HOW TO LEAD **ACTIVE LEARNING** IN YOUR SCHOOLS

An essential guide to transforming classroom instruction

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RESOURCE SERIES

Introduction

Active learning is an instructional approach in which students take an active and fully engaged role in their education, rather than sitting passively and absorbing information. This might involve several different kinds of activities, such as class discussions, hands-on learning, collaborative group work or other dynamic approaches to instruction.

Active learning is more engaging than just sitting and taking notes while a teacher is talking. It's more effective than traditional instruction, and it also helps build critical 21st century skills that employers desire.

When students are actively engaged in their learning, they are thinking, creating, sharing, communicating and constructing new knowledge. They are also taking ownership of their education. For these reasons, active learning is replacing the old-school "sit and get" approach to instruction in many classrooms nationwide.

For active learning to be successful, however, a number of important elements must be in place. For instance, teachers need to be taught proven strategies for leading active learning in their classrooms. They need support structures to help them implement these strategies effectively, while overcoming their fears of trying something new in front of their students. And they need the right kind of classroom environment to support and encourage active learning—which includes the design of the learning space and how student desks and tables are configured.

This guidebook aims to help K-12 leaders provide these elements. Within these pages, you'll find information to help you create a culture and an environment in your schools that fosters active learning and enables it to flourish.

Chapter 1

WHY ACTIVE LEARNING?

A 2016 survey of K-12 leaders from the Center for Digital Education reveals why more schools are moving toward active learning.[1]

In the survey, K-12 leaders said active learning is more engaging and effective than a traditional lecture-based approach to instruction, and it also helps build teamwork and other 21st century skills that are needed for success in the workplace.

A separate survey of company executives by the National Association of Colleges and Employers found that working well together as a team to make decisions and solve problems is the No. 1 skill that employers most value among new hires[2] —and active learning helps students develop this critical skill.

Want further proof? A study published by the National Academy of Sciences confirms the benefits of active learning on student achievement.

The study compared the performance of students in undergraduate math and science classes under traditional lecturing versus active learning. It found that average scores improved by about 6% in active learning sections—and that students in classes with traditional lectures were 1.5 times more likely to fail than students in classes with active learning.[3]

What's more, active learning gives students opportunities to move around during class, which delivers both academic and health-related benefits. **Movement increases blood flow, which awakens our cells and stimulates our brains—so students feel more alert and can focus better.**

A report from the Centers for Disease Control and Prevention notes that physical activity "can have an impact on cognitive skills, attitudes and academic behavior, all of which are important components of improved academic performance. These include enhanced concentration and attention, as well as improved classroom behavior."[4]

By taking a more active role in their education, students learn more while also taking ownership of the learning process. As a result, they learn to become independent thinkers and problem solvers. As one teacher was quoted in the Washington Post:

"I used to think it was good teaching to stand in front of a class and lecture and have students quietly doing work alone at their desks, but I don't think that anymore. (A great classroom is) a place where students are doing as much of the talking and thinking and problem solving as the teacher. It's a place where students are tackling questions and problems that are relevant to their daily lives. This kind of classroom helps prepare students to be thinkers—and that is the most important skill a teacher can teach."[5]

1

Active learning is...

- **More engaging:** Higher student engagement is the No. 1 benefit of active learning, K-12 leaders say.
- **More effective:** 86% of K-12 leaders say active learning improves student outcomes.
- **Helps build 21st century skills:** 75% of K-12 leaders say the teamwork skills that students develop through active learning are critical for career success.

Chapter 2

WHAT ACTIVE LEARNING LOOKS LIKE

Active learning can take many forms. Here are some common examples.

Student Inquiry

Michael Gorman, who oversees digital learning and professional development programs for Southwest Allen County Schools near Fort Wayne, Indiana, has written a blog post to help educators promote student-led inquiry by giving students a driving or investigative question to answer.[6]

For example: If you were a NASA scientist, and you had to write a proposal recommending which planet should be explored by the next space probe, which planet would you choose—and why?

High-quality questions should "engage the students and create wonderment through relevance to their world," Gorman writes. These questions should require students to do research from multiple sources, think about their findings, and then synthesize the results into a clear and cohesive argument or plan. "If the question is Google-able," he notes, "then it probably is not deep inquiry."

Discussion & Debate

Class discussions and debates "can be an excellent strategy for enhancing student motivation, fostering intellectual agility and encouraging democratic habits," says Carnegie Mellon University's Eberly Center for Teaching Excellence and Educational Innovation.[7] "They create opportunities for students to practice and sharpen a number of skills, including the ability to articulate and defend positions, consider different points of view and enlist and evaluate evidence."

While discussions and debates can be valuable active learning strategies, leading them in the classroom can be anxiety-producing. "Discussions are, by their nature, unpredictable, and (they) require us as instructors to surrender a certain degree of control over the flow of information," the center says.

Careful planning can help ensure that discussions are "lively without being chaotic and exploratory without losing focus"—and the center's website provides advice for how to plan and lead them effectively.

2

Creating & Composing

Having students create original works that demonstrate or enhance their understanding of a topic—such as public service announcements, movie trailers, rap songs, picture books, blog posts, photo journals, advertisements, business plans, 3D models or other artifacts—is an active learning strategy grounded in decades of research. It has its roots in constructivist theories of education, which say that learners construct their own understanding of the world by experiencing things and reflecting on those experiences (in other words, "learning by doing").

Letting students get creative also allows them to become "protagonists of their own learning," says Mindy Faber, co-director of the Convergence Academies program in the Chicago Public Schools. Students are more highly engaged and motivated when they are given creative license, and they learn how to become innovators and creative problem-solvers as well.

With support from a federal grant, the Convergence Academies program created digital "ateliers," or workshops, in two Chicago schools. During the school day, students use these spaces to create or compose digital artifacts for class-related projects; after school, students are free to hang out and learn digital media skills under the guidance of digital media mentors.

Since the program began in 2013, both schools have seen achievement rise—and students are learning important technology skills that can put them on a successful career path.

Collaboration

Having students work together in small groups to solve problems and share information not only leads to deeper learning and understanding; it also builds the essential teamwork skills that employers covet.

The College Preparatory School, a private coeducational high school in Oakland, California, weaves collaborative learning into the fabric of its approach, reports Edutopia.[8] Teachers encourage classroom collaboration by assigning students to groups to review their homework, do daily class assignments, participate in moderated discussions and complete hands-on projects. Often, teachers give students group tests, which are designed to be harder than individual assignments.

"Students quickly realize that they are able to solve problems as a group that they would not be able to solve as individuals," Edutopia notes.

Project-Based Learning

Project-based learning combines student inquiry, creation and collaboration by challenging students to solve a real-world problem or complete an authentic learning task.

For instance, in Loudoun County, Virginia, kindergarten students designed the puzzles that are being used to stimulate the minds of orangutans in a Texas zoo—while high school students researched the environmental damage caused by de-icing agents that are applied after snow and ice storms, then launched a public service campaign that changed behaviors statewide.

These efforts are part of Loudoun County's "One to the World" initiative[9], which is leading to deeper learning and greater student engagement by empowering students to make meaningful contributions to the world. The school division is working with the Buck Institute for Education to help educators develop authentic problems for their students to solve.

"What I hear time and time again from teachers is they're amazed at how hard students are working to bring their A game," says Superintendent Eric Williams. "The amount of time they spend on projects is far beyond what is necessary."

Chapter 3

WHY CLASSROOM DESIGN MATTERS

How a classroom space is designed can have a significant effect on the type of learning that takes place there, because different kinds of learning activities are best supported by different arrangements of the physical space.

For this reason, K-12 leaders should pay close attention to the design of their learning spaces if they want to support the use of active learning strategies.

In a publication called Learning Spaces, from the higher-education technology group EDUCAUSE, former Indiana University education professor Nancy Van Note Chism wrote: "A room with rows of tablet arm chairs facing an instructor's desk in front of chalkboards conveys the pedagogical approach: 'I talk or demonstrate; you listen or observe.'" On the other hand, "a room of square tables with chairs on each side conveys the importance of teamwork and interaction to learning."[10]

Arranging desks or tables in a large circle or "U" shape works well for direct instruction, because it focuses students' attention on what the teacher has to say. It also makes whole class discussion easier, because every student can see every other student in the class. Arranging desks or tables in small groups, with three or four students facing each other, facilitates small group interaction and collaboration.

Because there will be times when teachers will want to use each of these instructional strategies in their classrooms, flexibility is key when designing learning spaces, Van Note Chism says.

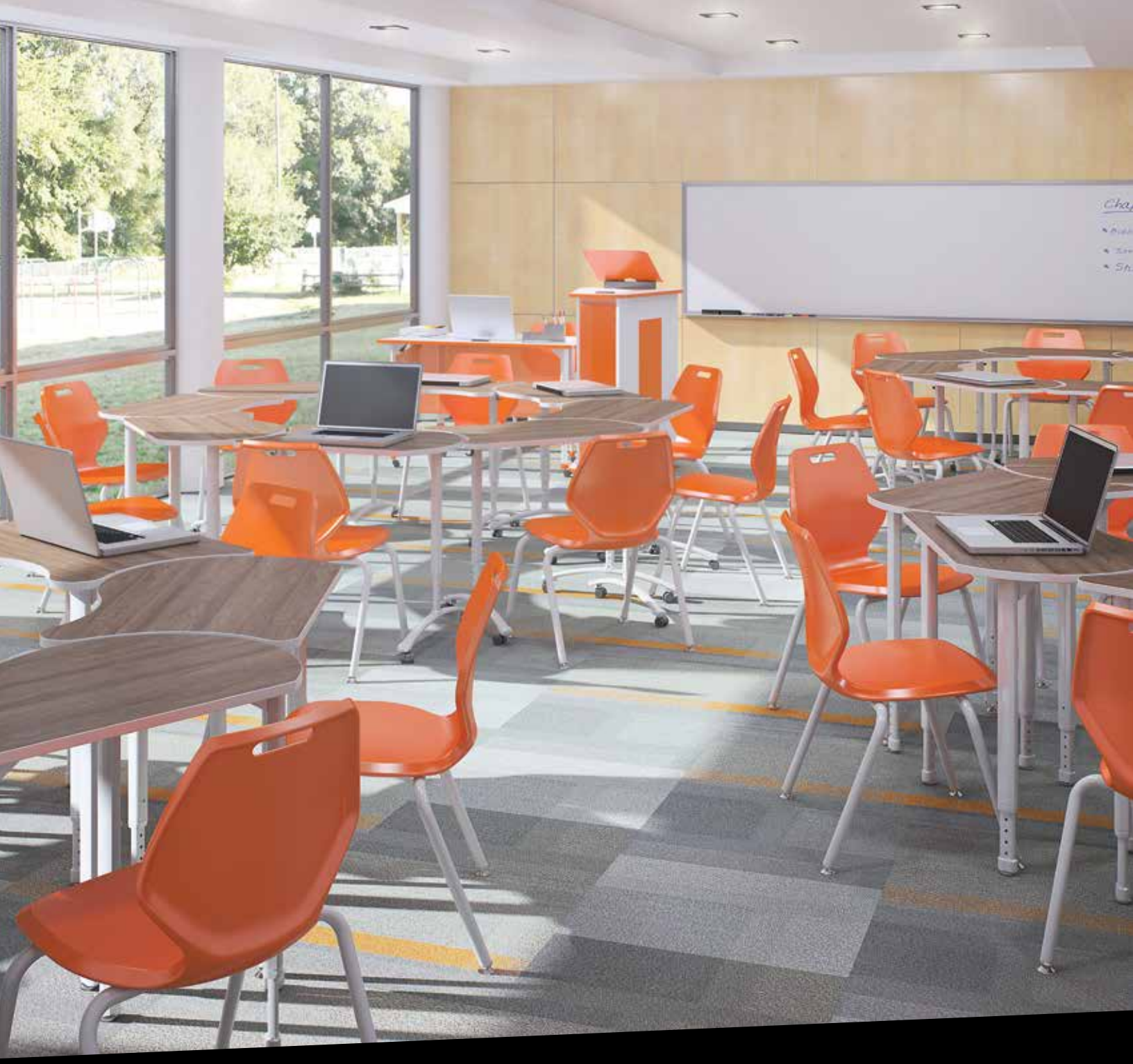
She writes: "A group of learners should be able to move from listening to one speaker … to working in groups … to working independently. While specialized places for each kind of activity can accommodate each kind of work, the flow of activities is often immediate. It makes better sense to construct spaces capable of quick reconfiguration to support different kinds of activities, (such as by using) moveable tables and chairs."

A study by researchers at the University of Salford in England confirmed what Van Note Chism had written. The study found that classroom design can have a 25% impact, either positive or negative, on a student's progress over the course of an academic year—and flexibility (defined as how easily a classroom's furniture could be rearranged to support a variety of activities and teaching approaches) was one of six key environmental factors that showed the most effect on student success.[11]

In other words, in classrooms where teachers easily could match the learning environment with the type of activity that students were doing, students saw greater success.

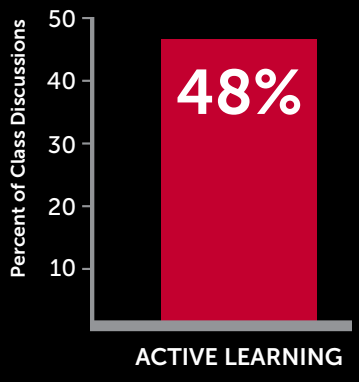
Impact of Classroom Design

Classroom design can have a **25% impact**, either positive or negative, on a student's academic performance over the course of an academic year—and flexibility was one of six key environmental factors that showed the most effect.



Active vs. Traditional Classrooms

How a classroom is designed can encourage or discourage active learning. In a University of Minnesota study, class discussions were found to **occur 48% more frequently** in active vs. traditional classrooms.



Encouraging Active Learning

If educators and administrators want their students to engage in more active learning strategies by solving problems and working together collaboratively, they can actually encourage these behaviors with the way they arrange the desks and tables in their classrooms, research suggests.

In a 2012 study at the University of Minnesota, research fellow D. Christopher Brooks observed two sections of a single course taught by the same instructor, with one section meeting in a traditional classroom space and the other meeting in a classroom designed for active learning. He found that both the instructor and the students behaved differently depending on the type of classroom they were in.

The traditional classroom had rows of tables facing the front of the room, while the active learning classroom was equipped with round tables holding up to nine students, making it easy for students to break off into groups of three for collaborative work.

Students in the active learning classroom—who had significantly lower ACT scores, on average—overcame the predicted achievement gap to earn the same average grade as their peers in the traditional classroom setting. Even more significantly, how each space was arranged affected the kinds of activities that occurred there—despite the fact that the instructor took great pains to use the same teaching methods and materials.

For instance, class discussions occurred in 48% more class periods in the active learning classroom than in the traditional classroom, and the instructor was at the podium 27% less often in the active classroom.

Key Takeaways

- The design of a learning space shapes both instructor and student behavior—and therefore the kinds of activities that take place there.
- Different classroom configurations are conducive to different outcomes.
- Having flexible and modular furniture that teachers and students easily can move around the room and arrange into different configurations is critical for supporting various learning styles and activities, such as the use of active learning strategies.

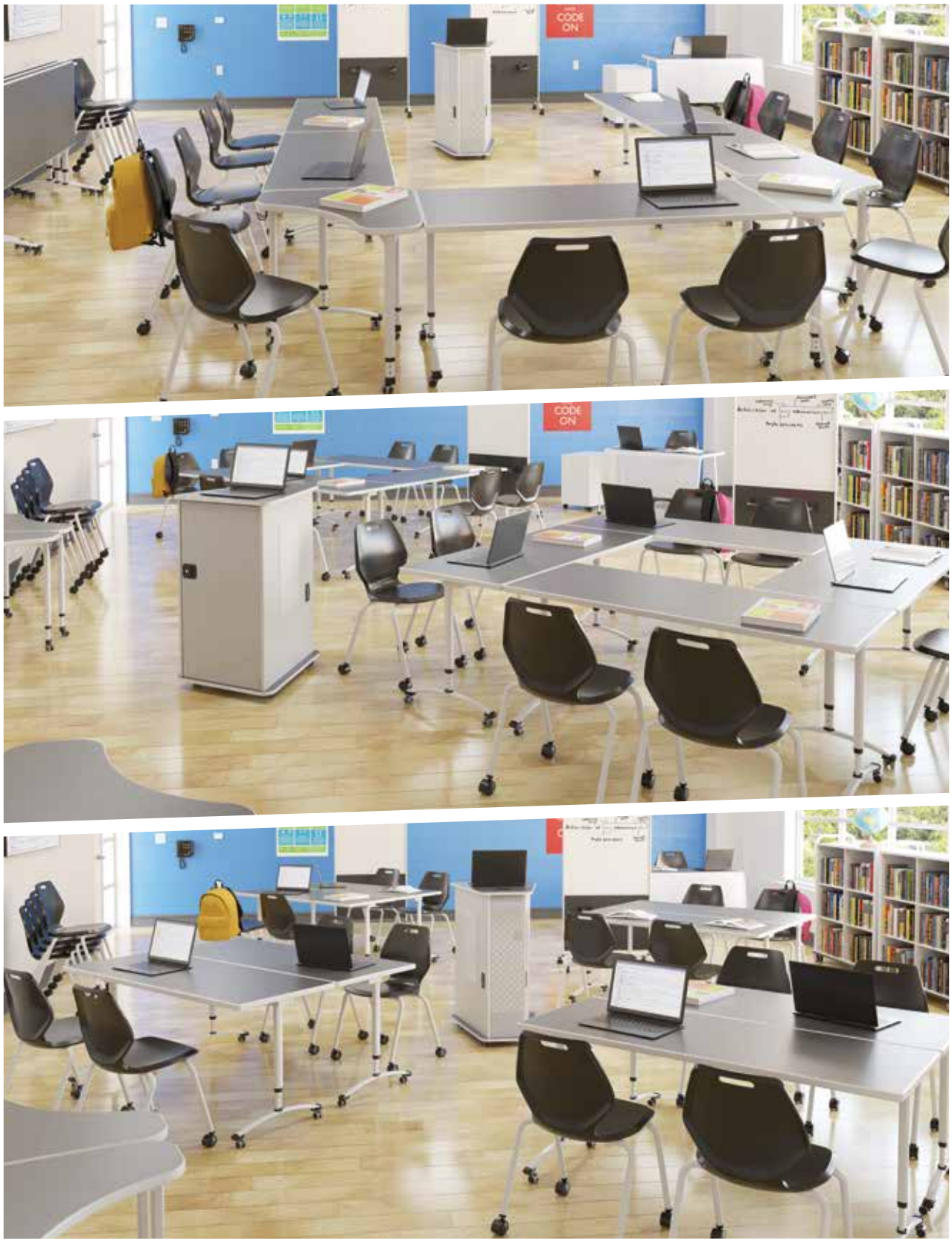
Chapter 4

CLASSROOM DESIGNS

The classroom is global, bursting out of the four walls. Technology's everywhere. So is nonstop access to information, interaction and shared digital content.

It's a more open, creative, and collaborative space than ever before.

Classroom 1



A. READY™ 4-Leg Chair with Casters

Available in child, youth and adult heights (14-inch, 16-inch and 18-inch) in 16 shell finishes, stacks 6 high

B. A&D® Adjustable Height Student Desk

Available in seven work surface shapes, height adjusts in one inch increments from 24"-34"

C. A&D® Crossfit Flip-Top Student Desk

Mobile flip-top desk nests and is available in four work surface shapes from 27" to 60" wide, and three heights

D. A&D® Crossfit Teacher Lectern

Features storage with adjustable shelf and a locking door, optional magnetic connecting side table

E. A&D® Teacher Station

Desk provides an open workspace and available in two depths 24" and 30"

F. MAKER™ Idea Board

Features double-sided dry erase finish that is both a writing surface and magnetic

G. A&D® Crossfit Dash

Mobile storage available in two heights, interior shelves adjust in one inch increments

H. File-IT Mobile Pedestal

Features box/box/file design and is available in 17 different paint colors

Classroom 2

A. MAKER™ Idea Board

Features double-sided dry erase finish that is both a writing surface and magnetic

B. READY™ 4-Leg Chair with Casters

Available in child, youth and adult heights (14-inch, 16-inch and 18-inch) in 16 shell finishes, stacks 6 high

C. A&D® Crossfit Flip-Top Student Desk

Mobile flip-top desk nests and is available in four work surface shapes from 27"- 60" wide, and three heights

D. A&D® Crossfit Teacher Lectern

Features storage with adjustable shelf and a locking door, optional magnetic connecting side table.

E. A&D® Teacher Station

Desk provides an open workspace and available in two depths 24" and 30"

F. A&D® Crossfit Dash

Mobile storage available in two heights, interior shelves adjust in one inch increments

G. A&D® Crossfit Single Storage

Available in 32" and 46" high configurations with open fronts or with doors and include all totes, all shelves or a combination of both

H. File-IT Mobile Pedestal

Features box/box/file design and is available in 17 different paint colors

Classroom 3

A. READY™ 4-Leg Chair with Casters

Available in child, youth and adult heights (14-inch, 16-inch and 18-inch) in 16 shell finishes, stacks 6 high

B. A&D® Crossfit Flip-Top Student Desk

Mobile flip-top desk nests and is available in four work surface shapes from 27"- 60" wide, and three heights

C. A&D® Crossfit Sweep

Mobile storage available in two heights, interior shelves adjust in one inch increments

D. MAKER™ INVENT™ Table

Available in rectangle or clover-shaped work surfaces and in youth and adult heights

E. A&D® Crossfit Single Storage

Available in 32" and 46" high configurations with open fronts or with doors and include all totes, all shelves or a combination of both

F. Blendaround

Lightweight, highly configurable soft seating available in hundreds of fabric options

G. A&D® Crossfit Motion

Available in rectangle and KOI-shaped work surfaces, adjust height from sitting to standing

H. MAKER™ Idea Board

Features double-sided dry erase finish that is both a writing surface and magnetic

Chapter 5

GETTING STARTED

As you think about how to implement active learning strategies more frequently in your classrooms, here are three fundamental aspects to consider.

1. Vision and goals

A successful plan of any kind starts with a vision outlining what you would like to do and the goals and objectives you are hoping to accomplish. In defining your vision and goals for active learning, here are some key questions to ponder:

- What would you like active learning to look like in your school or district? How often should teachers be using active learning strategies with their students? What percentage of their instructional time should be devoted to active learning?
- What learning outcomes are you aiming for? For instance: Greater student focus on and engagement in their lessons? More student ownership of the learning process? Higher achievement on standardized tests? An increase in 21st century skills such as problem solving, critical thinking, creativity, communication and collaboration? A higher overall quality of student work?
- What kinds of active learning strategies would you like your teachers to use? How will you match the specific learning outcomes desired with appropriate strategies that can achieve those outcomes?

2. Capacity of teachers

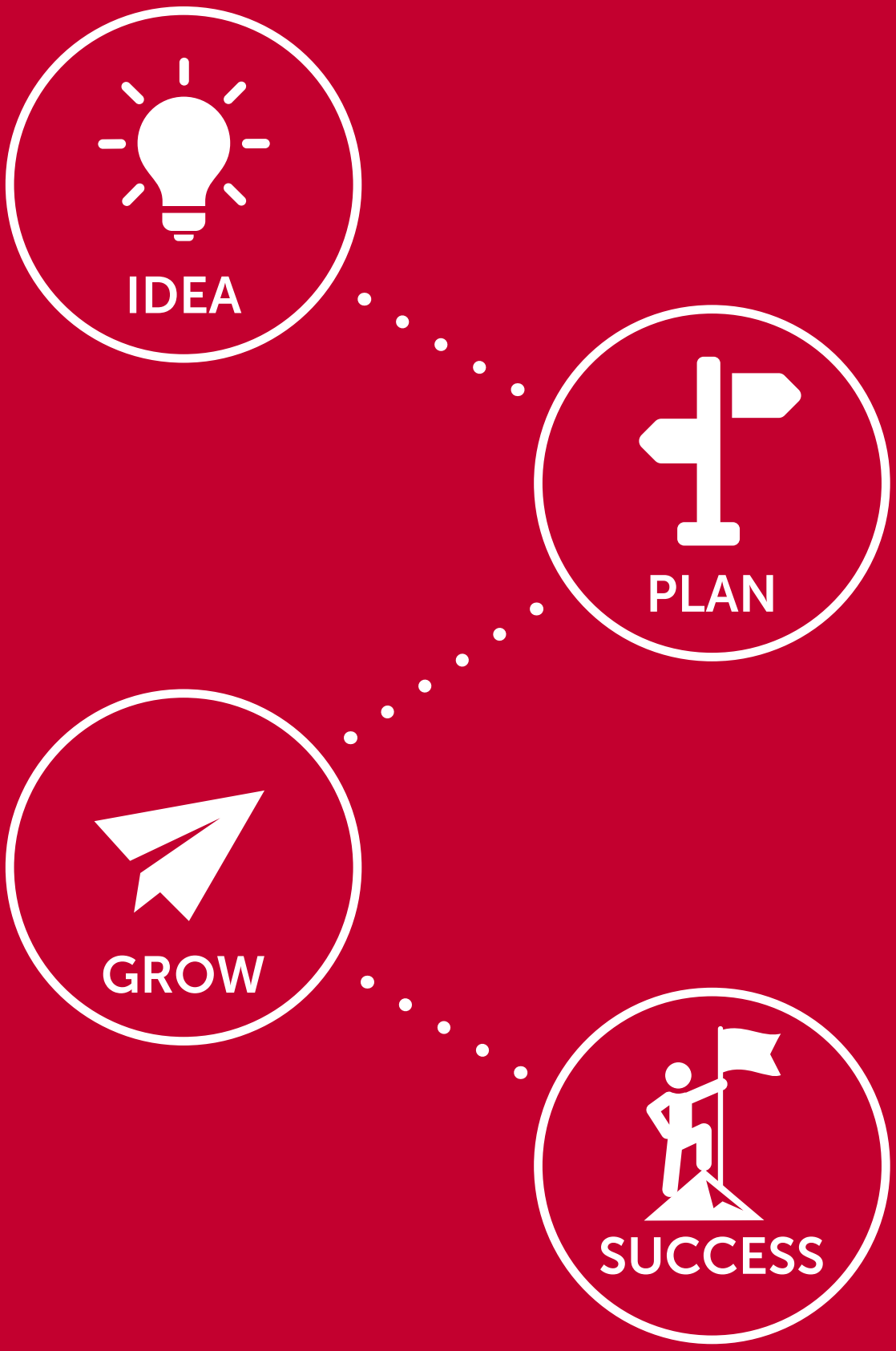
For active learning to be successful, teachers must be well-versed in this style of instruction. They must become familiar with active learning strategies and adept at leading active learning within their classrooms.

How will you build the capacity of your teachers to meet these requirements? Here are some questions to guide you:

- How will you provide training in active learning strategies and techniques? Research from the Bill & Melinda Gates Foundation shows that professional development is most effective when it is sustained, ongoing and job-embedded—and not simply a one-time workshop. Training also works best when it is interactive, with "hands-on strategies for the teacher to actually participate in."[12]

- How will you evaluate teachers' use of active learning strategies with their students and provide opportunities for feedback? Will you integrate rubrics for this evaluation into classroom observations and walkthroughs? How will you use the information you collect to help teachers improve?

- How will you continue to support teachers throughout the school year as they try leading active learning in their classrooms? For instance, will you provide opportunities for coaching or mentoring? A professional learning network or community for teachers to share ideas with their colleagues? A resource library of proven active learning lessons and techniques?


IDEA
PLAN
GROW
SUCCESS

3. Measuring success

To ensure the success of your active learning initiative, it's vital that you measure your progress toward the goals you have outlined and then adjust course as necessary. Here are some questions to think about:

- What methods will you use to evaluate your success? For instance, if increasing student engagement is a goal, you might collect information from student engagement surveys and classroom walkthroughs to see how much progress you have made.
- How will you use the information gleaned from these evaluations to drive continuous improvement? What protocols will you establish for meeting and discussing this information, devising steps to address any shortcomings and turning data into action?

Technology's Role in Active Learning

Although technology is not essential to active learning, it can be a powerful tool to support student-driven learning. If students have access to a device with Internet connectivity, they can do independent research and use rich applications for creating and collaborating.

If you are using technology to support active learning, here are **five key considerations**:

1. Equity

How will you ensure that all students have equitable access to technology devices for learning? For instance, if you allow students to use their own personal laptops, tablets and cell phones in class through a "bring your own device" policy, how will you make sure that students who don't have their own personal device can participate? You might pair students who don't have a device with someone who does and require them to share, for example—or keep a supply of school-owned devices handy for them to borrow.

2. Digital citizenship

Students using digital devices in class must be taught how to use the devices safely and responsibly. Mike Ribble, an author and IT director for a public school district in Kansas, says digital citizenship education should teach students how to use technology to search for, evaluate and curate information; how to act appropriately online; how to use technology in an ethical manner, such as not hacking into other peoples' information, downloading music illegally, plagiarizing, sending spam or stealing someone's identify and how to safeguard their privacy and IT security, among other lessons.[13]

3. Security

Speaking of IT security, K-12 leaders must consider how they will keep their school networks secure from viruses, phishing scams, ransomware attacks and other online threats. Security measures should include keeping all operating systems up to date; regularly applying security patches; using a multilayered approach to IT security that includes firewalls, web filtering, antivirus protection and advanced threat detection; and educating staff as well as students about security best practices.

4. Connectivity

Before investing in devices for your students, make sure you upgrade your network infrastructure so that it can handle all the traffic. Students and staff should be able to get online without a hitch, or else they will become frustrated, give up and not use their devices for learning. The State Educational Technology Directors Association recommends that schools have at least 1 gigabit per second (Gbps) of bandwidth for every 1,000 students and staff members to enable rich, transformative teaching and learning experiences.[14] Plan for more bandwidth than you think you need, however, because network demands increase exponentially as students do more bandwidth intensive work.

5. Power

If students are using digital devices to support self-directed learning, they need easy access to power supplies throughout the day so they can recharge their devices as necessary. A survey conducted by NewBay Media reveals that access to power often is a problem for schools.[15] Eighty percent of K-12 leaders said they don't have enough power to meet the technology needs of their staff and students, 77 percent said power has come up as an issue or complaint from faculty and 58 percent said a lack of power affects students' ability to use technology effectively in class. Solutions to this problem include mobile device charging stations or even flexible power supplies embedded seamlessly within classroom furniture, providing an always-available power source so students can charge their devices while they work.

Chapter 6

HOW TO MANAGE CHANGE

Making the shift to active learning can be a big transition for many teachers, especially if they have been lecturing for their whole careers.

For one thing, it involves giving up some degree of control over their classroom and transferring ownership of the learning process to the students themselves—and this shift can be accompanied by a profound sense of loss.

Also, teachers with little or no experience in leading active learning strategies might find it somewhat intimidating to try a new teaching style. They may feel anxious about looking vulnerable in front of their students if something goes wrong.

These are legitimate concerns stemming from genuine emotions. Introducing change of any kind often makes people uncomfortable, and when you add in the fact that teachers are performing their jobs in front of an audience every day, that anxiety becomes even more magnified.

Leading a successful transition to active learning requires understanding and addressing the emotional implications of this change for teachers. **Here are six important change management strategies** that can help K-12 leaders do this effectively.

1. Clarify the purpose

Make sure all staff members understand why you are asking them to make the change, and how it will help them become better educators. How will it help their teaching? How will it help students learn?

By focusing on the "why," you are giving teachers a clear reason to push beyond their comfort zone. When they understand the benefits of doing so, and how active learning can engage students and lead to independent thinking and deeper learning, teachers will be more likely to try it in their classrooms.

2. Provide direction

What are the specific steps that teachers must take to change their instruction? How will you help them get there? When you give teachers a clear roadmap for change, and you communicate and support them throughout the process, then you remove some of the barriers that might discourage them from trying—such as anxiety that they won't know what to do or how to do it.

3. Apply pressure and support

Change management expert Rob Evans, author of Understanding the Human Side of School Change, says people don't make substantive changes to their behavior without some combination of pressure and support.[16]

Pressure is anything that makes it harder for teachers to continue doing what they were doing, and it can range from simply asking them to change, to making the new behavior a part of their professional evaluation system. Support would be anything that makes it easier for teachers to try something new, such as bonuses, incentives, training or even overt permission to take risks without having to be perfect.

"If you only pressure people, they retreat into a shell and the resistance goes underground," Evans says. "If you only support people, they typically stay where they are and don't do much." It's the combination of these two strategies, he says, that makes a difference.

4. Focus on the "hmms"

According to Jennie Magiera, who has been a teacher and technology leader for school systems in Illinois, there are three types of people K-12 leaders will encounter when they encourage their staff to innovate: "hoorays, hmms and hell nos."[17]

The "hoorays" are those who are eager to try new tools and techniques in their classroom. The "hmms" are those who watch with interest, but aren't ready to dive in right away and the "hell nos" are those who actively resist change. The "hoorays" and "hell nos" each make up about 20 percent of the population, and the "hmms" comprise the other 60 percent.

Too often, K-12 leaders focus most of their attention on the "hell nos," Magiera says. But it's the "hmms" in the middle of the innovation curve who represent the most promise: If you can get this 60 percent to embrace change, then you've got a critical mass behind your efforts.

5. Acknowledge teachers' fears

Pay careful attention to the concerns of faculty; don't just give them lip service. Acknowledge and validate teachers' emotions: Tell them you know that change is hard, and you are there to support them every step of the way.

"By listening, you're giving that teacher the opportunity to let go of all the baggage she has been carrying," says Susanna Clavello, coordinator of digital-age learning for Education Service Center 20 in Texas and a certified professional life coach.[18] You are also showing teachers that you appreciate their efforts—and this goes a long way toward earning their trust.

6. Build a culture of risk-taking

To encourage innovation, K-12 leaders must build a culture in which teachers feel safe to explore and try out new ideas in their classroom. Reassure teachers that it's OK to try new techniques and fail, as long as they learn from their mistakes. In fact, trying and failing in front of students models a healthy attitude toward learning and innovation that will serve students well throughout their lives.

"In our quest to help students become better versions of themselves, sometimes we over-support our kids," Magiera notes. Instead, teachers must give students the space to learn for themselves and to experience their own successes—and failures. Think of "FAIL" as an acronym for "first attempt in learning," Magiera says, adding: "Once you FAIL, then you can SAIL—or have a subsequent attempt in learning."

Conclusion

Active learning is more engaging and effective than traditional lecture-style instruction. It stimulates students' brains and bodies, and it helps them become independent thinkers, problem solvers, communicators and collaborators. In short, it helps prepare students for successful 21st-century careers.

For teachers to embrace active learning in their classrooms, they need proper training, support and encouragement. K-12 leaders should set goals, measure progress and create an environment that supports the use of active learning strategies for instruction—such as fostering a culture of innovation and paying careful attention to the design of learning spaces.

We hope this guide helps you through the steps needed to lead active learning effectively in your schools. Good luck in this process—and let us know how it goes. We'd love to share your success and lessons learned with other K-12 leaders.

Additional Resources

Berkeley Center for Teaching & Learning: Active Learning Strategies
http://teaching.berkeley.edu/active-learning-strategies

Cornell University Center for Teaching Excellence: Active Learning
https://www.cte.cornell.edu/teaching-ideas/engaging-students/active-learning.html

New York University: Best Practices: Active Learning
https://www.nyu.edu/faculty/teaching-and-learning-resources/strategies-for-teaching-with-tech/best-practices-active-learning.html

Stanford University Teaching Commons: Promoting Active Learning
https://teachingcommons.stanford.edu/resources/learning-resources/promoting-active-learning

Teaching.monster.com: "40 Active Learning Strategies for Active Students"
http://teaching.monster.com/benefits/articles/8414-40-active-learning-strategies-for-active-students-University of Michigan Center for Research on Learning and Teaching (CRLT): Active Learning http://www.crlt.umich.edu/tstrategies/tsal

University of Minnesota Center for Educational Innovation: What is Active Learning?
https://cei.umn.edu/support-services/tutorials/what-active-learning

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