



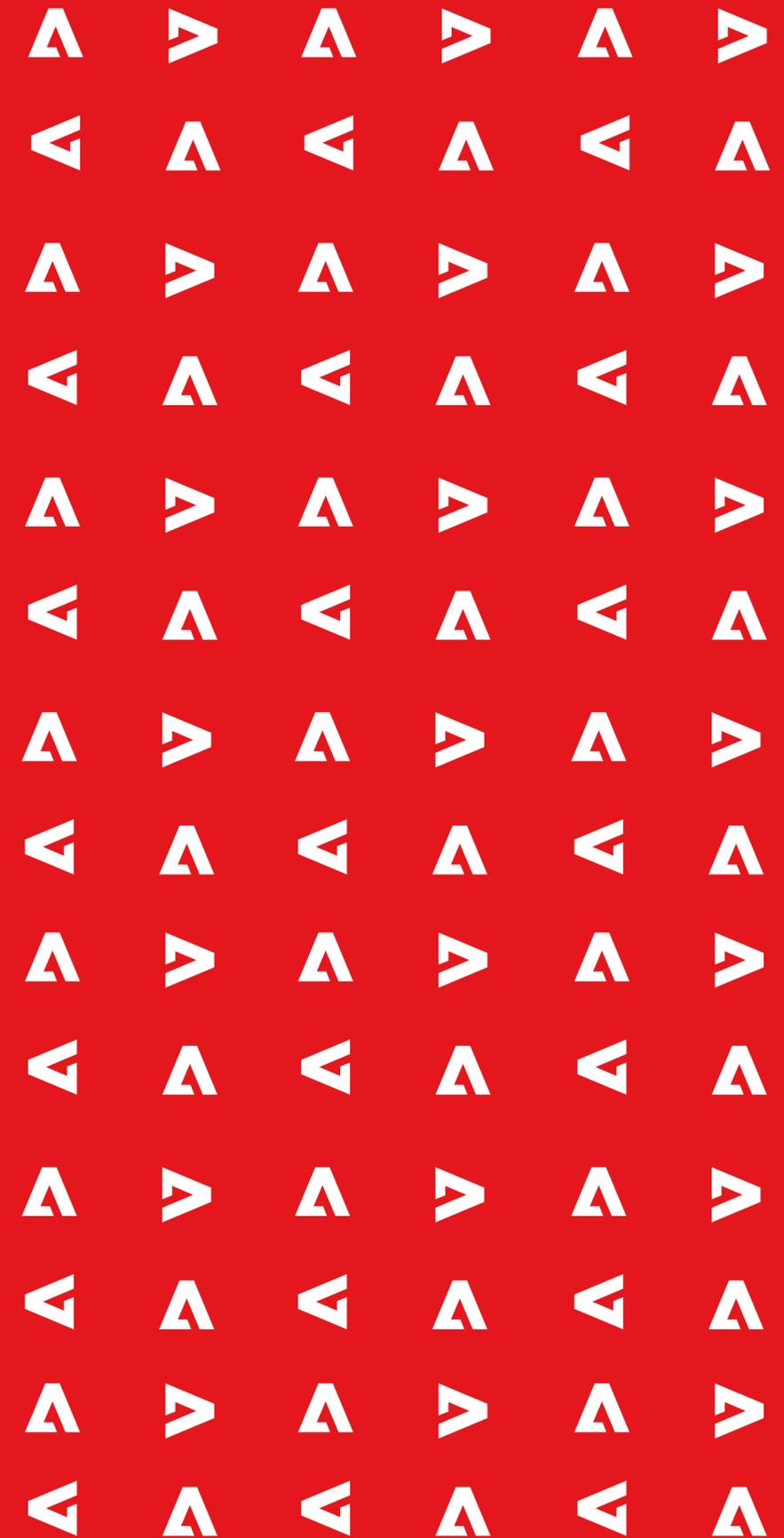
# Cultivating Digital Literacy

How colleges and universities can teach essential skills for success in the age of automation and digital transformation.



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## The future of work is changing. Can your graduates keep up?

Technology is changing everything, but the rapid pace of change may be reshaping the future of work more than anything else. As technological disruptions continue to eliminate jobs across industries, the jobs that are surviving and thriving—and the promising new jobs that are emerging—have a key characteristic in common: They can't be easily automated.

As the **World Economic Forum reports**: "Over the past 50 years, the U.S. economy...has witnessed a steady decline in jobs that involve routine manual and cognitive skills, while experiencing a corresponding increase in jobs that require non-routine analytical and interpersonal skills."

Indeed, current research shows that, in order to get hired and succeed in jobs that are less likely to be impacted by automation, graduates need a particular set of soft skills: creativity, critical thinking, creative problem solving, and collaboration.





**94%** of teachers think students will work in careers that don't exist yet.

Gen Z U.S. education study

“

The student of the future is what we call a maker, somebody who not only understands the problem, but also produces solutions to it.

”

**Dr. Jan Holmevik**

Associate professor of English, Co-director for the Center of Excellence in Next-Generation Computing and Creativity, Clemson University

“

In countries around the world, economies run on creativity, innovation, and collaboration. Skilled jobs are more and more centered on solving unstructured problems and effectively analyzing information.

”

**World Economic Forum**

“

In an era where automation is bolstering efficiency and machines are taking over traditionally laborious and tedious activities, they still cannot replicate or replace human imagination.

”

**New Media Consortium**

# Four essential soft skills for students

The **U.S. Department of Education**, **Bloomberg**, the **World Economic Forum**, and **PayScale** all cite the following four soft skills as among the top needed by today's graduates:

- **Creativity:** The ability to make new things or generate new ideas and approaches
- **Creative problem solving:** The ability to redefine problems and opportunities, come up with innovative responses and solutions, and then take action
- **Critical thinking:** The ability to analyze and evaluate information in order to form a reasoned judgment
- **Collaboration:** The ability to work in partnership with others to create something new or achieve a goal





**74%** of educators worldwide think professions that require creative problem solving are less likely to be impacted by automation.

Adobe creative problem solving study

## Soft skills drive success at Google

Google offers an illustration of how important creativity, critical thinking, creative problem solving, and collaboration are to graduates' success. According to **The Washington Post**, after 15 years of having prioritized STEM skills in its employee recruiting efforts, Google analyzed the data and discovered that its most successful employees are actually those who demonstrate the following skills:

- Being a good coach
- Communicating and listening well
- Possessing insights into others (including others' different values and points of view)
- Having empathy toward and being supportive of one's colleagues
- Being a good critical thinker and problem solver
- Being able to make connections across complex ideas

**86%** of educators worldwide think students who excel at creative problem solving will have opportunities for higher earning jobs.

Adobe creative problem solving study

**97%** of educators believe that creative problem solving is important for students to learn in school.

Adobe creative problem solving study

**85% + 91%** of students of teachers see creativity as essential to students' future careers.

Gen Z global education study



## The skills gap: Is your institution addressing it?

According to hiring managers, a skills gap is hindering the success of recent college graduates. In a 2016 **PayScale study**, 60% of U.S. hiring managers reported that critical thinking and problem solving are the soft skills most commonly lacking in new graduates.

The problem stems from current curricula, in higher education and in the critical years of school leading up to college. In a **global 2018 study commissioned by Adobe**, 1,600 educators in colleges and secondary schools as well as 400 education policymakers and influencers were asked their thoughts on how students are being prepared to be creative problem solvers.

**55%** of educators do not have access to all the knowledge and training they need to nurture creative problem solving.

**Adobe creative problem solving study**

**58%** of educators do not have access to all the tools they need to nurture creative problem solving.

**Adobe creative problem solving study**

The results showed that 69% of educators and 61% of education policymakers believe there's not enough emphasis on creative problem solving in today's curricula.

The study respondents cited lack of time to create; lack of educator control over lessons; and inadequate budget, training, and tools as barriers to teaching creative problem solving skills.

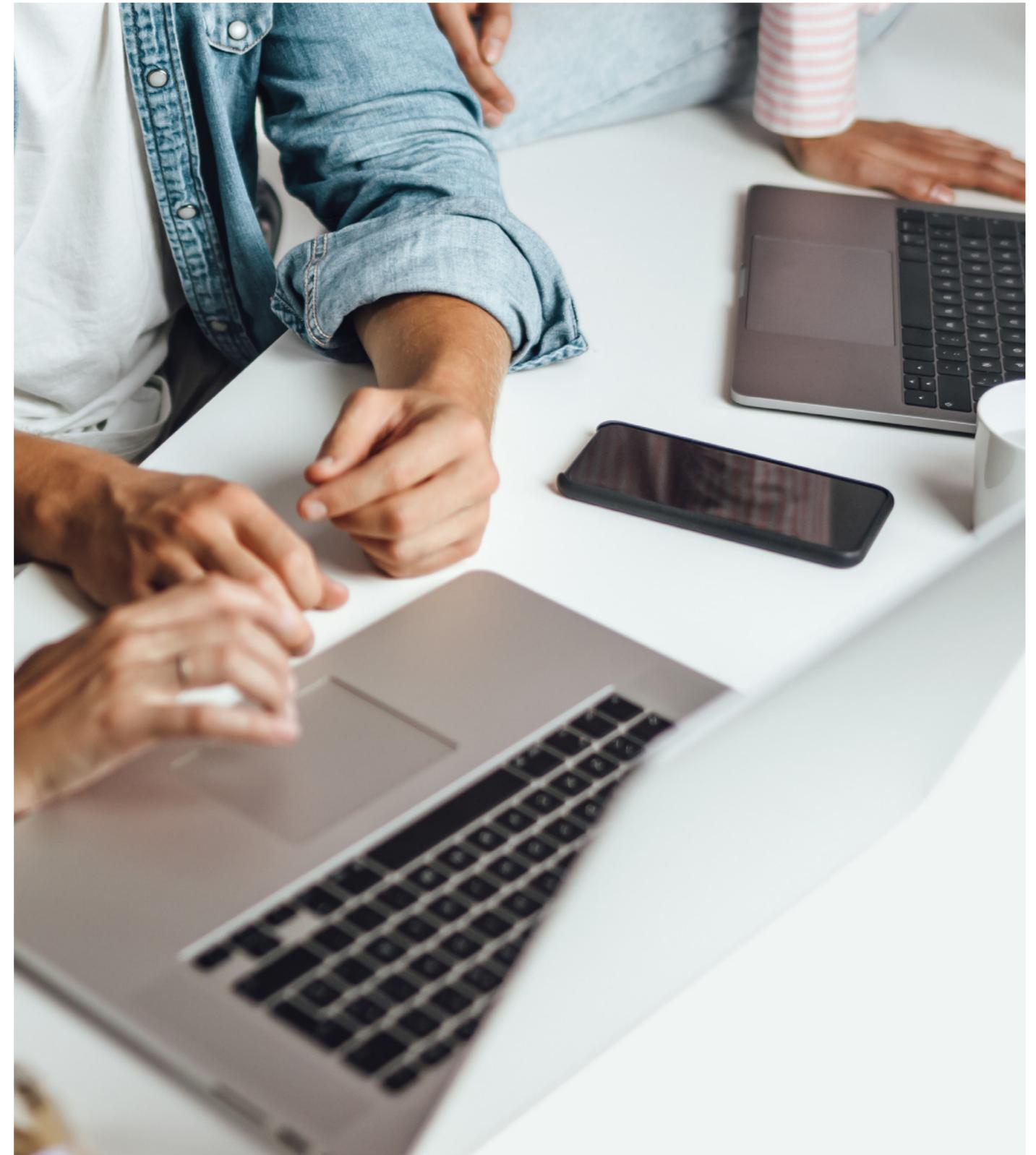
**55%** of educators say school budget restraints prevent access.

**40%** report limited availability of technology in their coursework.

**44%** cite lack of educator training or personal development opportunities.

**40%** report lack of time to learn new tools.

Adobe creative problem solving study





## Bridging the skills gap with digital literacy education

Research confirms that integrated digital literacy education is an effective way to teach students essential soft skills. That's because, while it certainly involves learning hard technology skills, digital literacy goes far beyond knowing how to operate a particular set of digital tools to create something. Digital literacy is defined as the power to use digital tools to solve problems, produce innovative projects, enhance communication, and prepare for the challenges of an increasingly digital world. In doing the work of becoming digitally literate, students have to be creative, think critically, solve problems creatively, and—when working with classmates—collaborate effectively. In other words, they gain soft skills as they gain digital skills.

“

[Digital literacy] initiatives have the potential to generate more excitement around learning for students, especially as their growing fluency enables deeper connections with others and equips them with a new lens to critically evaluate the world around them.

”

New Media Consortium

In its second strategic brief on digital literacy in higher education, **New Media Consortium concurs:**

*No longer is it acceptable for students to be passive consumers of content; they can contribute to the local and global knowledge ecosystem, learning through the act of producing and discussing rich media, applications, and objects. In the words of many institutional mission statements, students do not have to wait until they graduate to change the world.*

*Using readily available digital content creation tools (e.g., video production and editing, web and graphic tools), students are evolving into digital storytellers, weaving subject matter from their courses into narrative tapestries that illustrate a deeper understanding of what they are learning. Also inherent in this form of creative expression is applied emotional intelligence, through which learners connect ideas and themes to their own lives and elucidate bigger picture societal trends.*

“

We're in the process at Clemson of rethinking our General Education program, and I believe that digital literacy is one of those pillars that we must incorporate into General Ed for the next 10 to 15 years.

”

**Dr. Jan Holmevik**

Associate professor of English, Co-director for the Center of Excellence in Next-Generation, Computing and Creativity Clemson University

“

When students need to solve problems and they use digital tools to do so...they think more deeply about the subject matter. For example, when sociology students create podcasts...they start their work by thinking about the most effective ways of communicating information via this medium—and that enhances their learning as well as their work and its impact.

”

**Todd Taylor**

Norman and Dorothy Eliason Distinguished Professor of English, University of North Carolina at Chapel Hill

# How Adobe Creative Cloud fosters digital literacy to nurture soft skills

“

Students traditionally study things that someone else has produced and deliver analytic responses to that work. Working with Creative Cloud allows us to disrupt that traditional classroom experience by recasting students in the role of creators. It increases students' engagement with material and allows them to approach subjects from different angles, enhancing their understanding.

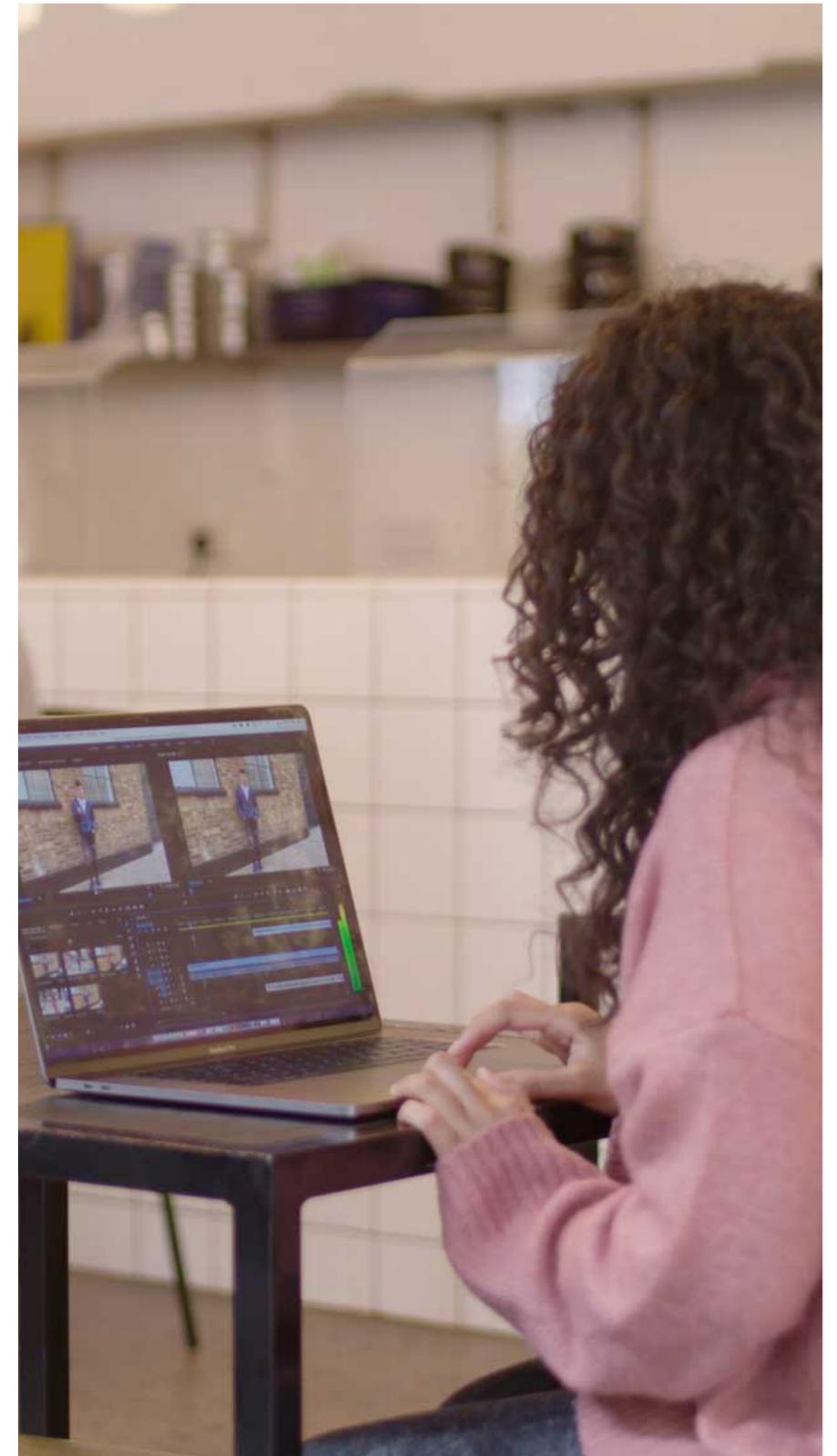
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**Daniel Anderson**

Director, Digital Innovation Lab and director, Composition, Rhetoric, and Digital Literacy at UNC-Chapel Hill

According to **Bloom's Digital Taxonomy**, the act of creating requires a higher order of thinking than other activities like remembering, understanding, and applying. When students use Creative Cloud software to create images, infographics, layouts, animations, podcasts, videos, or ePortfolios to tell their stories or complete their assignments, they gain a deeper understanding of the content and retain their knowledge for a longer period of time. They think more critically and develop problem-solving strategies for how best to structure and present information. They communicate their ideas, discoveries, and arguments in more innovative ways.

In one example, Clemson University English Professor Jan Holmevik has his students **explore storytelling across different media**. Using TV shows like *The Walking Dead* and *Game of Thrones* as inspiration, they write original short stories. Then they turn them into comics using Adobe Illustrator, Photoshop, and Lightroom. After that, they turn the stories into short films using Adobe Premiere Pro and After Effects.





“

I think it's important that our students know how to communicate visually and digitally. I have my first-year writing students think about a problem in their discipline and write a research essay about it, and then I have them work in groups and re-mediate one of those essays into a 15-minute film with Adobe Premiere Pro. The videos were just spectacular, and the students engaged with each other's work in ways they wouldn't normally.

”

**April O'Brien**

PhD, Rhetorics, Communication, and Information Design,  
Clemson University

**81%** of educators surveyed by Adobe believe that Creative Cloud can help develop students' creative problem solving skills in the classroom.

Adobe creative problem solving study



Todd Taylor, professor of English at the University of North Carolina at Chapel Hill, also uses Creative Cloud tools to teach digital literacy and soft skills. In one assignment, he has his first-year writing students work together to create a digital science magazine using Adobe InDesign. The students have to bring all of their soft skills to bear in order to clearly communicate complex information in multimodal ways.

“

Students are more digitally and technologically savvy than ever before. It is our goal to teach them skills and provide resources they can use to develop and showcase their digital competencies in their careers and personal life. Developing proficiency in the use of tools, like those offered in the Creative Cloud, will help differentiate Penn State students in their careers. The range of products and flexible application make it suitable for students from all programs.

”

**Michael Kubit**

Former Penn State University vice president for IT and CIO

“

Adobe provides industry-relevant applications which allow students to build relevant skills. In the classroom, this allows them to make and learn from mistakes, as well as come up with solutions to achieve outcome.

”

Adobe creative problem solving study

# Using Creative Cloud across disciplines

Here are just a few examples of how institutions are integrating Creative Cloud into assignments campus-wide to teach digital literacy and essential soft skills:



## Business classes

Create a podcast exploring a current topic in marketing or finance using Adobe Audition.



## Psychology classes

Create a multipanel brochure in Adobe Photoshop, Illustrator, or InDesign.



## Biology classes

Use Adobe Illustrator to create an infographic explaining the impacts of a public health issue.

“

The use of new media across curriculum will bolster educational experiences for Mesa Community College students and broaden their scope of career possibilities.

”



## Chemistry classes

Design a mobile app that teaches principles of chemistry in the form of a simple game using Adobe XD.



## History classes

Use Adobe InDesign to write, design, and publish a magazine exploring events from a particular period in history.



## English classes

Use Adobe Premiere Pro to script and produce a video essay that offers a critical response to a work of literature.

**Sasan Pouretezadi**

Interim president, Mesa Community College



“

Our high-impact practice courses promote experiential learning to actively engage students in their coursework. By embedding Adobe Creative Cloud in three of these courses—English 101, First Year Experience, and Business Administration 300—we’re increasing digital literacy and making progress toward our goals of improving retention, closing the achievement gap, enhancing learning, and raising the graduation rate.

”

**Amir Dabirian**

Vice president for IT and CIO, California State University, Fullerton

## How students can further differentiate themselves with digital skills

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For me, the exciting thing has been the adoption rate of Creative Cloud in nontraditional areas. I've seen finance students using Adobe Photoshop to add visuals to reports and business students using Adobe Spark for presentations. ...Students are collaborating outside of the classroom and expanding their creativity, which will help as they start out in their careers.

”

**Brent Comstock**  
Recent graduate, UNC-Chapel Hill

In addition to helping students develop essential soft skills, digital literacy education gives them powerful technical communication skills. Students in every discipline need to be effective storytellers who can communicate in modern ways using digital media. When they know how to use Creative Cloud tools to make graphics, interactive PDFs, websites, videos, and more, students can build strong personal brands, create impressive ePortfolios to showcase their work, and attract the attention of hiring managers. In short, they can set themselves apart from their peers in a competitive job market.

“

Having access to Creative Cloud throughout college opened doors for me in ways that I never could have imagined.

”

**Vincent Fu**  
MD candidate, University of Colorado, School of Medicine and  
University of Utah graduate

[Check out Vincent's portfolio](#)

# Adobe can help your students succeed in the age of automation and digital transformation

“

These days we are all digital storytellers and communicators, so we are excited that the next step [in our partnership with Adobe] will promote digital media literacy across the curriculum, involving the whole university, ensuring all Webster's students will have access to these [Creative Cloud] tools and the skills to use them well.

”

**Eric Rothenbuhler**

Dean, Webster University's School of Communications

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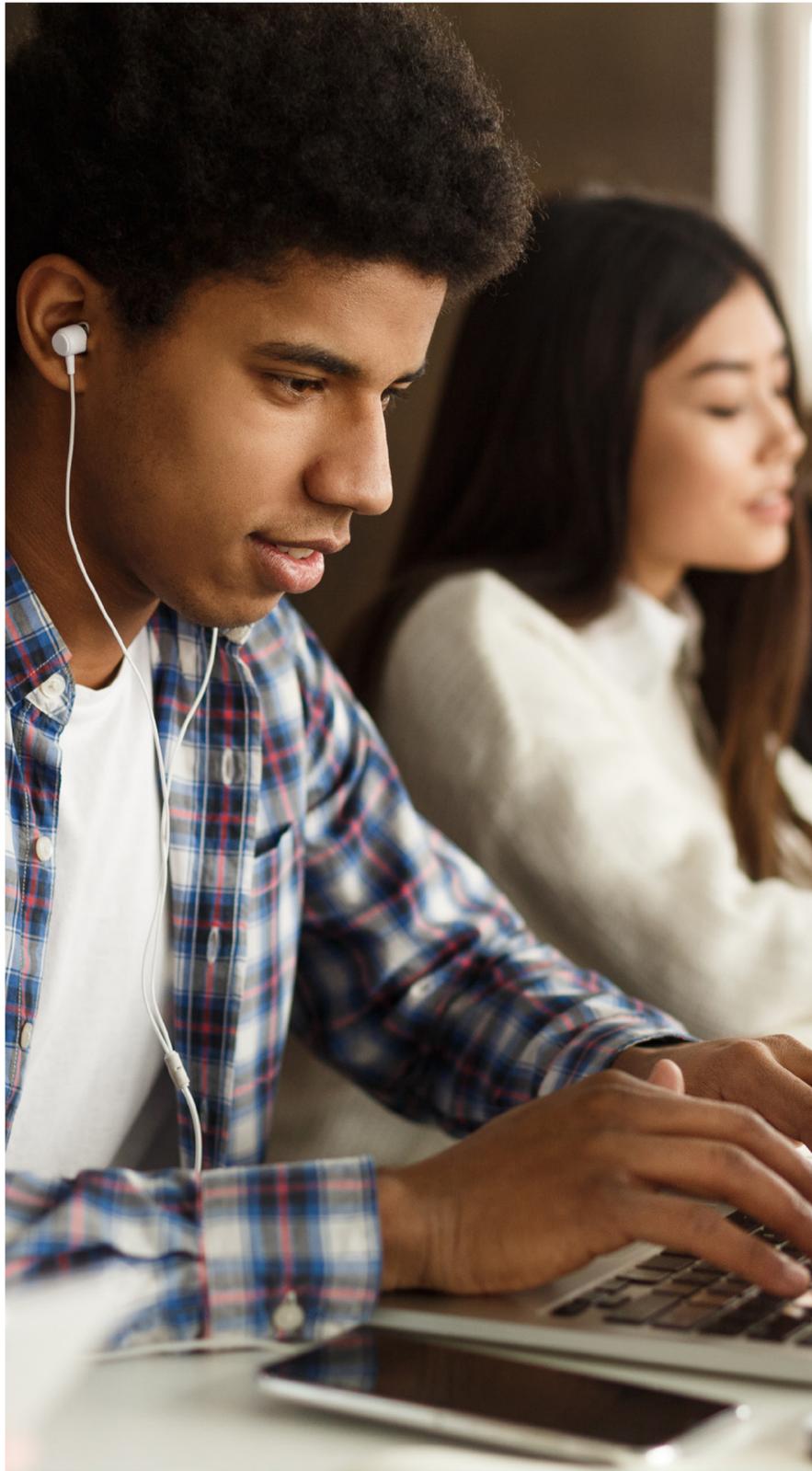
At the University of Arizona, we have a strategic initiative around digital literacy. We felt it was really important that everyone had access to Adobe products—not just one college or one program, but that all students, whether they're in the science program, they're going to medical school, or they're in the humanities, wherever they are, this is cross-discipline.

”

**Melody Buckner**

PhD, Interim dean, Director of the Office of Digital Learning.  
University of Arizona South

Technology alone can't deliver soft skills. But when solutions like Creative Cloud are part of a comprehensive digital literacy curriculum, they can help students develop the soft skills they need to land the most promising jobs in the age of automation and digital transformation.



Adobe partners with higher education institutions to help nurture essential soft skills in the following ways:

- **Faculty in all disciplines can find everything they need** to incorporate Creative Cloud into student assignments and projects on the **Adobe Education Exchange**. This free online portal offers cross-discipline use cases, lesson plans, rubrics, learning modules, examples of student work, full professional development workshops, and more.
- **Faculty can get inspired by the work and ideas of their peers** on the **Adobe for Academics** website. For example, it features UNC Professor Todd Taylor's **eTextbook** and other digital literacy resources for teachers across disciplines who want to incorporate digital assignments into their coursework.
- **Faculty can enhance their distance and online learning programs** with the **Adobe Education Exchange Distance Learning Resource** hub that offers a breadth of free webinars, lesson plans, and well-being content for faculty.
- **Faculty and students can access hundreds of tutorials** for every experience level, right inside their Creative Cloud apps, and they can earn **Adobe certifications** to enhance their learning and demonstrate their mastery.
- **Institutions that are committed to driving a digital transformation** of their teaching and learning can be invited to become Adobe Creative Campuses. They'll join with other innovative institutions to collaborate on digital literacy initiatives and share resources and best practices.
- **Adobe offers institution-wide access to Creative Cloud** through flexible enterprise licenses that help schools integrate digital literacy across disciplines and curriculums.

**Learn more about how Adobe can help your institution teach digital literacy and essential soft skills.**

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