21st Century Skills: Prepare Students for the Future

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The first decade of the twenty-first century has come to an end, so it seems timely to take a closer look at what often are referred to as 21st century skills, because these skills directly impact teaching and learning. Classroom teachers need to be familiar with these skills and integrate them throughout the curriculum.

**What Are 21st Century Skills?**

Since the inception of public education, there has been a strong emphasis on teaching the “basics,” including reading, writing, and mathematics. While such skills are still important, lately much talk focuses on teaching children 21st century skills. In a press release, U.S. Secretary of Education Arne Duncan (2009) referred to 21st century skills as “skills that increasingly demand creativity, perseverance, and problem solving combined with performing well as part of a team.”

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The Partnership for 21st Century Skills, a leading advocacy organization that promotes infusion of 21st century skills into education, developed a framework for 21st century learning. That framework describes the skills, knowledge, and expertise students need to successfully enter today’s workforce. Student outcomes include: 1) Core Subjects and 21st Century Themes; 2) Learning and Innovation Skills; 3) Information, Media, and Technology Skills; 4) and Life and Career Skills (Partnership for 21st Century Skills 2009).

Similarly, the International Society for Technology in Education ([ISTE] 2007) recognized that in an increasingly digital world, students need skills in the following areas: 1) Creativity and Innovation; 2) Communication and Collaboration; 3) Research and Information Fluency; 4) Critical Thinking, Problem Solving, and Decision Making; 5) Digital Citizenship; and 6) Technology Operations and Concepts.

Though there are multiple ways to view the exact content and definition of 21st century skills, all generally emphasize what students can do with knowledge and how they apply what they learn in authentic contexts. Their essence involves strong communication and collaboration skills, expertise in technology, innovative and creative thinking skills, and an ability to solve problems.

**Are 21st Century Skills Really New?**

According to Silva (2009, 631), 21st century skills are not new, but they are “newly important,” as today’s workers must be able to “find and analyze information from multiple sources.”

Skills students will need for the society in which they will work and live shouldn’t be thought of as “one more thing to teach,” but rather training integrated across all curricula.

by Lotta C. Larson and Teresa Northern Miller
online book clubs, science forums, or other forms of virtual environments. Offline communication skills are fostered as students collaboratively solve problems, engage in inquiry-based activities (such as science experiments), or research a particular topic. As online communication skills become increasingly important, students benefit from participation in online book clubs, science forums, or other forms of virtual discussions. Communication tools like Twitter, e-mail, and text messaging may further engage students in conversations with authors, scientists, political leaders, or fellow students from around the world. Many Internet resources provide e-mail accounts or blog solutions for schools and districts (see Table 1).

**Table 1. 21st Century Skills Resources**

For help integrating 21st century skills into your curriculum, visit these Web sites:

- **Edutopia** offers practical advice, authentic examples, lively contributions from practitioners, and invaluable tips and tools, including ideas for Technology Integration and Project Learning. www.edutopia.org
- **ePals** makes it easy to connect learners locally, nationally, or internationally with classrooms in 200 countries and territories. www.epals.com
- **ISTE’s National Educational Technology Standards (NETS) for Students** help students prepare to work, live, and contribute to the social and civic fabric of their communities. www.iste.org/standards/nets-for-students.aspx
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- **Partnership for 21st Century Skills** advocates for the integration of skills such as critical thinking, problem solving, and communication into the teaching of core academic subjects. www.21stcenturyskills.org
- **Pew Internet & American Life Project** explores the impact of the Internet on families, communities, work and home, daily life, education, health care, and civic and political life. www.pewinternet.org
- **Tech & Learning** provides K–12 educators with practical resources and expert strategies for transforming education through integration of digital technologies. www.techlearning.com
- **Thinkfinity** offers free lesson plans that reflect 21st century teaching and skills, and make use of digital sources. www.thinkfinity.org/lesson-plans

**21st Century Skills in the Classroom**

So, what does all this mean for educators and students in K–12 classrooms? What it doesn’t mean is that teachers are getting saddled with “one more thing to teach.” Rather, it means that 21st century skills need to be taught and integrated across the current curriculum by providing students with engaging learning opportunities in authentic contexts. Here are some ways that 21st century skills can be incorporated into the curriculum.

**Communication and Collaboration**

In the 21st century classroom, students should collaborate and communicate in both online and offline environments. Offline communication skills are fostered as students collaboratively solve problems, engage in inquiry-based activities (such as science experiments), or research a particular topic. As online communication skills become increasingly important, students benefit from participation in online book clubs, science forums, or other forms of virtual discussions. Communication tools like Twitter, e-mail, and text messaging may further engage students in conversations with authors, scientists, political leaders, or fellow students from around the world. Many Internet resources provide e-mail accounts or blog solutions for schools and districts (see Table 1).

**Expertise in Technology**

As technology becomes even more prevalent in today’s society, students need increased expertise in digital technologies (computers, electronic white boards, GPS, etc.). Of even greater importance is the need for students’ ability to use technology to research, organize, evaluate, and communicate information. Twenty-first century teachers must carefully guide their students within technology-rich environments. Here are some ways that 21st century skills can be incorporated into the curriculum.

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classrooms that present more complex and diverse learning opportunities than traditional classrooms.

Leu et al. (2004) proposed that as accessibility to the Internet and new classroom technologies increase, teachers become even more important, though their roles change. In reality, it is no longer possible for every teacher to be an expert in every new technology, and students often possess more expertise than their teachers. In the 21st century classroom, effective teachers and students orchestrate learning environments in which individual expertise in technology is shared with a broader community of learners. School administrators can support such configurations by providing professional development, skills-specific training, and time to plan and design technology-based lessons (Larson, Miller, and Ribble 2009/2010).

Innovative Thinking and Problem Solving

Despite increasing knowledge of how the brain works and the continued emphasis on developing skills in innovative thinking and problem solving, many students function at Bloom’s (1956) knowledge and comprehension levels. It is vital that teachers encourage students to apply knowledge, analyze that knowledge (in multiple ways), synthesize or create new knowledge, and continuously evaluate. All of these skills can be integrated with technology and practiced collaboratively.

The abilities to solve problems and think innovatively across all content areas involve multiple levels of Bloom’s taxonomy. As students encounter real-life problems, they must be able to 1) sort through large masses of materials and identify key problems; 2) create viable options or solutions; and 3) identify and use appropriate criteria for evaluation. By developing these skills in the classroom, students will be able to transfer the thinking processes to unfamiliar situations, to create nontraditional solutions, and to ask questions that help determine better outcomes, as recommended by the Partnership for 21st Century Skills (2009). For additional resources and lesson plans that support integration of 21st century skills into specific content areas, please see Table 2.

Closing Thoughts

The world is changing rapidly, and educators must respond by preparing their students for the society in which they will work and live. Teaching 21st century skills is imperative and cannot be ignored or taken lightly. With the increased pressure of No Child Left Behind (2002) and an emphasis on common core standards, it is particularly important that teachers do not view 21st century skills as an additional “subject,” but rather as skills to be integrated across all curricula. The future is already here, and it is up to all teachers to reshape instruction.

Table 2. Resources for Integrating 21st Century Skills into Content Areas

<table>
<thead>
<tr>
<th>Reading/Writing</th>
<th>Science</th>
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<tbody>
<tr>
<td>Read Write Think provides access to practices and resources in reading and language arts instruction through free, Internet-based content. <a href="http://www.readwritethink.org">www.readwritethink.org</a></td>
<td>Education Planet—Science provides more than 45,000 lesson plans in all areas of science and more than 1,000 Web links for additional science exploration. <a href="http://www.educationplanet.com/directory/science">www.educationplanet.com/directory/science</a></td>
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<td>Project Gutenberg offers more than 30,000 free e-books to download and read on your PC, iPhone, Kindle, Sony Reader, iPad, or other portable device. <a href="http://www.gutenberg.org">www.gutenberg.org</a></td>
<td>Scientific American: Ask the Experts invites students to ask questions on any science topic. <a href="http://www.scientificamerican.com/section.cfm?id=ask-the-experts">www.scientificamerican.com/section.cfm?id=ask-the-experts</a></td>
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<td>National Library of Virtual Manipulatives offers online manipulatives that can be used in whole-class instruction or by individuals at their own computers. <a href="http://nlvm.usu.edu/en/nav/topic_t_1.html">http://nlvm.usu.edu/en/nav/topic_t_1.html</a></td>
<td>Google Earth lets you travel anywhere on earth to explore rich geographical content. <a href="http://earth.google.com">http://earth.google.com</a></td>
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<td>PBS: Teachers Math lets you select grade-level appropriate lesson plans that promote a multimedia approach to teaching. <a href="http://www.pbs.org/teachers/math">www.pbs.org/teachers/math</a></td>
<td>The History Channel includes a wealth of lesson plans, biographies, speeches, video clips, and information about any day in history. <a href="http://www.history.com">www.history.com</a></td>
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