention to the underlying strategies as ways to inform technology use, the book begins to feel like another list of technology examples, tips, and tricks despite the authors' intentions.

Furthermore, some of the most important questions about technology are lacking in the book. For example, aside from two paragraphs in an epilogue, the book fails to provide insight to educators concerning when to use digital technologies and when not to, how many and which strategies should be introduced in the classroom, how many technologies should be introduced at any one time, and how to scaffold or support learning when new strategies or technologies are introduced. Such knowledge, which is the core of highly effective pedagogy, would ensure that even as technologies change with ever-increasing speed, administrators and teachers would be able to make informed decisions about technology in their schools and classrooms.

The deeper questions about pedagogy and technology are necessary for Christian educators to ask in the face of rapid technological change. Too few voices are asking questions or providing insight about technology in elementary and secondary schools. We should not only ask deeper questions in consideration of student learning, but also questions about how technology is shaping beliefs, values, and practices in Christian education.

*Enhancing the Art & Science of Teaching with Technology* offers great promise, but falls short. While written with administrators and teachers in mind, only a limited audience should read this book as a stand-alone text. Educators with well-developed knowledge about effective teaching and learning strategies may find the book useful as they seek examples of technology use in the classroom, but even they should ask relevant questions about what is missing. Educators with limited experience or lacking deep, conceptual knowledge about effective teaching and learning strategies should only consider *Enhancing the Art & Science of Teaching with Technology* if paired with Magaña and Marzano's more comprehensive books in The Classroom Strategy Series.

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**GEEK HERESY: Rescuing Social Change from the Cult of Technology** by Kentaro Toyama. New York: PublicAffairs, 2015. 334 pages, including notes, references and index. Hardcover; $27.99. ISBN: 9781610395281.

Why does applying technological solutions to social ills rarely work? Why do small-scale pilot projects succeed, but subsequent large-scale deployments fail? Can access to computers, the Internet, microcredit, and smartphones help raise large groups of the population from poverty to wealth?

Kentaro Toyoma asks these questions and more in his book *Geek Heresy: Rescuing Social Change from the Cult of Technology*. As a Microsoft researcher sent to India to open a research office there, Toyoma had a lot of experience building and deploying technology to solve social ills. His experiences caused him to ask himself why some technological solutions to problems seem to work, and others fail.

The "geek heresy" is, of course, that applying new technology to a social ill will not automatically and efficiently solve the problem. To make such a statement is to question the work of many well-funded high-tech companies, philanthropists, and technological utopianists. Making such a statement is probably not a smart career move for someone in the high-tech industry. Yet, the author makes the argument well, pulling many examples not only from the computer and smartphone world, but also from the realms of health, education, finance, agriculture, and so on.

To explain why some applications of technology to social problems work and others do not, the author defines the *Law of Amplification*: "Technology's primary effect is to amplify human forces. Like a lever, technology amplifies people's capacities in the direction of their intentions" (p. 29).

This Law of Amplification explains why giving computers to schools with excellent teachers and motivated students amplified their abilities to learn, while giving computers to schools with subpar teachers, students, and infrastructure only served to distract the teachers and students and actually led to less learning. It also explains why giving a child a computer outside of school only proved to amplify the child's stronger natural desire—to be entertained rather than to learn.

This definition of the Law of Amplification is useful, but it does not help the reader determine how to help fix the problems of the world. Part 2 of the book begins to answer that question. The key to fixing the world's problems is not to throw prepackaged interventions at a problem, but instead to "amplify people." The author found through his research that successful interventions always incorporated strong partners "on the ground." That is, the success of the project was determined by the qualities of the partner using a new technology, not by a technology itself.

A good partner exhibits three important qualities: good intention (heart), discernment (mind), and self-control (will) (p. 111). According to the author, heart, mind, and will "are necessary complements to packaged interventions. Even vaccines and medications—which are as close to a complete solution as packaged interventions ever get—require the heart, mind, and will of willing patients, caring nurses, and expert doctors" (pp. 112–13).

Where good partners do not exist, technological solutions to problems fail. The author gives an extended example using the inequality that exists in the US educational system. Many politicians believe that the inequalities can be fixed by equipping schools with more computers and better network access. However, the author's research shows that this is wishful thinking. Instead, "technology amplifies preexisting differences in wealth and achievement. Children with greater vocabularies get more out