

# Chapter 1

## The (Revised List of) Top 10 Technologies for 21<sup>st</sup> Century Instruction

Lawrence A. Tomei  
Robert Morris University, USA

### ABSTRACT

*Volume 9, Issue 3 of the IJICTE (July-September 2013), Top 10 Technologies for Designing 21<sup>st</sup> Century Instruction, offered a first look at classroom technologies recommended to advance teaching and learning in the classroom. In this revised chapter, as with the original paper, we persist in seeking answers to important questions: “How does technology fit into my teaching?” “How can I teach my students to become technologically literate?” “How do I infuse technology into as many levels of my curriculum as possible?” This chapter examines more contemporary technologies that readers should consider in preparing and delivering classroom instruction. We have attempted to rank order the technologies according to their broadest application across curriculum, offering a priority for how important these technologies might be in the classroom. Included in the coverage of each technology is a description of the technology, its primary features, advantages and disadvantages, and additional resources that bear witness to how they actually impact teaching and learning.*

### INTRODUCTION

Since its initial publication, *Top 10 Technologies for Designing 21<sup>st</sup> Century Instruction, July-September 2013*, classroom technologies continue to advance in sophistication, application and scope. Table 1 lists the technologies as originally discussed; readers were presented with hardware and software that had bridged the 20<sup>th</sup> century with the new millennium.

In this revised chapter, we seek answers to several prime questions: “How does technology fit into my teaching?” “How can I teach my students to become technologically literate?” “How do I infuse technology into as many levels of my curriculum as possible?”

DOI: 10.4018/978-1-5225-1709-2.ch001

## ***The (Revised List of) Top 10 Technologies for 21st Century Instruction***

*Table 1. Top 10 technologies (circa 2013)*

Interactive Smartboard	Digital Video
Web Cameras (Webcams)	Wikis and Blogs
Videoconferencing	Social Networking
Podcasting	Digital Electronic Books (eBooks)
Digital Cameras	Student Response Systems

*Table 2. Top 10 technologies (circa 2016)*

1. Lecture Capture Apps	6. Digital Electronic Books (eBooks)
2. 3-D Printing & Apps	7. Digital Video/Videoconferencing
3. Social Networking	8. Student Response Systems
4. Gamification	9. Simulation Technology
5. Mobile Devices	10. Podcasting

To prepare students for their future after formal education, teachers must continue to seize every opportunity to infuse technology whenever it adds to student learning outcomes. The key to success is knowing what works best in particular classroom situations.

So, this revised chapter will examine more contemporary technologies that readers might consider in their classroom instruction (Table 2).

Notice that these latest technologies (circa 2016) are less autonomous and more collaborative; less individual and more collective. Plus, for this chapter, we have attempted to rank order the technologies according to their broadest application across curriculum, offering a priority for how important these technologies might be in the classroom. Granted, the priorities might be different depending on the teacher, students, and level of education and whether the learners are children or adults.

Teachers use these tools to address the growing inventory of 21<sup>st</sup> century skills that include global awareness, self-directed learning, ICT literacy, problem solving skills, time management and personal responsibility, lifelong learning, financial, economic, business and entrepreneurial literacies, and communications and collaboration skills.

This chapter explores best practices that lead to change and shares ideas about the use of these tools in the classroom. In addition to a description of the technology, its primary features, advantages and disadvantages, there are links to additional resources that bear witness to how they actually impact the classroom.

## **LECTURE CAPTURE APPLICATIONS**

### **Description**

Lecture capture applications are a generic category of software, system capabilities, and hardware options hosted on personal devices or laptop computers that allow instructors to record audio interactions in their classrooms and make it available digitally to students, most often outside of the classroom. In the past, lectures might have been captured using cassette recorders. With the technologies of the new millennium, iPads and smart phones are the preferred tools.

### **Selected Features**

Good lecture capture systems enable instructors to keep track of how students interact with the content presented. They blend with instructors' workflows and enhance flipped classroom tactics.

17 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:  
[www.igi-global.com/chapter/the-revised-list-of-top-10-technologies-for-21st-century-instruction/171925](http://www.igi-global.com/chapter/the-revised-list-of-top-10-technologies-for-21st-century-instruction/171925)

## Related Content

---

### To MOOC or Not to MOOC, That Is the Problem: A Learner's Perspective

Dilrukshi Gamage, Shantha Fernando and Indika Perera (2016). *Revolutionizing Modern Education through Meaningful E-Learning Implementation* (pp. 131-148).

[www.irma-international.org/chapter/to-mooc-or-not-to-mooc-that-is-the-problem/157778](http://www.irma-international.org/chapter/to-mooc-or-not-to-mooc-that-is-the-problem/157778)

### Edu-ACoCM: Automatic Co-existing Concept Mining from Educational Content

Maitri Maulik Jhaveri and Jyoti Pareek (2019). *International Journal of Technology-Enabled Student Support Services* (pp. 16-40).

[www.irma-international.org/article/edu-acocm/236072](http://www.irma-international.org/article/edu-acocm/236072)

### Existing Standards and Programs for Use in Mobile Augmented Reality

Gülay Ekren and Nilgun Ozdamar Keskin (2017). *Mobile Technologies and Augmented Reality in Open Education* (pp. 118-134).

[www.irma-international.org/chapter/existing-standards-and-programs-for-use-in-mobile-augmented-reality/178239](http://www.irma-international.org/chapter/existing-standards-and-programs-for-use-in-mobile-augmented-reality/178239)

### Assessment of Learning Experiences in the Mathematics Subject Based on an E-Assessment System: Case – Postgraduate in Senior Management in Online Mode

Edgar Oliver Cardoso Espinosa (2019). *Handbook of Research on E-Assessment in Higher Education* (pp. 367-385).

[www.irma-international.org/chapter/assessment-of-learning-experiences-in-the-mathematics-subject-based-on-an-e-assessment-system/212291](http://www.irma-international.org/chapter/assessment-of-learning-experiences-in-the-mathematics-subject-based-on-an-e-assessment-system/212291)

### Is Schema Theory Helpful in Teaching and Learning Based on Visualizing Research?

Xinhong Xia, Xianglan Chen, Jing Zhang, Hongliang Lou and Yachao Duan (2022). *International Journal of Technology-Enhanced Education* (pp. 1-15).

[www.irma-international.org/article/is-schema-theory-helpful-in-teaching-and-learning-based-on-visualizing-research/300332](http://www.irma-international.org/article/is-schema-theory-helpful-in-teaching-and-learning-based-on-visualizing-research/300332)