Deeper Learning Through PBL in All Learning Environments

INTRODUCTION

A holistic approach has been a hallmark of early education for generations. Student success largely depends on three pillars: academics, physical well-being, and emotional well-being. By interacting with peers, sharing resources, and letting out their energy on the playground or in the gym, children from elementary school all the way through high school develop crucial life skills while they're in school.

Now that remote learning and hybrid learning are part of the education vernacular ... how has this holistic approach to education shifted? And what's the impact on our students?

How have academics, physical well-being, and emotional well-being changed throughout the last year as the pandemic and distance-learning mandates continue to change? How does project based learning support each pillar, and how can we bring it to life in all learning environments? In this white paper, we'll explore the answers to each of these questions—and then some. You can expect to learn about:

The State of Education
- COVID-19 Stimulus Plans for K-12 Schools
- How COVID -19 Affected Performance
- Dropping College Enrollment Rates

What Is Project Based Learning?
- In-Person project based Learning
- Remote project based Learning
- Hybrid project based Learning

How Defined Learning Can Help
- Case Studies, Testimonies, & Success Stories

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THE STATE OF EDUCATION

Before we explore project based learning for all environments, we have to acquaint ourselves with the state of education today. From the COVID education stimulus to a dropping college enrollment rate, and the big one—how COVID-19 affected performance—the current state of education is unlike any we've ever seen.

Education Stimulus

Perhaps more than ever before, the last year has brought to light just how much schools do for our country's youth. Schools aren't just a place for children to spend their day—they provide nutritional food options, counseling, inclusive activities, and before- and after-school care for students with busy parents. While school budgets have always been top-of-mind for legislators, the last year has shed light on just how much students and parents have come to depend on a reliable school experience—and it's fair to say, probably somewhat took for granted.

Whether it's extending school-provided breakfast and lunch to students learning from home, to equipping every student with the technology needed to succeed in an online learning environment, a number of stimulus plans have recently passed to grant K-12 schools more resources and support as they adapt to at-home learning.

2020 Education Stimulus Plans

In March 2020, Congress approved a $2 trillion stimulus package—the CARES Act—giving K-12 schools a $13.2 billion boost. Between March and December 2020, this was the only federal stimulus received by K-12 schools. But, at the tail-end of 2020, Congress approved a $900 billion COVID relief package, known as the Coronavirus Response and Relief Supplemental Appropriations Act, or CRRSA.

CRRSA allocated about $82 billion for education, including:

$54.3 BILLION
For K-12 schools, primarily delivered through Title I funding

$22.7 BILLION
With $1.7 billion set aside for minority-serving institutions and $1 billion for for-profit colleges
(for higher education)

$4 BILLION
$2.7 billion of this is for private schools
(for governors to spend at their discretion)

7 BILLION
For expanded broadband access

10 BILLION
For child care

How Can K-12 Schools Use the Stimulus?

Most of the money for K-12 schools from CRRSA will go directly to school districts as part of Title I of the Every Student Succeeds Act. School districts can use the stimulus to support any activity allowed under other federal laws for education, like those in place to support students with disabilities and un-housed students. The plan mentions:

Preventing the spread of COVID-19 — Improving coordination among all entities to slow the spread of COVID-19; providing resources to address coronavirus at schools; repairing school facilities and ventilation systems, to improve air quality and more.

Addressing student & staff needs — Including but not limited to students who are generally disadvantaged, at-risk; training staff on sanitization and proper use of personal protective equipment (PPE); mental health services; supporting after-school and summer learning programs.

Purchasing Equipment — PPE and the supplies needed to clean and disinfect schools; hardware and software for remote and hybrid learning.

2021 Proposed Stimulus Plan

The newly approved **$1.9 trillion stimulus package** will dedicate an additional $170 billion for K-12 schools and higher education, as well as help support state and local governments, which are crucial to funding schools. This is in addition to the $8 billion approved by Congress in 2020 to aid in nutritional programs for low-income families and children.

At first thought, you may not have considered the many ways in which a stimulus plan affects K-12 schools. It doesn't just pay for textbooks and a bus ride to and from the classroom (for students still attending class in person). Without adequate mental health support, nutritional meals, and up-to-date technology, today's students can't succeed in the classroom—especially if that classroom's gone virtual.

$20 BILLION
"Getting Children Back to School"

$130 BILLION
Helping K-12 schools re-open, grants, and educational equity

$35 BILLION
Higher education institutions

$5 BILLION
For governors to use at their discretion

Comparing Learning Gains from 2019-20 to 2020-21

Though the numbers aren't as negative as many assumed they'd be, research shows that students began the school year in fall 2020 with only about **70% of the learning gains in reading** relative to a typical school year. In math, learning gains were even lower, with only 50% of students returning to the classroom with "typical" gains.

However, little to no change was measured for students in grades 3-8 from fall 2019 to fall 2020. Student success at these levels may be the product of more time to read independently, more parent engagement while the student learns from home, or other factors researchers haven't considered quite yet. Although we see consistency across K-12 education, college enrollment numbers are dropping at record levels.

College Enrollment Plummets

Plans are changing. Futures are shifting. Gap years are gaining popularity. By April 2020, 10% of college-bound seniors who had planned to enroll in four-year universities had changed their minds. In the same month, **26% of college students said they were unsure whether they'd return** to their college or university, finish their degree online, or drop out entirely. The numbers only continue to grow.

Although college classrooms have become increasingly dependent on online tools, students aren't ready to abandon the "college experience" they imagined for themselves—socializing, exploring a new city, or getting away from their parents.

Plus, college tuition is expensive! Students don't want to pay a premium price for a remote-learning experience. With so much uncertainty in the future, **college enrollment rates have dropped 21.7%** since 2019.

So, how do we as educators—as an education whole—better address career readiness in schools, in response to this data? The answer is Project Based Learning.

WHAT IS PROJECT BASED LEARNING?

Think back to your favorite or most valuable learning experience as a student. Chances are, it was a project! From the science fair to year-end presentations, projects give students a goal to work toward throughout the year. They give students the opportunity to research, collaborate, revise, and learn from their work in a truly applied learning scenario. See. Do. Analyze. Repeat.

Projects vs. Project Based Learning

The concept of projects in education isn't new or particularly innovative. Teachers typically have always assigned projects to students. So, what's the different between projects and project based learning?

Project Based Learning is a comprehensive approach to an entire subject area and is the method for delivering the knowledge and skills, and encouraging student-led curiosity and application. Whereas projects as assigned as the culmination of a lesson, unit, or topic, students complete projects based on what they have learned through traditional instruction, lectures, worksheets, and reading.

In that scenario, projects signal the end. Students move on to the next lesson or unit without the framework to iterate and apply feedback from the project's initial creation.

Project Based Learning—also referred to as PBL—is centered around the belief that students learn better (and have more fun) when immersed in their education through active exploration of real-world problems and challenges. In the simplest terms, PBL flips traditional learning on its head. Within PBL, the project itself is used to deliver rigorous academic content and the deployment of successful skills. Students work to explore a question or concept over the course of a term or specified timeframe. Student-led discovery and questioning of the content itself leads students become immersed in it, pursuing answers from various angles.

With this framework, students apply what they're learning in meaningful, relevant ways. Academic instruction is naturally part of project, offered as guidance to meet appropriate academic goals and standards. The project work creates a genuine need for students to not only learn appropriate content and skills, but also the ability to work collaboratively, think critically, and practice reflection and reiteration.

They demonstrate their knowledge through deeper learning by showcasing valuable skills throughout the project, rather than focusing on regurgitating information for a big test. They create a public product and present it to a real audience, which gives them a head start developing valuable communication skills for the workforce.

Remember: Many of today's students are preparing for jobs that don't even exist yet, so they have to learn how to be ready for anything. It's safe to say that adjusting to remote learning and everything else 2020 threw their way was a good start, wouldn't you agree?

Proof: How PBL Benefits Student Success

Project Based Learning teaches students how to research, ideate, and work with others. It teaches them how to engage in a productive struggle and how to revise their work, which are life-long skills needed for college and future careers.

Project Based Learning is typically grounded in the following elements:

- **Student choice**
- **Collaboration**
- **Role-playing**
- **Real-world scenarios**
- **Units that assess multiple skills**

Project Based Learning invigorates students by putting learning in their own hands. It unleashes a contagious, creative spark not only in students—but in teachers, too. It encourages a healthy transfer of applicable knowledge rooted not just in understanding core educational themes and subjects, but in its application of how students learn about the world around them.

PBL's known successes aren't strictly bound to one certain core subject matter or grade level; in fact data supports its influence across nearly all grade levels, social demographics, and class structure.

A co-study between University of Michigan and Michigan State University revealed PBL curriculum Project PLACE led to gains in social studies and informational reading in second graders in low-income communities. Students experienced a 63 percent increase in social studies learning, equating to a five to six-month increase of learning.

Researchers at the University of Southern California conducted a study based on the project based learning approach in Advanced Placement (AP) courses at five separate and predominantly urban districts across the country. Students experienced an estimated 10 percentage points higher outcome on AP tests in U.S. Government and Environmental Science courses.

Stanford University published a research brief outlining the impact of a project based learning approach in middle school science. The same research found the approach boosted student achievement and proved students outperformed their peers in state assessments in math, and English language arts—the latter showcasing 28 percentage points higher for students under the teaching of instructors in their second year of PBL-based curriculum.

> **Transfer must be the aim of all teaching in school—it is not an option—because when we teach, we can address only a relatively small sample of the entire subject matter. Transfer is our greatest and most difficult mission because we need to put students in a position to learn far more, on their own, than they can ever learn from us.**

JAY MCTIGHE

How Project Based Learning Engages Educators and Supports Professional Development

For years, the standard approach to teaching has been to create a lesson plan, stick to it, and test students on the subject matter to gauge their comprehension of certain skills. But to go deeper, educators need to work creative problem-solving, collaboration, brainstorming, and other important life skills into their curriculum.

This can feel like a shake to the system, since most teachers are used to sticking with a rubric and being able to provide their students with the "correct" answers. Plus, most students aren't used to being independent learners. They're more accustomed to being told what to do. So, for PBL to be successful, students and teachers need to collaborate with and rely on one another to problem-solve and develop new skills.

Don't worry, teachers. Project Based Learning doesn't ask you to abandon your content. It asks you to use projects as a vehicle to communicate your content.

As one educator puts it, "If PBL is a play, then the math or science or history or writing—or whatever you teach—make up the scenes that propel each act toward the final curtain." Like any play, a project's story is often unpredictable. Despite teachers' best efforts to prep and plan, PBL requires adaptability. Just as students develop real-world skills through hands-on learning, teachers learn new skills, too:

- **Providing students with empathy, inspiration, and support**
- **Facilitating growth, engagement, and out-of-the-box thinking**
- **Generating classroom activities based off of students' unique needs**
- **Experimenting in class, free from strict lesson plans and time constraints**

PBL isn't a perfect fit for all teachers. But for those willing to try new things and be "wrong" from time to time, PBL can have a profound impact in the classroom. PBL isn't just kicking off a project; it's a whole new approach to teaching—and it works.

WHY PROJECT BASED LEARNING WORKS

Project Based Learning works because it puts student voices at the center of their learning. By implementing PBL, students' voices and choices drive the learning process—a process based in inquiry, research, collaboration, and creativity.

Project Based Learning gives students a chance to meet with experts, engage with authentic audiences, and most importantly, have their voices heard.

PBL is a comprehensive and inclusive approach to learning that invites all types of learners to work together to solve a common problem. Through the process, students learn how to communicate effectively, whether through a dialogue, argument, debate, or presentation. And as we all know, effective communication skills are invaluable skills for future careers, regardless what paths your students take.

HOW TO FLEX: IN-PERSON PBL

Before you dive into teaching PBL, consider the current guidelines for in-person learning. Not all your go-to projects will work in the current environment. Social distancing requirements and your students' age and developmental stage will help you decide which projects might work for your classroom. Here are a couple of ideas:

Plant a Garden — Get the kids outside for some fresh air as they learn how to plan and care for different plants throughout the different seasons.

Film a Documentary — Video editing skills are in high demand these days, and students love the chance to play "director." Let students pick a topic of interest and help them interview community members from a safe distance.

Benefits

It's fair to say that most teachers miss teaching in person. It's hard to wrangle a group of students to engage in their learning online, especially with all the distractions of their home environment vying for their attention.

Being surrounded by their peers in a school environment gives students a chance to bounce ideas off of one another, get feedback, and creatively solve a problem in a collaborative atmosphere. Plus, teachers can easily observe students' engagement in a project or activity, and offer support as needed.

Challenges

In most classroom environments, group dynamics are a significant factor in student success. When students are asked to work with someone they don't get along with, or one student ends up doing more work than another, tensions can quickly rise, distracting the group from the work and requiring thoughtful intervention and dialogue from the teacher, pulling the teacher and students away from the learning.

In person, even the smallest interruption can interrupt a teacher's focus and disrupt everybody's learning. Online, it's easy to split students into breakout groups or ask students to mute themselves as distractions pop up.

HOW TO FLEX: REMOTE PBL

You might be thinking ... With all this attention paid to collaboration and creativity, how does PBL work in a remote learning environment? We're glad you asked.

Without the ability to meet in person, teachers have to get even more creative when it comes to thinking of PBL assignments. But before you dive in, remember:

Connection matters most — As we learned from the research above, students may not retain 100% of what they learn this year. In fact, most of them won't. That's OK. Students want to see their friends and connect with their teachers. Provide a space where they can speak up and feel heard.

Remote learning is stressful for everybody — Remember, your students would probably rather be in the classroom, too. Many family environments can be loud, chaotic, and busy, adding to your students' levels of stress. Be mindful of what you're adding to their plates. Prioritize their health and safety first.

Benefits

Teaching PBL remotely gives students and teachers a chance to stretch beyond what they previously believed possible and put new theories and ideas to the test. With reliable WiFi and a screen at their fingertips, students have access to endless information to help them bring their ideas to life.

Challenges

OK, teachers ... raise your hand if you swear you've heard crickets in your classroom after asking a question. Yes, lack of student engagement is real. And it's even more prominent in remote learning environments. It's easy for students to check out after engaging with a computer screen for hours every day. Keep this in mind as you develop timelines and project milestones, understanding they may have to adjust.

How to Make PBL a Reality for Distance Learning

As you think about potential PBL assignments for your students, think about what they have access to inside the home should they continue a remote-style learning environment. What are common household items or rituals they can observe? What problems do their families encounter, and how might they solve the problem? Projects that incorporate your students' environment help them connect their learning to the "real world," making remote learning more engaging.

Remote Learning Project Ideas:

Global Awareness — Students care about the world around them and their impact on it. Help students build awareness of water and energy use, and use science and math to create a plan to reduce their family's carbon footprint.

Action Against Cyberbullying — With so much time spent online, students will naturally encounter some negativity. Help them take action against cyberbullying—through researching the issue, developing a plan, presenting it to community and School Board members, and putting the plan into action.

Defined offers free remote PBL in an effort to help support districts where students are still working remotely or transitioning to adjusted learning models. These resources offer teachers and students complimentary access to customized remote learning projects. Each engaging project is based on a relevant situation in a career, complete with an authentic performance task tied to the career field, and is specifically tailored for the student at home.

Complimentary resources include:

- Grades K-2 Beekeeper
- Grades 3-5 Chef
- Grades 6-8 Entrepreneur
- Grades 9-12 Architect

Facilitating PBL in Online Learning Environments

Use Project Management Tools — At times, you may feel stuck within the confines of your video platform's capabilities. There's only so much you can do on Zoom! Support your lessons with online project management tools, like Trello or Asana. These tools will help you and your student's stay on task.

Give Ongoing Feedback and Promote Reflection — There are tons of ways to promote reflection and feedback in online learning environments. Try Google Classroom, Canvas, or Schoology to assess where students are at during PBL. Consider integrating Flipgrid into homework, giving students a chance to record a short video reflection that you can watch privately.

YOUR REMOTE PBL CHECKLIST

- [ ] Assess student knowledge before you start
- [ ] Use direct instruction and concrete examples for clear understanding
- [ ] Give students time and space to practice academic independence
- [ ] Read the room and adjust lessons as needed in response to student fatigue
- [ ] Connect projects with current events and your students' community
- [ ] Let students choose the problems they address (within reason)
- [ ] Take the time to teach students how to use collaborative online tools
- [ ] Set clear objectives and teach students how to self-monitor progress and adjust Let them have fun and be kids!
- [ ] Establish a clear way to bring everyone back to attention as needed
- [ ] Set goals for each student and rotate project roles throughout the year
- [ ] Prioritize equity: Make sure every student has the chance to succeed
- [ ] Give time during class for students to work on projects
- [ ] Give real-time feedback that is clear, encouraging, and specific
- [ ] Consider students' willingness to act on feedback as part of their final grade

Getting Parents Excited About PBL

OK, enough about teachers. Let's talk about parents for a bit. When it comes to engaging students in Project Based Learning, it starts with parents.

Most parents today are used to the traditional education model we discussed earlier. When they were in school, parents were taught to be obedient and attentive, and they didn't have much freedom to venture out on their own.

It can be difficult for parents to adopt a new way of looking at classroom instruction and support their child's PBL journey—especially while they navigate their own work-from-home challenges. Be patient. Help parents garner excitement for PBL by breaking down the what, why, and how behind Project Based Learning:

Challenging a Problem or Question — In PBL, teachers create lessons and activities focused on a single challenge or problem, giving students the opportunity to put their heads together to solve a common goal.

Sustained Student Interest — Activities that last the duration of a semester or school year keep students engaged in their learning, rather than teaching them to prep for a test by regurgitating information they will later forget.

Student Authenticity — PBL teaches students that demonstrating a skill is not about filling in the appropriate bubbles on a sheet of paper, but rather about working in a collaborative way toward a meaningful goal.

Student Agency — Giving students the freedom to choose their own pathways and assignments empowers them to take ownership of their learning. Online or in-person, this encourages students to be more independent, which can provide some much-needed relief for families.

Reflection — Arguably one of the most powerful tools at our disposal, reflection helps students internalize what they're learning and relate it to the world around them. Thoughtful reflection is vital in a remote environment.

Critique and Revision — One of the most important lessons humans can learn is how to thoughtfully give and receive feedback. Critique and revisions are a chance for your student to establish a deeper connection with their work, challenging their original ideas and adapting solutions to solve a real need.

A Captive Audience — Traditionally, a student's work would only be reviewed by one person: Their teacher. With PBL, students have a real-world, captive audience in their classmates and community members, holding them accountable to complete their work and reach their goals.

For these reasons and more, parents should be just as excited about PBL as their students! Parents are vital to a student's support system, and an important piece of the puzzle as students work through challenges, but parents can't do it all alone.

WHAT IS DEFINED LEARNING?

To prepare students for their futures, it's up to us to engage them with lessons that are relevant, that encourage critical thinking and collaboration, and that provide authentic assessment of their understanding. At Defined Learning, our mission is to help school districts achieve this through real-world Project Based Learning.

We provide the tools educators need to implement and assess Project Based Learning that drives student achievement. We give you all the essential project design elements you need, including interdisciplinary performance tasks, literacy tasks, videos, research resources, an assessment manager, and more.

At Defined Learning, we empower students to develop the critical knowledge and skills they need to succeed in our evolving world. Our online solution is designed to provide school districts with the tools they need to implement and assess PBL as well as connect classroom content with career pathways. The online solution integrates with what you're already using for your remote or hybrid classroom.

We believe in our approach because we've seen it work, but don't just take it from us.

CASE STUDIES, TESTIMONIES, AND SUCCESS STORIES

Professional Development for Teachers at Sunrise Schools

A small school outside of St. Louis, with a staff of 50 and a student body of 340, worked with Defined Learning for three years to bring PBL to its halls. "Their cohort-based train-the-trainer model pulled me in," says the Sunrise Schools K-12 district curriculum director, Angie Rowden. "They would stay with me for years. We had no need for a two-day workshop, never to hear from the trainer again."

Read the case study >

Student Agency Jolts Graduation Rates in Greene County

From 2009 to 2019, graduation rates at Greene County increased from 62% to 94% — and for one specific reason. For the first time in a long time, students had a hand in their learning. The school works with Defined Learning to meet the needs of inexperienced teachers and to catapult its STEM programming forward.

Read the case study >

Increasing Access to STEM Experiences in Tennessee

Bartlett City School District is focused on increasing access to STEM and PBL for all students. But getting these initiatives off the ground required a mindset shift for many. Katie McCain, 6-12 instructional advisor for the district, describes Defined Learning's professional learning as "top-notch," with flexible options for new teachers who did not have initial training and webinars for teachers who need support.

Read the case study >

Sparking Student Interested in PBL

Chickasaw City Schools are some of the most disadvantaged in the nation, with poor high school enrollment and performance rates. But when assistant superintendent Dr. Michele Eller introduced Defined Learning programming, something shifted. "The students loved it," she says. "Students who normally would not be engaged or don't do well in group settings blossomed in the midst of Defined Learning projects."

Read the case study >

PBL for Middle School Career Exploration

In support of increased STEM education throughout the state of Tennessee, the Tennessee STEM Innovation Network (TSIN) partnered with Defined Learning to offer free STEM career awareness curriculum for middle school students.

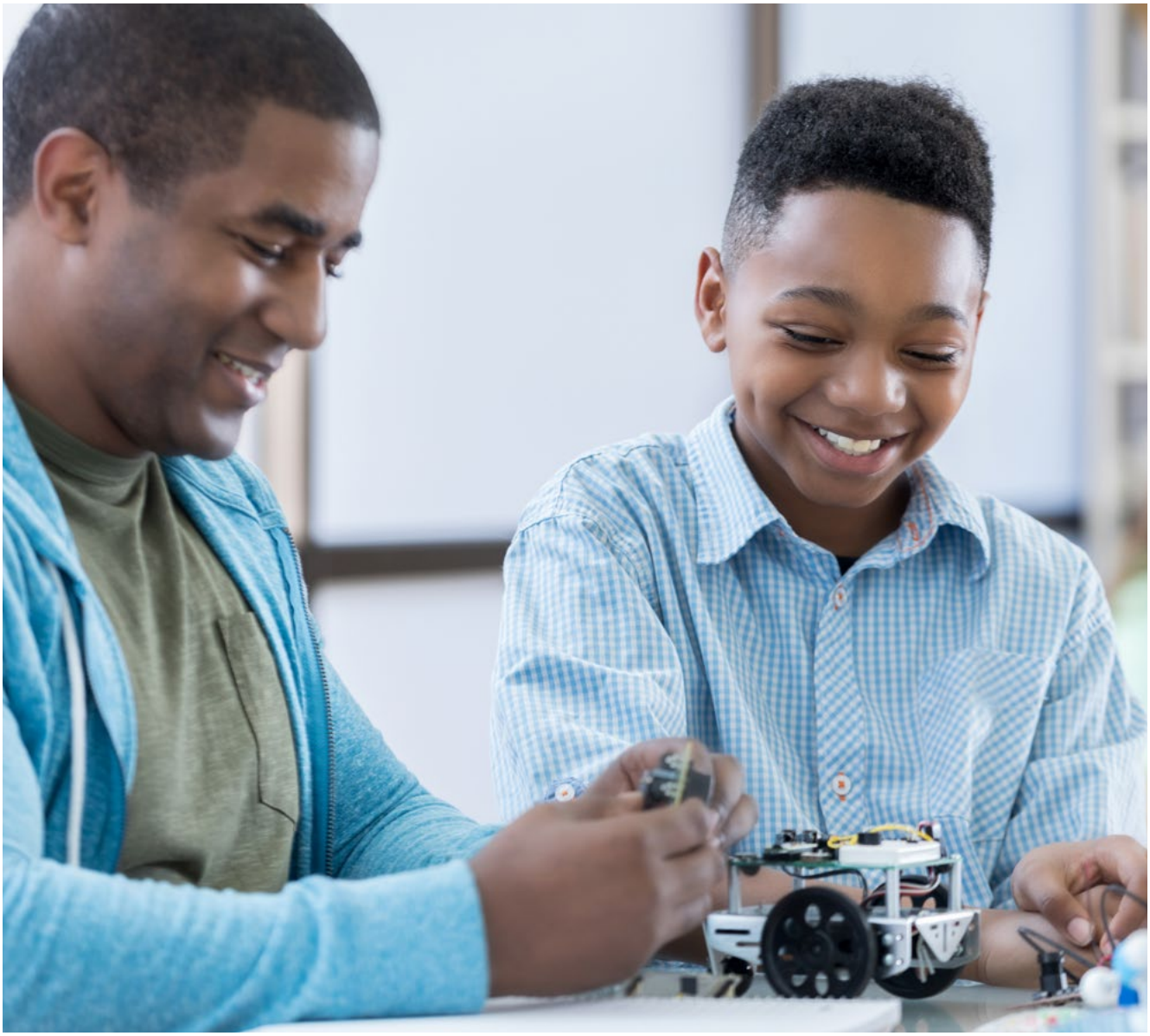
Read the case study >

REIGNITE A LOVE FOR LEARNING

For years, teachers have wondered how to better engage their students in class material. When COVID-19 swept the world and forced most districts toward remote learning, they became even more focused on finding an answer.

The answer is Project Based Learning—a proven educational approach that puts learning in students' hands and helps them reach important outcomes and gain valuable, lifelong skills. None of us know what the future holds, but the pillars of education remain. Students' academic, physical, and emotional success are teachers' top priority, and Project Based Learning fosters a space where each one can expand.

Help your students reignite their love for learning through Project Based Learning.



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