

21st century Skills

The term 21st century skills refers to a broad set of knowledge, skills, work habits, and character traits that are believed—by educators, school reformers, college professors, employers, and others—to be critically important to success in today’s world, particularly in collegiate programs and contemporary careers and workplaces. Generally speaking, 21st century skills can be applied in all academic subject areas, and in all educational, career, and civic settings throughout a student’s life.

It should be noted that the “21st century skills” concept encompasses a wide-ranging and amorphous body of knowledge and skills that is not easy to define and that has not been officially codified or categorized. While the term is widely used in education, it is not always defined consistently, which can lead to confusion and divergent interpretations. In addition, a number of related terms—including applied skills, cross-curricular skills, cross-disciplinary skills, interdisciplinary skills, transferable skills, transversal skills, noncognitive skills, and soft skills, among others—are also widely used in reference to the general forms of knowledge and skill commonly associated with “21st century skills.” While these different terms may not be strictly synonymous, and they may have divergent or specialized meanings in certain technical contexts, these diverse sets of skills are being addressed in this one entry for the purposes of practicality and usefulness.

While the specific skills deemed to be “21st century skills” may be defined, categorized, and determined differently from person to person, place to place, or school to school the term does reflect a general—if somewhat loose and shifting—consensus. The following list provides a brief illustrative overview of the knowledge, skills, work habits, and character traits commonly associated with 21st century skills:

- ◆ Critical thinking, problem solving, reasoning, analysis, interpretation, synthesizing information
- ◆ Research skills and practices, interrogative questioning
- ◆ Creativity, artistry, curiosity, imagination, innovation, personal expression
- ◆ Perseverance, self-direction, planning, self-discipline, adaptability, initiative
- ◆ Oral and written communication, public speaking and presenting, listening
- ◆ Leadership, teamwork, collaboration, cooperation, virtual workspaces
- ◆ Information and communication technology (ITC) literacy, media and internet literacy, visual interpretation, data interpretation and analysis, computer programming
- ◆ Civic, ethical, and social-justice literacy

- ◆ Economic and financial literacy, entrepreneurialism
- ◆ Global awareness, multicultural literacy, humanitarianism
- ◆ Scientific literacy and reasoning, the scientific method
- ◆ Environmental and conservation literacy, ecosystems understanding
- ◆ Health and wellness literacy, including nutrition, diet, exercise, and public health and safety

While many individuals and organizations have proposed definitions of 21st century skills, and most states have adopted learning standards that include or address cross-disciplinary skills, the following are three popular models that can serve to illustrate the concept and its applications in education:

Framework for 21st Century Learning (The Partnership for 21st Century Skills)

Four Keys to College and Career Readiness (David T. Conley and the Educational Policy Improvement Center)

Seven Survival Skills (Tony Wagner and the Change Leadership Group at the Harvard Graduate School of Education)

Reform

Generally speaking, the 21st century skills concept is motivated by the belief that teaching students the most relevant, useful, in-demand, and universally applicable skills should be prioritized in today's schools, and by the related belief that many schools may not sufficiently prioritize such skills or effectively teach them to students. The basic idea is that students, who will come of age in the 21st century, need to be taught different skills than those learned by students in the 20th century, and that the skills they learn should reflect the specific demands that will be placed upon them in a complex, competitive, knowledge-based, information-age, technology-driven economy and society.

While 21st century skills are relevant to all areas of schooling and academic study, and the skills may be taught in a wide variety of in-school and outside-of-school settings, there are a few primary ways in which 21st century skills intersect with efforts to improve schools:

Teachers may be more intentional about teaching cross-disciplinary skills in subject-area courses. For example, in a science course students might be required to learn research methods that can also be applied in other disciplines; articulate technical scientific concepts in verbal, written, and graphic forms; present lab results to a panel of working scientists; or use sophisticated technologies, software programs, and multimedia applications as an extension of an assigned project.

- States, accrediting organizations, and schools may require 21st century skills to be taught and assessed in courses. For example, states can adopt learning standards that explicitly describe cross-disciplinary skills, and assessments may be designed or modified to evaluate whether students have acquired and mastered certain skills.
- Schools and teachers may use educational approaches that inherently encourage or facilitate the acquisition of cross-disciplinary skills. For example, educational strategies such as authentic learning, demonstrations of learning, or project-based learning tend to be cross-disciplinary in nature, and students—in the process of completing a research project, for example—may have to use a variety of applied skills, multiple technologies, and new ways of analyzing and processing information, while also taking initiative, thinking creatively, planning out the process, and working collaboratively in teams with other students.
- Schools may allow students to pursue alternative learning pathways in which students earn academic credit and satisfy graduation requirements by completing an internship, apprenticeship, or volunteer experience, for example. In this case, students might acquire a variety of practical, job-related skills and work habits, while also completing academic coursework and meeting the same learning standards required of students in more traditional academic courses.

Debate

While there is broad agreement that today's students need different skills than were perhaps taught to previous generations, and that cross-disciplinary skills such as writing, critical thinking, self-initiative, group collaboration, and technological literacy are essential to success in higher education, modern workplaces, and adult life, there is still a great deal of debate about 21st century skills—from what skills are most important to how such skills should be taught to their appropriate role in public education. Given that there is no clear consensus on what skills specifically constitute “21st century skills,” the concept tends to be interpreted and applied in different ways from state to state or school to school, which can lead to ambiguity, confusion, and inconsistency.

Calls for placing a greater emphasis on cross-disciplinary skills in public education are, generally speaking, a response to the perception that most public schools pay insufficient attention to the postsecondary preparation and success of students. In other words, the concept has become a touchstone in a larger debate about what public schools should be teaching and what the purpose of public education should be. For example: Is the purpose of public education to get students to pass a test and earn a high school diploma? Or is the purpose to prepare students for success in higher education and modern careers? The push to prioritize 21st century skills is typically

motivated by the belief that all students should be equipped with the knowledge, skills, work habits, and character traits they will need to pursue continued education and challenging careers after graduation, and that a failure to adequately prepare students effectively denies them opportunities, with potentially significant consequences for our economy, democracy, and society.

A related debate centers on the distinction between “knowledge” and “skills,” and how schools and teachers may interpret—or misinterpret—the concepts. Some educators argue that it’s not possible to teach cross-disciplinary skills separately from knowledge and conceptual understanding—for example, students can’t learn to write well if they don’t have ideas, facts, principles, and philosophies to write about. The basic idea is that “21st century skills” is an artificial concept that can’t be separated out from subject-area knowledge and instruction. Other educators may argue that cross-disciplinary skills have historically been ignored or under-prioritized in schools, and the push to give more emphasis and attention to these skills is simply a commonsense response to a changing world.

The following list provides a few additional examples of representative arguments that may be made in support of teaching 21st century skills:

- In today’s world, information and knowledge are increasing at such an astronomical rate that no

one can learn everything about every subject, what may appear true today could be proven to be false tomorrow, and the jobs that students will get after they graduate may not yet exist. For this reason, students need to be taught how to process, parse, and use information, and they need adaptable skills they can apply in all areas of life—just teaching them ideas and facts, without teaching them how to use them in real-life settings, is no longer enough.

- Schools need to adapt and develop new ways of teaching and learning that reflect a changing world. The purpose of school should be to prepare students for success after graduation, and therefore schools need to prioritize the knowledge and skills that will be in the greatest demand, such as those skills deemed to be most important by college professors and employers. Only teaching students to perform well in school or on a test is no longer sufficient.

- Given the widespread availability of information today, students no longer need teachers to lecture to them on the causes of the Civil War, for example, because that information is readily available—and often in more engaging formats than a typical classroom lecture. For this reason, educators should use in-school time to teach students how to find, interpret, and use information, rather than using most or all of the time to present information.

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