



TEACHING & LEARNING

**What's essential
for effective learning
today?**



**The
Super School
Project**

**Effective
instruction
encourages
deeper learning—
the ability to apply
knowledge to
make inferences
and solve
problems.**

Learning is most effective and meaningful when young people can relate what they've learned to their real lives.

**How will you
create a student-
centered approach
to learning in your
school? What
do innovative
practices for
teaching and
learning look like?**

THINGS TO THINK ABOUT

Your school will need to deliver powerful teaching and learning experiences that help students build toward mastery.

How will you know if students are learning, and how will you assess the products of their learning?

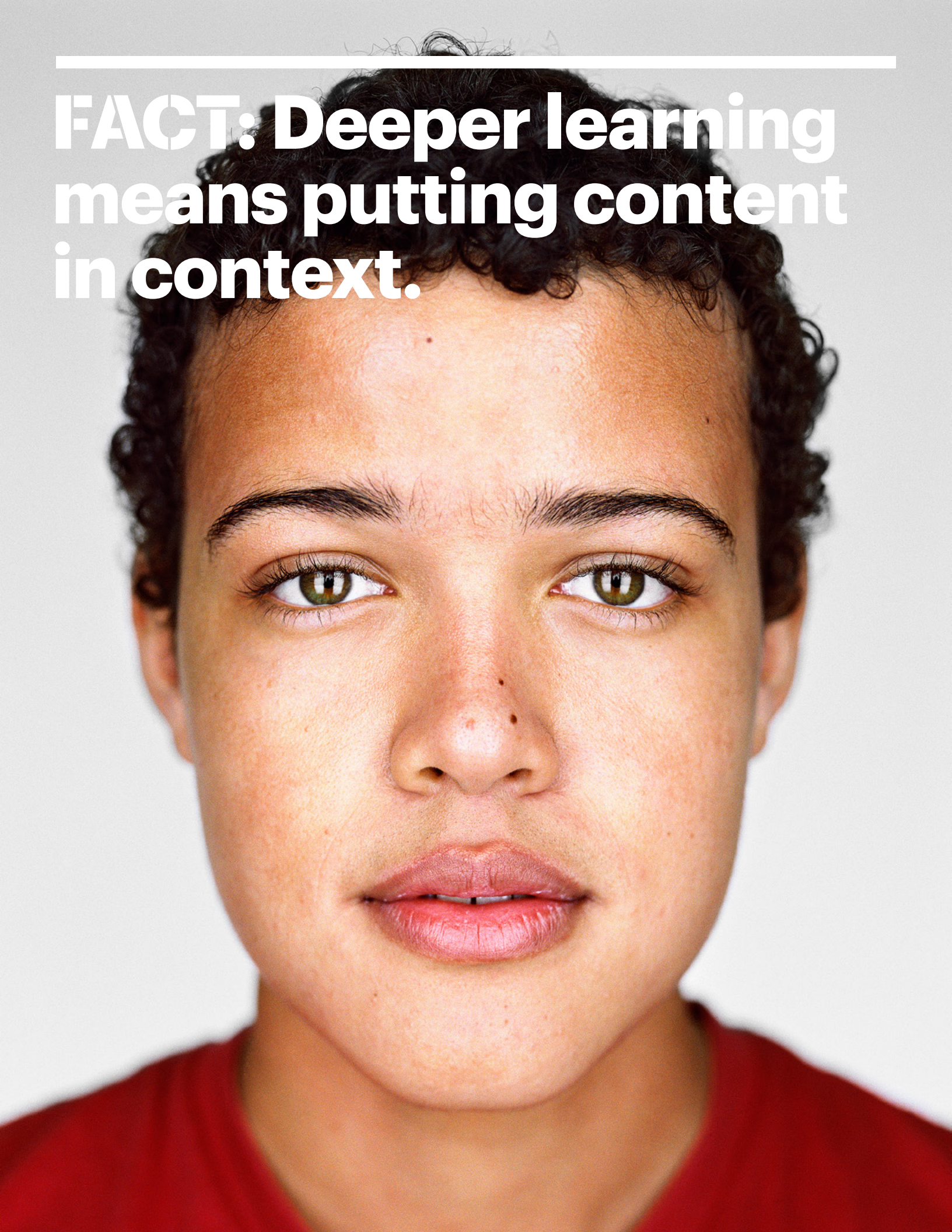
How will your school accommodate differences in students' interests, skills, and prior academic preparation?

Your school must be innovative in both vision and implementation. How will your policies and practices reflect your innovative ideas?

How will you use technology, off-campus spaces, and other resources creatively?

TEACHING FOR REAL- WORLD LEARNING

**FACT: Deeper learning
means putting content
in context.**



Stop memorizing and start applying.

Young people today need to be given academically demanding content in class. Equally important, they must be able to use that content in the context of their daily lives. No matter what they're studying, they need to develop productive collaboration and effective communication skills—and the abilities to think critically and solve problems independently.

Deeper learning is the distinction between knowing (acquiring facts and mastering subject matter) and understanding (internalizing knowledge so it can be applied in new and unexpected situations).

A student may be able to figure out the answer to a math problem. But does he or she understand the logic behind the process of solving it? And how those same principles can be applied to dozens of other problems?

Teaching has to be innovative, and this doesn't just mean bringing new technologies or the hottest theoretical approach into the classroom. Rigor and depth of learning are achieved when teachers integrate new learning methods and tools into their curriculum thoughtfully and mindfully with the students' needs and interests as a priority. Leading with any one innovation without clear learning goals runs the risk of producing shallow results.

The ability to transfer knowledge to the real world is vitally important today. XQ schools need to focus on methods and applications that foster the development of skills relevant to the world and the future of work.

THINK ABOUT

What experiences were effective for you as a learner? What helps students go from knowing to understanding? How will your school accommodate your students' differences?



Standards-based instruction requires students to demonstrate understanding and mastery of the knowledge and skills they're expected to learn as they progress through their education.

In a school that uses standards-based approaches effectively, learning standards—concise, written descriptions of what students are expected to know and do at a specific stage of their education—determine the goals of a lesson or course. Teachers then determine the best methods and materials to teach students so they achieve the learning expectations described in the standards.

UNDERSTANDING BY DESIGN

How do educators plan so students are more likely to deeply understand what they're asked to learn? This question is at the heart of the book *Understanding by Design*. Read an excerpt from the book here.

READ ▶

COMMON CORE STANDARDS

How do we know if students are really learning? Common Core standards are the best shared guideposts we have for measuring the effectiveness of learning. Explore how they can help set high expectations for all students.

READ ▶

NEXT-GENERATION SCIENCE STANDARDS

New standards, developed cooperatively by scientists and teams of science teachers, take science learning in a dynamic new direction. The National Science Teachers Association describes how the standards are organized.

READ ▶

CREATIVELY EXCEEDING STANDARDS

In this video, 11th-grade students at High Tech High Media Arts create a book of essays inspired by their work in a community internship, meeting and exceeding the standards of high-quality narrative writing.

WATCH ▶

FACT: Students learn best when teaching is personalized and varied.



Personalized learning is deep learning.

Personalized instruction means guiding students toward mastery by customizing instructional practices to match individual strengths, needs, and interests. Techniques for personalized instruction may vary, but they always include student input.

One particular approach, called *work-linked learning*, connects academic curricula with career interests. Work-linked learning is proving to be particularly effective with young people for whom a single-track, college preparatory program is not quite working.

A focus on career relevance rather than more traditional measures of academic success can also draw disengaged youth back into school. Memorization, lectures, and note-taking may not be for everyone. Educators talk about teaching for coverage versus teaching for understanding. Teaching for understanding is going beyond “here are the things you need to know” by encouraging students to connect personally with subject matter and construct authentic relationships with knowledge relevant to their lives. We call this *mastery-based learning*, where the focus is on mastery of material and not on the amount of time spent covering it in class.

THINK ABOUT

When has personalized learning worked for you? Think of examples in your life, such as learning to play a musical instrument, being coached in a sport, training for specific work, or others.



“Contrary to a curricular focus on teaching and assessing for content knowledge, authentic schoolwork places student meaning-making at the center. Teachers who know their students give them opportunities to ‘use their minds well’ in ways that scaffold them toward higher-order thinking. Drawing on individual students’ skills, interests, and choices, they require students to manipulate and transform discrete information into synthesized understandings that have applicability to the larger community.”

SUSAN YONEZAWA, LARRY MCCLURE,
AND MAKEBA JONES
Authors, *Personalization in Schools*
(Students at the Center Series)

STUDENTS AT THE CENTER

Dive into Jobs for the Future’s resource collection, which includes a wide range of materials on the four tenets of student-centered learning.

EXPLORE ▶

MEAN WHAT YOU SAY

Personalized? Mastery-based? Competency-based? Inacol’s literature review and glossary will help define all the key terms floating around the world of personalized learning.

READ ▶

THE SCIENCE OF THE INDIVIDUAL

How do you go from high school dropout to Harvard professor. L. Todd Rose, the president of Project Variability, talks about the emerging science of the individual and its implications for education.

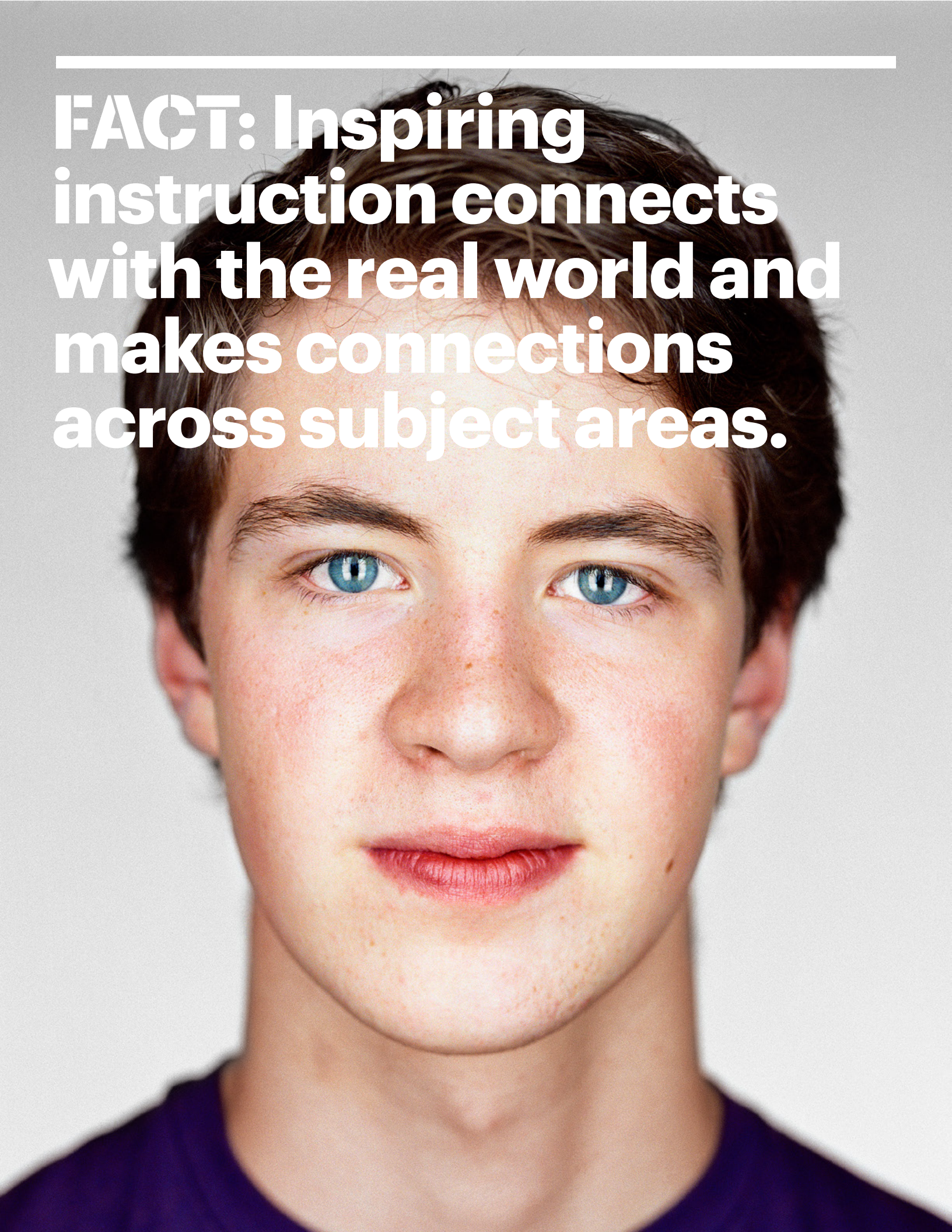
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LEARNING WITH VIDEO GAMES

This *Wired* article discusses how the video game *Minecraft* teaches kids to read.

READ ▶

**FACT: Inspiring
instruction connects
with the real world and
makes connections
across subject areas.**



Let's make learning something that young people want to do.

How can school become a place that's authentically part of a young person's real life and not just a place for passive learning? A good way to start is by redesigning the school calendar. The real world isn't divided into time periods, so why is the school day? Free from the bounds of a rigid schedule, students and teachers should be able to create more engaged learning styles, shift fluidly between individual and group work, and take on interdisciplinary projects where teachers collaborate with each other. Educators can take students out into the community for learning experiences, such as multidisciplinary projects, expeditions, portfolio-building, and in-depth research. Activities like these give students a chance to immerse themselves in academic content, grapple with complex ideas, and develop skills as they demonstrate their learning.

Seymour Papert, a renowned mathematician and educator from MIT, built the Logo programming language to engage young people in project-based learning. He believes that critical thinking and identity-forming are best taught through hands-on, real-world projects. A growing number of today's educators agree. Project-based learning tends to span several subject areas—after all, real-world problems don't usually fit into distinct categories. For example, a school project that asks students to imagine their own sustainable housing solutions might require them to explore history, science, technology, engineering, and design. It is also great for fostering social aptitude and collaborative skills.

THINK ABOUT

What opportunities do you see to incorporate project-based learning into your school?



"Learning takes place not only in school but also in the multiple contexts and valued practices of everyday lives across the life span... [These] are vibrant, continuous spaces for learning. These contexts include family settings, community settings, neighborhood and neighborhood-based organizational settings, church and other religious settings, work settings, sports and other recreational settings, music in its range of venues, gangs and street activities, and the digitally mediated settings of the media and popular culture."

JAMES BANKS ET AL.

Authors, *Learning in and out of School in Diverse Environments*

RULES TO BREAK FOR DEEPER LEARNING

On the Edutopia blog, Monica Martinez shares six classroom rules worth breaking in order to get to deeper learning.

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TIME FOR DEEPER LEARNING

Learn how five innovative high schools have used time in creative ways. This report includes an actual student schedule from each school.

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LEARNING IN AND OUT OF SCHOOL

Humans are learning constantly, not just in school, but in every environment and from every interaction they experience. James Banks discusses how we can capitalize on the inherent drive to learn in a way that is "life-long, life-wide, and life-deep."

READ ▶

TEACH ENGINEERING

A wealth of ideas for curriculum that immerses students deeply in real-life engineering challenges, including many that involve a beginning-to-end design process.

READ ▶

We need students to engage with content and experiences that build mastery of high-level knowledge and skills.

To accomplish this, you'll need to address some fundamental challenges.

- + How will you provide powerful teaching and learning experiences that help students build toward mastery?
How will you enable student-centered, personalized learning?
- + How are innovative uses of technology and anytime-anywhere learning useful to your vision?
- + What practices, tools, or techniques will be necessary to enact your innovation? Will you need to create them? If so, how will you do that, and who will be involved?

GET INSPIRED



CALCULUS THAT EXCITES

Jonathan Winn did the impossible: made his AP calculus class the most popular course at the Crawford High Educational Complex. See how in this blog post and video.

READ ▶



U SCHOOL

What does a school look like when every element of learning is centered on design thinking? Check out the U School in Philadelphia.

EXPLORE ▶



CLASSROOM MAGIC

Learn how former teacher and science advocate Christopher Emdin connects the magic of teaching with the real lives of students in this engaging TED Talk.

WATCH ▶



3-D SCIENCE LEARNING

University of Michigan professor Joseph Krajcik and science teacher Kristin Mayer explain how the Next Generation Science Standards enable *three-dimensional learning*, or learning by making sense of phenomena and solving problems.

WATCH ▶

GET INSPIRED



STUDENT-ENGAGED ASSESSMENT

Can students be authentically engaged in assessing their own work and giving constructive feedback to their peers? This video from Expeditionary Learning shows how they can.

WATCH ▶



CYBERFLORA AT THE MIT MEDIA LAB

See how the MIT Media Lab gets kids excited about coding in this *Boston Business Journal* slideshow.

EXPLORE ▶



BIG HISTORY

Check out this totally unique course supported by Bill Gates, which spans history, physics, astronomy, and other disparate fields to weave one coherent narrative about the history of the earth.

READ ▶



INSPIRATION FROM THE MUSEUM OF MATH

How does a museum make math really engaging? Read this *New Yorker* article about the journey of creating the Museum of Math in New York City, designed to make math fun for kids.

READ ▶

GET CREATIVE



DESIGNING A SUPER SCHOOL

with Keith Yamashita

WATCH ▶

KEITH YAMASHITA,
Chairman and
Founder, SYPartners

WORK AT THE FRONTIERS OF LEARNING