

Education researchers at Pearson teamed up with the Partnership for 21st Century Learning to conduct a review of the research literature on teaching and assessing critical thinking in K-12 and college classrooms. Additionally, we found critical thinking is one of the most sought-after skills among new hires, yet research suggests that students may not be graduating with the level of skills needed to succeed on the job. What follows is a summary of the most significant findings.

What Does Good Critical Thinking Look Like?

Many frameworks for critical thinking exist. Broadly, critical thinking is defined as a multifaceted skill that involves problem-solving in the face of ill-defined information. Based on the literature, Pearson has defined critical thinking as consisting of four core skills:

- 1. systems analysis:** the ability to determine the relationship between variables in a system;
- 2. argument analysis:** the ability to draw logical conclusions based on data or claims;
- 3. creation:** the ability to construct a strategy, theory, method, or argument based on a synthesis of evidence (the artifact that is created goes beyond the information at hand);
- 4. evaluation:** the ability to judge the quality of procedures or solutions. Evaluation involves criticism or a work product using a set of standards or specific framework.

Why Is Critical Thinking Important?

Critical thinking is identified as an important educational outcome that can lead to success in college as well as in the workforce. The P21 Framework for 21st Century Learning includes critical thinking as one of the 4Cs, along with creativity, collaboration, and communication. Research suggests that a focus on developing critical-thinking skills is important for several reasons:

- People with better critical-thinking skills are more prepared for the workforce.
- Training students in critical-thinking skills can improve academic outcomes related to writing and argumentation.
- Providing better real-world outcomes, higher rates of political participation, and sound decision-making and judgment in the real world, critical thinking is highly in demand by major employers.

Is There a Skills Gap?

Due to changes in the workplace, we have seen companies move to greater emphasis on hiring graduates who can solve problems under ill-defined circumstances. Recent large-scale surveys of employers reveal that critical-thinking skills are among the most important employability skills for new hires, with as many as 81 percent of companies in one survey placing a strong emphasis on the ability to think critically.

This interest in critical thinking in the workforce is supported by empirical findings as well. Among college students and adults in the community, a standardized measure of critical-thinking skills was significantly related to a set of real-world interpersonal, business, and financial outcomes. Despite the importance of critical thinking, there is a long-standing concern that institutes of higher education are not producing graduates with the critical-thinking skills needed to succeed on the job.

How Can Employers Support Skill Development?

Like most skills, critical thinking must be taught explicitly. Employers can no longer assume that simply giving students ill-defined problems is enough to support learning. Rather, employers should engage in some amount of direct instruction, teaching employees what good critical thinking looks like in terms of desirable behaviors and useful strategies for solving ill-defined problems. Employees must also have opportunities to practice their critical-thinking skills in authentic professional contexts (where ill-defined problems exist) and to receive feedback on their performance.

To ensure coherent and consistent implementation of education for critical-thinking skills that are relevant in the workplace, stronger alignment is needed between K-12, higher education, and employer stakeholders. Employers can engage in outreach to educational institutions to forge both formal and informal partnerships. Formal partnerships might include industry leaders working with colleges to help establish alternative college education programs tightly aligned to the skill needs of that particular business sector. Other ways of formal partnering might include having business leaders serve on special advisory boards for educational institutions or accreditation organizations, participate in drafting educational standards, or even enter the classroom to teach clinical or applied courses in their areas of expertise. Less formal partnerships might include supporting internships or apprenticeships for both high-school and college students, and tailoring those experiences to ensure that participants gain training and high-quality feedback on their critical-thinking performance.

Employers can also incentivize employees to foster their critical-thinking skills through recruiting, hiring, and compensation strategies to reward workers that demonstrate high levels of critical thinking. Finally, once on the job, employers should develop their own critical-thinking training (via exercises involving ill-defined problems) and make it broadly available to employees, along with appropriate professional-development opportunities that allow individuals the chance to grow their own critical-thinking skills.