Most Americans agree that the workplace is changing and that the skills necessary for success in the 21st century workplace are different from those needed in the 20th century. In his book *A Whole New Mind*, author Daniel H. Pink writes that we are "moving from the Information Age to the Conceptual Age" [Pink, 2005, p. 33]. He argues that the workplace is changing as a result of three factors--Asia, abundance, automation--and that to remain competitive workers will need new skills [Pink, 2005, p. 46]. According to Pink "in the Conceptual Age, what we need . . . is a whole new mind"--one that incorporates both right brain and left brain directed aptitudes (Pink, 2005, p. 51). Where the left brain is "sequential, logical, and analytical," the right brain is "nonlinear, intuitive, and holistic." He notes that while the "defining skills of the previous era are necessary," they are "no longer sufficient." Instead he argues, the "right brain qualities of inventiveness, empathy, joyfulness, and meaning increasingly will determine who flourishes and who flounders" (Pink, 2005, p. 3).

**The Changing Workplace**

Pink's findings concur with those of other experts and researchers who have studied the changing workplace and the skills that will be needed for continued work success. The enGauge 21st Century Skills notes in its report on *Literacy in the Digital Age* that "experts at the U.S. Department of Labor... assert, ?The influence of technology will go beyond new equipment and faster communication, as work and skills will be redefined and reorganized' " (enGauge, 2003, p. 8). The enGauge report asserts that "rapid change and increased competition require that workers use their ?soft skills' to adapt quickly to changing technologies and organizational structures" (enGauge, 2003, p. 8).

According to this study "As society changes, the skills needed to negotiate the complexities of life also change. In the early 1900s, a person who had acquired simple reading, writing, and calculating skills was considered literate. Only in recent years has the public education system expected all students to build on those basics, developing a broad range of literacies. To achieve success in the 21st century, students also need to attain proficiency in science, technology, and culture, as well as gain a thorough understanding of information in all its forms" (enGauge, 2003, p.15).

The workplace and employer expectations have changed over time. "For businesses, it's no longer enough to create a product that's reasonably priced and adequately functional. It must also be beautiful, unique, and meaningful...," writes Pink [Pink, p. 35]. In addition many jobs are being outsourced. "White collar work of all sorts is migrating to other parts of the world," Pink notes [p. 38]. "The main reason is money." Workers in other parts of the world can do what American workers can do--only for less money. Automation is also changing the workplace as we know it: Computers are now doing tasks better, faster, and cheaper [Pink, 2005].
"The future belongs to a very different kind of person with a very different type of mind," warns Pink [p.1]. Workers will need to build on the skills of the 20th Century by mastering a new and different set of skills in the 21st Century. "We must perform work that overseas knowledge-workers can't do cheaper, that computers can't do faster, and that satisfies the aesthetic, emotional, and spiritual demands of a prosperous time," writes Pink [p. 61]. For example, "engineers and programmers will have to master different aptitudes, relying more on creativity than competence, more on tacit knowledge than technical manuals, and more on fashioning the big picture than sweating out the details," Pink writes. [p. 44-45].

In their book *The new division of labor: How computers are creating the next job market*, Frank Levy and Richard Murnane argue that two categories of skills will be more valued: "expert thinking--solving new problems for which there are no routine answers" and "complex communication--persuading, explaining, and in other ways conveying a particular interpretation of information" [Pink, 333].

Schools must prepare students for a different workplace--one that values innovation, imagination, creativity, communication, and emotional intelligence [Pink, 233].

**The 21st Century Workplace Skills**

The enGauge report identified four skill clusters as essential to success in the 21st Century workplace. These skills "were developed through a process that included literature reviews, research on emerging characteristics of the Net Generation, a review of current reports on workforce trends from business and industry, analysis of nationally recognized skill sets, input from educators, data from educator surveys, and reactions from constituent groups. In addition, data was gathered from educators at state-level conference sessions in 10 states, surveys, and focus groups Chicago and Washington, D.C." (enGauge, 2003, p. 13).

The four skill clusters are:

- **Digital-age literacy**, which includes the various competencies expected in a 21st century workplace.

- **Inventive thinking**, which includes the ability to think outside the box.

- **Effective communication**, which is the ability to clearly communicate with a wide range of audiences.

- **High productivity**, which will be a requirement of success in the 21st Century workplace.

**Mastering the Skills**
Within these skill clusters are a subset of skills and competencies that workers will be expected to have mastered. EnGauge further defines the subset of skills for each skill as follows:

**Digital-age literacy** encompasses:

- **Basic literacy**: This is defined as the ability to read, write, listen and speak as well as to compute numbers and solve problems.

- **Scientific literacy**: This is defined as a general knowledge and understanding of scientific concepts and processes.

- **Economic literacy**: This includes an understanding of basic economic concepts, personal finance, the roles of small and large businesses, and how economic issues affect them as consumers and citizens.

- **Technological literacy**: This includes an understanding about technology and how it can be used to achieve a specific purpose or goal.

- **Visual literacy**: This includes good visualization skills and the ability to understand, use, and create images and video using both conventional and new media.

- **Information literacy**: This includes the ability to find, access, and use information as well as the ability to evaluate the credibility of the information.

- **Cultural literacy**: This includes the ability to value diversity, to exhibit sensitivity to cultural issues, and to interact and communicate with diverse cultural groups.

- **Global awareness**: This is an understanding of how nations, individuals, groups, and economies are interconnected and how they relate to each other.

**Inventive thinking** will be prized in the 21st Century and a successful individual needs to develop and cultivate these essential life skills: (enGauge, 2003, p. 35)

- **Adaptability and managing complexity**: This is the ability to recognize and understand that change is a constant, and to deal with change positively by "modifying one's thinking, attitude or behavior" to accommodate and handle this new environment.

- **Self-direction**: This is the ability to work independently, whether developing goals or plans, managing one's time and work, or evaluating one's knowledge or learning process.

- **Curiosity**: This is the desire to learn more about something and is an essential component of lifelong learning.
• **Creativity:** This is the means of producing something new or original that is either personally or culturally significant.

• **Risk taking:** This is a willingness to think about a problem or challenge, to share that thinking with others, and to listen to feedback. It is a willingness to go beyond a safety zone, to make mistakes, to creatively tackle challenges or problems with the ultimate goal of enhancing personal accomplishment and growth.

• **Higher-order thinking and sound reasoning:** The higher-level thinking processes include the ability to analyze, compare, infer, interpret, evaluate, and synthesize. Sound reasoning applies common sense and acquired knowledge and skills to ensure good problem solving and decision making.

**Effective communication** is the ability to communicate with both individuals and groups in a positive manner. Effective communication involves: (enGauge, 2003, p. 47)

• **Teaming and collaboration:** Teaming is a situation in which individuals share a common goal, bring unique capabilities to the job of achieving, work in a structured environment, and exhibit trust and respect towards one another. Collaboration is the cooperative interaction between the members of the team as they work together to achieve their goal.

• **Interpersonal skills:** This is the ability to manage one’s behavior, emotions, and motivations to foster positive interactions with other individuals and groups. The ability to effectively manage conflict is also an important interpersonal skill necessary for success in the 21st Century workplace. These skills are exhibited both in one-on-one situations and in emails, conference calls, and videoconferences.

• **Personal responsibility:** Personal responsibility in the 21st Century workplace requires one to understand the legal and ethical issues related to technology and to manage and use technology in a responsible manner.

• **Social and civic responsibility:** This requires that individuals use and manage technology to promote the public good and to protect society and the environment.

• **Interactive communication:** This requires that individuals learn to communicate using a wide range of media and technology. They must select the most effective method of communication for the intended audience and use it responsibly and effectively to enhance the dissemination of information.

**High productivity** is expected of workers in the 21st Century workforce. Individuals need to master these skills if they are to be productive. (enGauge, 2003, p.59)

• **Prioritizing, planning, and managing for results:** These organizational skills help an individual achieve the goals that have been set through efficient management of time and resources, effective problem solving, and strong leadership skills.
- **Effective use of real-world tools**: This requires that individuals master current and new technology to communicate and collaborate with others, to effectively problem solve, and to accomplish tasks. They must learn how to select the appropriate tools for the task at hand and to apply these tools efficiently and effectively to achieve results.

- **Ability to produce relevant, high-quality products**: This is the "ability to produce intellectual, informational, or material products that serve authentic purposes and occur as a result of students using real-world tools to solve or communicate about real-world problems" (enGauge, 2003, p. 59).

**Conclusion**

Our changing workplace requires that all 21st Century workers master the skills required in a knowledge-society as well as the new skills necessary to move beyond the Information Age into the Conceptual Age. The enGauge report identifies “three significant things that need to occur if students are to thrive in today's knowledge-based, global society. These are: (enGauge, 2003, p. 2)

- The public must acknowledge 21st century skills as essential to the education of today's learner.

- Schools must embrace new designs for learning based on emerging research about how people learn, effective uses of technology, and 21st century skills in the context of rigorous academic content.

- Policymakers must base school accountability on assessments that measure both academic achievement and 21st century skills.

As the workplace changes and evolves, so must its workers if they are to be successful.

**References**
