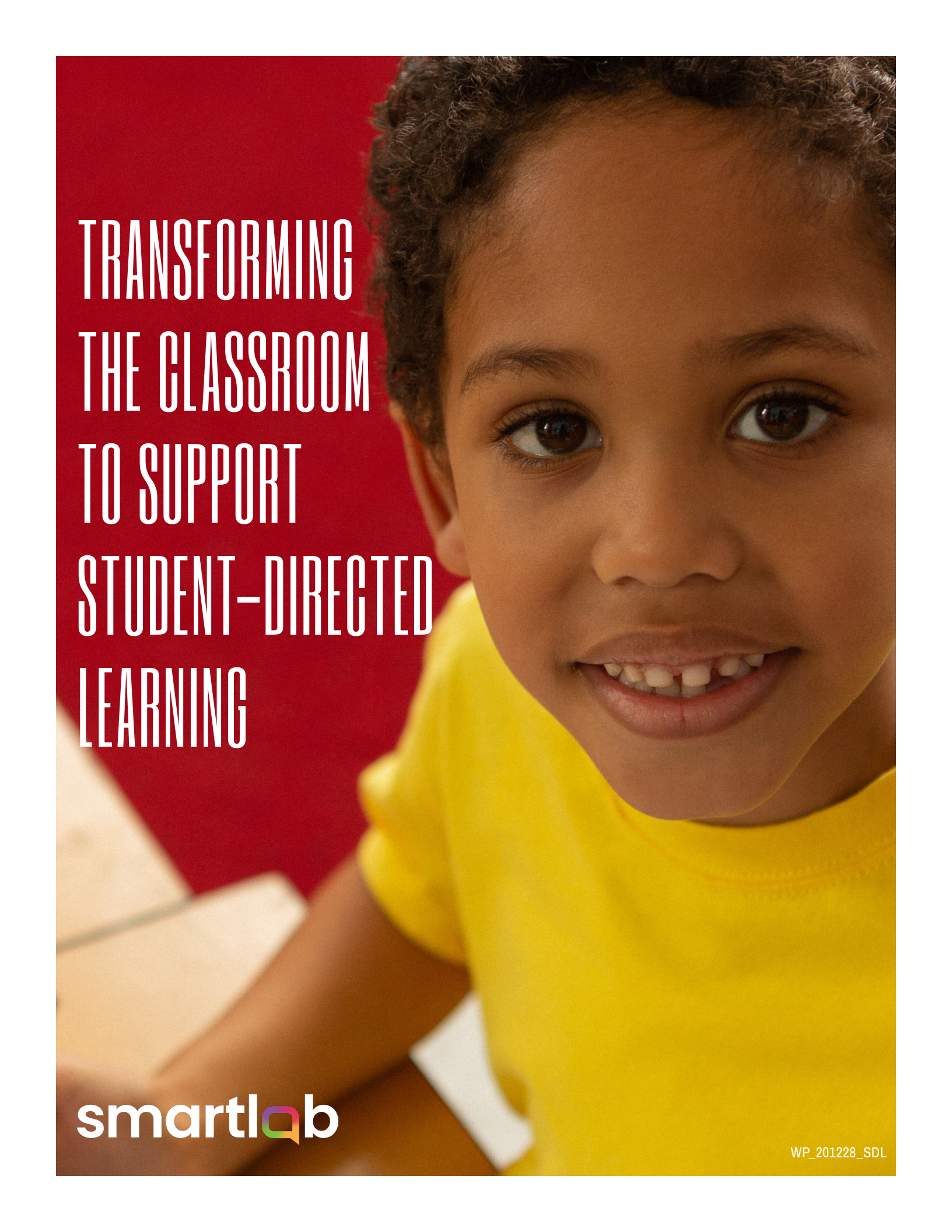




TRANSFORMING THE CLASSROOM TO SUPPORT STUDENT-DIRECTED LEARNING

smart**lab**

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INTRODUCTION

If you ask a group of teachers what they want their students to learn while in school, you probably won't hear "the Pythagorean Theorem" or "how to balance a chemical equation."

It's not that content knowledge isn't important but, rather, educators realize that there are underlying skills that serve as an essential foundation to which they can build life-long learning.

Instead, you'll most likely hear teachers say things like, "I want my students to be able to collaborate with their peers, not just their friends."

As educators, we want our students to be prepared to problem-solve, locate resources to answer their own questions, effectively communicate their ideas to others⁷, and contribute positively to their communities. We recognize the value of these skills for students to be prepared for life outside the classroom, and to be successful in whatever goals they set for themselves.

According to the College and Career Readiness and Success Center, early childhood predictors of postsecondary success include perseverance through the completion of a task, emotional regulation, and positive peer relationships³. These are the same skills necessary for students to be self-directed learners and it is essential that these skills be developed at an early age to support students as they progress through their education, and get ready to enter college or a career.

How can we incorporate these skills into how we teach instead of adding it to the plates of our educators as one more thing they're responsible for?

The early childhood predictors align with college- and career-readiness skills identified by the Colorado Department of Education². Among many others, these skills include perseverance, self-direction, the ability to learn independently, problem-solving, and the ability to communicate and collaborate with a team².

How can we prepare students, not only with content knowledge, but with the skills to be independent learners—to be life-long learners?

WHAT WE'LL COVER IN THIS WHITE PAPER

- How Do Students Learn?
- What Challenges Do Educators Face Today?
- How Can You Support Student-Directed Learning?

HOW DO STUDENTS LEARN?

“The child who has never learned to work by himself, to set goals for his own acts, or to be the master of his own force of will is recognizable in the adult who lets others guide his will and feels a constant need for approval of others.”

—Education and Peace⁸

Many of the forefathers and foremothers of educational theory agree that students best construct meaning from active learning with the opportunity to use real-life tools in relevant contexts⁹.

Too often, adults get in the way of students demonstrating or developing the ability to “do” on their own; however, students thrive when given the opportunity to navigate a problem freely⁹, supported by a teacher who uses intentional strategies to provide support without giving the answers.

Students’ learning experiences are enhanced and their zones of proximal development are increased by their peers.

Vygotsky believed that by giving students the opportunity to collaborate with peers, they are able to exchange ideas and knowledge, correct each other, and persevere through challenges⁹.

These fundamental ideas of education support the learning process, and provide opportunities for students to strengthen their executive functioning skills, which include self-discipline and self-regulation⁹. Through open-ended blocks of time, students direct their own learning experiences⁹ and become more effective at managing their time.

Although all pre-service teachers are required to take college courses that introduce these theories of learning, it can be challenging to translate these ideas into practice, especially when faced with the various expectations and constraints of 21st-century education design.

“Students thrive when given the opportunity to navigate a problem freely.”

WHAT CHALLENGES DO EDUCATORS FACE TODAY?

Now, more than ever, students need to learn how to become self-directed, autonomous learners so that they enter the workforce as employees who can manage themselves and take the initiative to get the job done⁵.

Unfortunately, students are not tested each year on their perseverance, self-direction, or collaboration skills. What they are tested on is academic standards. This has caused standards to become the focus of explicit instruction, and leaves little time to dedicate to the skills we know are essential for life-long success.



The emphasis on standardized tests and grades has cultivated an educational atmosphere that rewards students who can follow directions⁵ and “get the answer right.”

The solution is the integration of instructional approaches that encourage self-directed learning, problem-solving, and collaboration with peers.

Creative Learning Systems provides a comprehensive solution, SmartLab Learning, to support teachers as they prepare their students for the future.

HOW CAN YOU SUPPORT STUDENT-DIRECTED LEARNING?

Schools are provided an innovative learning space (called a SmartLab), student-centered curriculum, a project framework that guides students to the completion of their project goals, and professional development to prepare teachers to facilitate student-directed learning.

SmartLab Learning has been proven to develop perseverance, problem-solving, and collaboration skills, as well as build student capacity to direct their own learning. The fundamental principles behind SmartLab Learning can be incorporated into any classroom and any content area.

PROJECT-BASED LEARNING

Project-based learning is defined by the Buck Institute for Education as “a teaching method in which students gain knowledge and skills by working for an extended period of time to investigate and respond to an authentic, engaging, and complex question, problem, or challenge¹.”

Project-based learning is supported in the SmartLab by curriculum designed with the constructivist approach, allowing students to generate their own understanding as they explore tools and utilize available resources to complete a student-centered challenge.

Strategy 1: Pose a Question, Problem, or Challenge

To successfully transform your teacher-led activities, determine an overarching question, problem, or challenge that will allow your students to develop the desired skills.

Prompting students with a challenge will engage them in active learning and allow them to construct meaning through their unique interaction with the content⁶.

This approach shifts the responsibility for learning from the teacher to the student, and supports them in managing their own learning experiences. It also gives students an opportunity to connect with the problem or challenge, making learning a personal experience for each student.

Strategy #2: Allow Student Interests to Drive Projects

John Dewey was a strong proponent of using student interests to plan learning engagements⁹.

Well-designed projects are flexible enough that students can address the challenge from a relevant perspective and explore areas of interest while

still remaining within the parameters of the project. Student voice and choice is an essential component of project-based learning and promotes the development of creativity and self-direction¹.

Although some students may initially ask for ideas, they will soon learn to generate their own ideas with the support of their peers. Use scaffolding to support

“The teacher must give up the role as holder of all knowledge and serve as a resource to students during the learning process.”

your students until they are comfortable engaging in true project-based learning experiences.

**FROM TEACHER
TO FACILITATOR**

Supporting student-directed learning starts with a shift in the role of the teacher. The teacher must give up the role as holder of all knowledge and serve as a resource to students during the learning process.

Alison King first termed the phrase “from sage on the stage to guide on the side” to describe this transformation of teachers in the classroom⁶.

Effective SmartLab Facilitators manage the space, the learning experiences, and the accountability for quality and completion of work.

Professional development provided to SmartLab Facilitators teaches them to use observations and questioning effectively so they can facilitate self-directed learning.

Strategy #1: Observe Student Learning Closely

Observation is the best window into the needs of students⁹. By closely observing students as they engage in learning, teachers have a better understanding of the resources and supports that they may need to work within their zone of proximal development⁹.

Open-ended questions also allow students to verbalize their thought processes and highlight misunderstandings⁴.

Observations are essential in the classroom—especially the SmartLab—to recognize opportunities to connect students with peer experts and outside resources to elevate or encourage student learning.

Strategy #2: Answer Questions with Better Questions

Children in the 21st century are used to adults answering their questions and showing them the “correct” way when they don’t figure it out the first time.

Although adults in their lives mean well, taking away the opportunity to experience productive struggle limits their potential to succeed and develop problem-solving skills⁹.

When students ask questions, teachers are presented with a valuable opportunity to guide students through the problem they are tackling.

For example, when working with a group of learners who were programming Ozobot robots with colored lines, their robot continued to stop when reaching a curve in the line.

Instead of telling them that the line was too thin, a few well-placed questions like, “What do you notice about that part of your line?” and “How is it different from the rest of your line?” allowed them to problem-solve by trying different line widths so they could better understand how their robot functioned and continue working toward their goal.

Giving students time to explore concepts or tools is essential to begin the natural inquiry process, and gives you the opportunity to facilitate their learning.

Let them struggle to an answer and be okay when your answer and theirs are not exactly the

“ Taking away the opportunity to experience productive struggle limits a student’s potential to succeed and develop problem-solving skills. ”

same. The extra time spent guiding students through their challenges is worth the longer-lasting learning outcomes and development of college- and career-ready skills.

COOPERATIVE LEARNING

With teacher support and coaching, students can grow exponentially when working with their peers⁹. Cooperative learning allows students to communicate with their peers as they explain their thinking, share ideas and knowledge, and work through disagreements. The ability to work with peers is an essential skill required for success in and beyond the classroom.

In the SmartLab, students work with a partner year-round, and often collaborate with other groups in the class.

Strategy #1: Provide Ample Opportunities for Group Work

We recommend putting students into groups of two to encourage full engagement of both students. Younger learners thrive on proximity to other pairs who can serve as additional resources.

Encourage students to identify peers in their class who may have experience with the challenge they’re facing and solicit advice to help them move forward. Soon, students will be able to utilize digital, physical, and peer resources to answer their own questions.

Strategy #2: Allow Students to Choose Their Partners

As teachers, we both spent hours creating very intentional partnerships to facilitate effective partnerships.

What we didn’t realize was that we took away any opportunities for our students to figure out how to work through challenging partnerships.

On the other hand, we also created decreased motivation by pairing students with peers they didn’t want to work with.

Give your students opportunities to get to know their peers, make a decision about who they work well with, and then constantly reflect on the quality of their collaboration.

Encourage them to work with different partners on every project and learn how to work with diverse personalities, backgrounds, and learning styles.

CONCLUSION

Self-direction is an essential skill for students to be successful in college and the workforce.

Project-based learning, facilitation, and cooperative learning are instructional strategies that support student development of self-direction, as well as related soft-skills including collaboration, problem-solving, perseverance, and time-management skills.

Building these skills from an early age will allow students to advance through the rest of their formal education and join the workforce as highly employable individuals.

Supported by foundational theories of education, Creative Learning Systems has designed a learning approach that incorporates those instructional strategies to provide students with a transformative educational experience.

ABOUT CREATIVE LEARNING SYSTEMS

Creative Learning Systems has pioneered the conversion of traditional learning environments to project-based learning experiences since 1987. Today, Creative Learning Systems partners with the most innovative school leaders nationwide to provide personalized, project-based learning experiences and environments that increase a student's capacity through engaged, active, and social problem solving.

With SmartLabs' suite of solutions, we have provided students with hands-on, project-based learning experiences that ignite their passion for science, technology, engineering, and math; helped them build lifelong communication, collaboration, and critical-thinking skills; and empowered them to approach challenges with creativity.

CONCLUSION

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