

Back to the Future: 21st Century Skills in the Contemporary Classroom

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Abstract

In current educational debates, twenty-first century skills constitute one of the major themes. While the skills have varied definitions, this paper focuses on several specific definitions, including creativity, critical thinking, collaboration, and communication. The debate in schools originates with the business community defining these four skills, as well as digital literacy, as essential to future employment and success. Therefore, this paper analyzes the discrepancy between employable skills and students' knowledge and abilities in these areas. The paper also examines suggested practices in higher education and K-12 learning environments that promote learning these skills. A comprehensive literature review examines research in 21st century skills, specifically examining the benefits to learning and the challenges of teaching and assessing these skills. Finally, the paper suggests future areas of research and offers conclusions at the purpose and benefits of teaching 21st century skills in K12 schools and in college.

Keywords: 21st Century Skills, Education, Teaching Skills, Future Employment

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The 16th century French philosopher Michel de Montaigne once wrote, “The greatest and most important difficulty in human knowledge seems to lie in this branch with deals with the training and education of children.” (Montaigne, 1948, p. 9). Human beings have perpetually sought methods of teaching a younger generation what they needed for success in society. In this regard, humans have emphasized the acquisition of and the application of knowledge. Currently, teachers, educational leaders, business people, politicians, and parents are all weighing in on the skills needed in a dynamically changing society. These skills, most recently, have been defined “21st Century Skills.”

In many respects, the skills required for success in the 21st century are no different than the ones of centuries past. People, in order to be functioning citizens of a democracy, require the ability to solve problems, make connections to other members of society, communicate needs and make reasoned arguments, and think in ways that can improve societal institutions, the courts, schools, and hospitals. In short, critical thinking, collaboration, communication, and creativity.

In the modern debate about what students must learn in school, the focus revolves around the proliferation of technology. Societal change now may not be any different than any other time when human beings faced change due to technology, but the pace at which innovations seem to occur and then disrupt the establish order does appear to be new in human history. As a result, people turn to schools in order to equip children to succeed in a future that changes lightning quick. Hence, the movement of teaching 21st century skills has arrived.

While numerous organizations have different definitions of what these skills are, this paper will utilize the four most common: creativity, critical thinking, collaboration, and

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communication. The use of technology, commonly referred to as digital literacy, connects to these four skills and serves as the foundation for the 21st century skills. As the invention of the printing press allowed the proliferation of Enlightenment ideas, so do the personal computer and later mobile devices allow for the proliferation and necessity for 21st century skills. Content to be known can now be discovered instantaneously, and therefore, 21st century skills have much to do with understanding how to find that knowledge and use it.

Literature Review

The research on 21st century skills examined for this paper indicates no dissent in the necessity, utility, and importance in schools teaching them. Nowhere did this author find a claim that students should learn some other skill more than thinking creatively and critically, working together, and communicating clearly. Furthermore, research indicates that schools, both K12 and higher education need significant curricular and pedagogical change in order to teach these skills successfully. Brusica and Shearer (2014) point to one change: institutions other than the traditional educational have started to influence the debate, and teaching these skills is now gaining “universal support” (Brusica & Shearer, 2014, p. 8).

Much of this universal support comes from the business community regarding hiring college graduates. Numerous studies cite a disconnect between what skills students graduating from college have versus the skills businesses need in order to face the dynamic competitive pressures of the global marketplace. Hodge and Lear (2011) cite several studies that indicate numerous careers require college degrees (Crosby and Moncarz, 2006, as cited in Hodge & Lear, 2011, p. 28) and that during 1995-2005, significant numbers of manufacturing jobs disappeared while service sector jobs increased tremendously (Partnership for 21st Century Skills, 2008, as

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cited in Hodge & Lear, 2011, p. 30). The nature of these jobs has changed, too, with workers required to operate more independently and perform multiple tasks (Partnership for 21st Century Skills, 2008, as cited in Hodge & Lear, 2011, p. 30).

Daniel Pink (2006), in his book *A Whole New Mind*, points to some of these shifts in employment based on the three “A”s: Abundance, Asia, and Automation (Pink, 2006, p. 28). These three factors- the world has a surplus of consumer goods, much production and manufacturing originates in cheaper labor markets found in Asia, and computers and software can perform tasks formerly regulated to human beings- have permanently changed the American work force (Pink, 2006, pp. 28-47). In this employment landscape, where students must earn college degrees to enter into professional fields, colleges that do not educate students to have new, modern skills place their graduates at a short and long-term disadvantage. Eisner (2010) cites a study from the National Association of Colleges and Employers that hiring managers had three successive years of significant declines in finding college graduates and employing them (Eisner, 2010, p. 28). Eisner (2010) also points to five studies that name employers’ most desired qualities are for candidates to have advanced skills in “oral and written communication, critical thinking/ problem solving, and teamwork/ collaboration” in addition to basic technology skills (Eisner, 2010, p. 34). Eisner also cites low percentages of jobs that require specific skills in Math and Science (Eisner, 2010, p. 38).

Research also points to deficiencies in K12 and higher education regarding the teaching of 21st century skills. The Partnership for 21st Century Learning cites numerous, extensive studies that indicate these deficiencies are “increasing international competitiveness (both economic and educational); a lack of qualified workers and a skills imperative from employers; mediocre student performance, an achievement gap and a dropout crisis in K–12 schools; and a

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proliferation of remediation in higher education” (*Up to the challenge*, 2010, p. 6). Yoo and MacDonald, (2014) argue for a complete overhaul of K12 curricula in order to utilize problem based learning to teach these skills. Voogt, Erstad, Dede, and Mishra, (2013), argue that in addition to curricular re-designs, teachers of all disciplines, including the core academic subjects, must infuse 21st century skill teaching into their classes (Voogt, Erstad, Dede, & Mishra, 2013, p. 407). They also advocate for improved teacher education, specifically citing the need for teachers to have these skills in order to teach them (Voogt, Erstad, Dede, & Mishra, 2013, p. 408).

To rectify these deficiencies schools must focus on the contexts for learning these skills. Siu, et al. (2014) cite three areas: formal vs. informal environs for learning, individualized vs. collaborative exercises, and evidence of learner’s progress or difficulty with acquiring specific knowledge (Siu, et al., 2014, p. 72). According this research, digital learning provides the context for learners to learn these skills, and they cite several studies supporting this argument (Siu, et al., 2014, p. 71). They also offer six areas for future research which will be discussed later in this paper.

Finally, Milton Chen cites six significant areas for change in schools, areas currently disrupting traditional education: the science of learning, curriculum and assessment, technology, asynchronous and synchronous delivery in multiple places, co-teaching with partners outside the classroom or school, youth and mobile learning (Chen, 2010, p. vii). Chen cites the work of Hagel and Brown in their book *The Only Sustainable Edge* to explain that these six areas, which Chen calls “edges”, eventually move towards the center to change established institutions (Chen, 2010, pp. 6-7). Chen also provides extensive examples of schools that have or are changing current pedagogical practices and influencing their peer schools.

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Where Are We Now, and Where Are We Going?

Karen Cator, Director of the Office of Educational Technology for the Department of Education defined success “in the 21st century requires knowing how to learn” (Education Week, 2012). While this definition does not differ much from any other futuristic prediction from previous generations, students now have more information immediately available. Being able to search and then discern the validity of this information has changed as technological devices such as computers, networks, and mobile devices have altered how quickly humans can retrieve information. But, most importantly, in an economy where employment opportunities require sophisticated knowledge, success comes to those with the abilities to find valid information and act on it.

The US Bureau of Labor and Statistics most recent job projections for the next decade point to several important developments related to employment. First, during the decade 2012-2022, job growth will be 10.8 %, with over one-third of new jobs residing in healthcare and related medical services (USBLS, 2012). Out of 30 specific occupations that will grow the fastest during this time, nineteen will require a bachelor’s degree or higher (USBLS, 2012). Although job growth for occupations only requiring a high school diploma will remain steady, the difference in median salary in 2012 and projected growth for those earning college degrees or higher is substantially better (USBLS, 2012). In 2012, college graduates earned median wages of just over \$57,000 while high school graduates earned just over \$27,000, and during the decade, jobs requiring post-secondary degrees will grow 14% as opposed to 9% for jobs needing only a high school diploma (USBLS, 2012).

These statistics cite important projections about employment in the United States, and specifically that increasing opportunities will come to those with college degrees. Eisner (2010)

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cites problems, however, with the current employment market for college graduates. Owens (2009) cites the most important skills as “communication, work ethic, teamwork, initiative, and leadership” (Owens, 2009, as cited in Eisner, 2010, p. 29). Hansen, 2009, explains the majors most popular in college are often ones the least attractive to employers (Eisner, 2010, p. 40). For example, only four percent of jobs in the US are in the engineering field, yet the highest earning majors and the most likely to gain employment upon graduation are math based (Eisner, 2010, p. 40). According to the National Center for Education Statistics, “of the 1,791,000 bachelor’s degrees conferred in 2011–12, the greatest numbers of degrees were conferred in the fields of business (367,000), social sciences and history (179,000), health professions and related programs (163,000), psychology (109,000), and education (106,000)” (NCES, 2015). Thus, there is a disconnect between what majors students choose and the skills demanded in the workplace.

Research by the Partnership for 21st Century Skills (2006) and the American Management Association (2010) support this claim. These surveys state “many employers believe that higher education is failing in its role to adequately develop needed skills in students” (Hodge & Lear, 2011, p. 29). One of the problems is a matter of perception. Hodge and Lear, 2011, conducted a comprehensive study of business leaders, business faculty and business students and made several important discoveries:

- Faculty and business executives agreed on three important skills: critical thinking, problem solving, and teamwork, but business executives valued creativity and oral and written communication higher than faculty (p. 36)
- US students ranked critical thinking, problem solving, and communication, considerably lower than the business executives (p. 36).
- US students ranked Management, Interpersonal, Teamwork, and Time management as the most important skills for employment (p. 35).

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- Faculty and business executives did not agree with the students on the importance of management and time management (p. 38).

Hodge and Lear, 2011, conclude that employers and faculty, faculty and students, and most importantly, employers and students do not agree on which skills are most valued (Hodge & Lear, 2011, p. 38). Basing this conclusion on Savickas, 2005, Hodge and Lear, 2011, assert the skills employers need do not appear to be either taught or valued in the business classroom (Hodge & Lear, 2011, p. 38). This study indicates the perception of value is misplaced, and therefore, to improve the prospects of employment, the academic requirements of the college business course must align with employers' needs for employees with 21st century skills.

Twenty-first century skills can have tremendous psychological benefits for students across a broad spectrum of socio-economic backgrounds. In addition to the college bound high-school student, those students with less economic advantage can greatly enhance future academic success and employment prospects through learning 21st century skills. Jacobson-Lundenberg, 2013, examined economically poor students enrolled in Personal Development Education programs in the state of California, and she concludes that not only do the abilities to communicate and collaborate effectively improve prospects for success, these skills also increase the student's "confidence, self-advocacy, and credibility" (Jacobson- Lundenberg, 2013, p. 29). Eventually, children become adults in the work place, and these attributes combined with the ability to speak and write and work together have tremendous bearing on professional success. Jacobson-Lundenberg, 2013, cites a statistic from the Association of Career and Technical Education stating that 70% of employees lose their jobs because of an inability to work with others (ACTE, 2010, cited by Jacobson- Lundenberg, 2013, p. 30). Inherent in working together is the ability to communicate clearly and to understand and to be understood in the social and

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cultural contexts in which people live and work (O'Neal and Ringler, 2010, as cited in Jacobson-Lundenberg, 2013, p. 29). Therefore, 21st century skills benefit all types of workers in the current marketplace, and schools who serve students from all socio-economic classes must prepare them for this dynamic work environment.

Considerable work must be done. Future research is needed in several areas: methods for teaching and assessing these skills, use of these skills in specific industries, and the value these skills bring to business. Siu, et al. (2014) notes six areas for research: school leadership and attitudes about teaching 21st century skills, problem solving in the curriculum, digital classroom and the learners' experience, methods for teachers to use technology to enhance teaching these skills, use of IT to assess skills and knowledge, and professional development for teachers that leads to student outcomes of improved 21st century skills (Siu, et al., 2014, p. 74).

Conclusion

Colleges and Universities, K12 schools, and business have a tremendous stake in the teaching and learning of 21st century skills. The costs of education combined with the competition of the global marketplace demand that elementary, middle, high schools and colleges prepare graduates more efficiently and more appropriately for employment. Teaching these skills requires school leaders, teachers, and parents to understand the importance of them. Furthermore, teachers must have the skills themselves, and they must understand not only how to teach students but also assess their progress. In this respect, the challenge is massive but unquestionably important for the long-term health of children as they become adults.

Why are these skills so important? The speed of innovation, communication, and interaction will not slow down. Technology will only increase the pace of how people live and

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work together. Yet, despite these new devices, human problems remain the same. People must rationally and creatively solve these problems. People must collaborate in their endeavors. And people must communicate clearly and reasonably. The 21st century skills defined in this paper allow students to grow and learn as they age, and the flexibility and importance of these skills allows them to add value as employees and citizens.

Global competition brings cultural interaction. If students learn to cooperate with a diversity of people, then they can grow as responsible global citizens. As companies employ people throughout the world, leaders well versed in 21st century skills can promote meaningful change, create sustainable businesses, and fix old problems with new ideas and new means of cooperation. Finally, 21st century skills build cohesion amongst people, and with a renewed emphasis on these skills, communities throughout the United States and the world can grow and prosper in harmony.

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