

The ability to generate novel and useful ideas will be critical for future generations to adapt to our changing world and formulate effective solutions to problems such as climate change and food shortages. Yet research suggests that students may not be graduating with the level of skills needed to succeed on the job. Education researchers at Pearson teamed up with the Partnership for 21st Century Learning to conduct a review of the research literature on the importance of creativity skills, as well as to investigate how to teach and assess creativity in K-12 and higher education classrooms. What follows is a summary of the most significant findings.

### SUMMARY HIGHLIGHTS

#### Key Findings

- » Creativity may be linked to academic achievement.
- » Employers are seeking job candidates who are creative and innovative.
- » Companies with more creative employees generate more innovations, and work teams using more creative practices tend to enjoy higher performance.
- » Many educators outside of the traditional creative disciplines may not be teaching and assessing creativity-related skills.
- » Research demonstrates that effective practices for teaching creative-thinking strategies do exist.

#### KEY RECOMMENDATIONS

- » K-12 educators need professional development and administrative support for teaching creativity.
- » Higher-education institutions may also need to provide training for faculty and fund grants that encourage innovative approaches to teaching creativity outside of the creative disciplines.
- » Employers need to establish relationships with K-12 schools and institutions of higher education to support creativity and innovation skills needed in the workforce, which could include sponsoring hackathons or other crowd-sourced, competitive, innovation-challenge events.

### Why Is Creativity Important?

Creativity is increasingly identified as an important educational outcome. The P21 Framework for 21st Century Learning includes creativity as one of the four Cs, along with collaboration, critical thinking, and communication. Research suggests that a focus on developing creativity is important for several reasons:

- Evolving social, economic, and scientific problems facing the world today and in the future will require more flexible thinking and novel solutions.
- Creative individuals may enjoy higher academic achievement.
- Employers seek job candidates with strong creativity skills.
- Individual employee creativity is linked to organizational innovation, and work teams using more creative practices tend to enjoy higher performance.

### Is There a Creativity Skills Gap?

As the types of social, economic, and scientific problems humans face continue to evolve—ranging from climate change to new concerns about privacy and security precipitated by the rise of digital data—creative thinking will continue to be an important skill for future generations. Accordingly, recent large-scale surveys of employers reveal that creativity and innovation are among the most important employability skills for new hires. For example, as many as 81 percent of senior executives in one survey identified creativity as “very important” for four-year college graduates to possess, yet, on the same survey, only 21 percent of respondents rated these candidates as having “excellent” creativity and innovation skills.

### What Creativity Skills Do Learners Need?

There are many different approaches to defining creativity. However, creativity is commonly understood as the ability to produce novel and useful ideas. There is a developmental progression of creativity ranging from novices to eminent creators. Beginning creators typically

spend more time mastering creative-thinking strategies, processes and behaviors, whereas more mature creators tend to shift their focus to the novelty and usefulness of their creative outputs.

## What Supports Do Educators Need?

A person's creative potential depends on their:

- level of expertise in a given subject;
- ability to engage in unconventional or divergent thinking;
- intrinsic motivation to engage in creative activities;
- personality factors, such as a tolerance for ambiguity and a preference for risk-taking.

Creative potential also depends on the level of support within the creative environment, which can include a person's home, school, or work.

Research suggests that educators should teach creative-thinking strategies explicitly. At the K-12 level, instructional approaches such as cooperative or collaborative learning, case-based learning,

observational learning or modeling, and pretend play may also improve divergent-thinking skills. It is also critical that creativity instruction occur within the context of engaging with academic subject matter rather than being taught separately. Teachers will need professional development to learn how to apply these techniques and to embed them in their teaching of academic content. In addition, states and districts will need to encourage teachers to spend class time teaching creativity-related skills alongside reading, mathematics, and science.

University faculty may also need training in how to teach creativity, particularly those outside of the traditional creative disciplines such as art and music. Research suggests that metacognition training, role-playing games and improvisation, and diversification-training programs may hold promise in improving college students' creativity. In addition, teaching and technology grants may help spur more widespread adoption of these kinds of innovative teaching practices.

Finally, to ensure coherent and consistent teaching of creativity-related skills that are relevant in the workplace, stronger alignment is needed between K-12, higher education, and employer stakeholders. Thus, federal funding for partnerships that help build bridges between K-12 and college educators and business leaders should be considered.