Technology in the SCALE-UP Classroom

Supporting the Collaborative Learning Environment of the Future
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Introduction

Despite the dramatic impact technology has had on education, many classroom structures and teaching methods haven’t changed much over the years. The education industry has often evolved slowly when it comes to major change and innovation. But with digital transformation extending its reach into every industry, that tendency may be changing.

Learning environments are becoming more flexible, teaching methods are changing to accommodate different learning styles, and student collaboration is playing an increasingly important role in the classroom.

The SCALE-UP classroom is one example of these dramatic shifts. SCALE-UP, which stands for Student-Centered Active Learning Environment with Upside-down Pedagogies, is a popular new approach to teaching and learning—one that places heavy emphasis on student collaboration. SCALE-UP is turning many aspects of the traditional classroom upside-down, including how technology is used.

As more schools begin adopting SCALE-UP and other more collaborative teaching models, IT professionals in secondary and higher education must be ready to support them, providing the technology needed to help students perform their best in these new environments.

The SCALE-UP classroom places heavy emphasis on student collaboration.
Chapter 1: What Is SCALE-UP?
SCALE-UP classrooms work very differently from traditional ones. Rather than receiving course content via lectures and then working on problems and projects on their own time, students are responsible for digesting core content before coming to class. This approach frees up class time for next-level group activities that allow students to apply that information to problems, projects, and discussions.

Where are the instructors? They are circulating among them, gauging understanding, helping students with more difficult concepts, and providing guidance on group activities. Instructors are “hands-off” enough for teams to work at their own pace, but “hands-on” enough to give feedback when and where it is needed to facilitate learning.

The environment itself looks very different as well, looking more like a restaurant than a classroom. Rows of seats are replaced by round tables, and key technology components are placed in strategic locations around the room. The SCALE-UP approach—and room setup—applies equally well to both small and large classes.

Developed in the mid-1990s by Robert Beichner, a physics professor at North Carolina State University, SCALE-UP is currently used in secondary schools, colleges, and universities, and adoption continues to increase as more results of student success are published.
Chapter 2: Innovation in Education
What kind of impact are SCALE-UP classrooms having on student learning? Studies have revealed both qualitative and quantitative improvements. Instructors and researchers have observed that SCALE-UP helps students:

- Improve their problem-solving skills
- Increase responsibility for their own learning
- Improve their presentation skills
- Increase their understanding of concepts
- Enhance their communication skills
- Get focused help when they need it
- Foster better connections with other students
- Build relationships with team members
- Increase their engagement and motivation in class
- Improve their presentation skills
- Increase their commitment to their own learning
- Enhance their communication skills
- Foster better connections with others
- Build relationships with team members
- Increase their engagement and motivation in class

Those observations are backed up by research. At North Carolina State, the failure rate for introductory physics has dropped from 30% to 10%. Failure rates for African-American and female students dropped even more. Test results show learning gains of up to 16%. Students gave SCALE-UP learning modules very high satisfaction ratings—a mean of 4.37 out of 5.

In addition, attendance in SCALE-UP classes over five years averaged 93%, without attendance ever being required. Students gave SCALE-UP learning modules very high satisfaction ratings—a mean of 4.37 out of 5.

With these success rates, it's little wonder that today's classrooms are starting to transition to more collaborative learning environments like SCALE-UP. And IT organizations just like yours need to be ready.

Average attendance of a SCALE-UP class, without attendance ever being required.
Many different activities go on in a SCALE-UP classroom, including group discussions, hands-on projects, multi-part problems, interactive modules, demos, simulations, experiments, presentations, labs, competitions, and “clicker questions” that check for understanding or otherwise engage students. All of these activities can impact the technology required in the classroom—and the way the components are arranged.

Incorporating the right technology into SCALE-UP classwork facilitates the learning process, enabling independent research, audio and video presentations, interactive activities, class-wide sharing, and more. For example, students can use projection and screen-sharing technology to share ideas or solutions with their teams or with the whole class. Instructors can use technology to essentially combine a lecture hall, A/V room, and lab into one space.

SCALE-UP classrooms are typically arranged in tables of nine students, with the instructor’s workstation in a central location. Students may be divided into three teams, each of which shares a computer, or a computer may be shared among the whole table. Whiteboards and/or flat-panel displays are strategically arranged on perimeter walls, so every student has good access and visibility. Ideally, every student can see every other student as well. Of course, Wi-Fi, adequate charging stations, and whiteboards are critical. For larger spaces, microphones and other audio equipment may be required.

A recent study shows that whiteboard space in particular is the single most critical component in the SCALE-UP classroom. SCALE-UP students themselves have indicated in surveys that whiteboards have enhanced their learning experiences. Whiteboards also top the list of key SCALE-UP components as ranked by the American Association of Physics Teachers, followed by student computers, and projection and screen-sharing equipment.

While SCALE-UP classrooms may not seat as many students as a lecture hall, the entire space is dedicated to student learning. Technology that is well chosen and well placed enables the most productive and efficient use of that space. It also provides students the opportunity to develop technology skills, particularly when it comes to facilitating presentations and collaboration.
Chapter 4: Where ViewSonic ViewBoard Technology Fits In
Given the importance of whiteboarding, projection, and screen-sharing capabilities in the SCALE-UP classroom, ViewSonic® ViewBoard® technology is uniquely suited to these and other collaborative environments. When paired with cloud-based ViewSonic myViewBoard™ software, the solution can boost communication and collaboration in a wide range of learning spaces.

ViewSonic ViewBoard displays and myViewBoard software support the full range of end-user devices, including PCs, Macs, Chromebooks, and iOS and Android devices. Multi-platform support is particularly important given that Google Chromebooks currently account for over half of the devices in US classrooms.¹
The ViewBoard display takes the concept of a whiteboard and merges an array of advanced digital and analog collaboration tools and features in a single, easy-to-use platform.

**Digital whiteboarding and annotation**
The ViewBoard solution provides a touchscreen canvas that includes a variety of annotation tools, letting teachers and students write, draw, markup, and save content using fingers and styluses.

**Screen-sharing**
Students can view and share screens through a Chrome browser. They can also annotate in real time and can send—or “throw”—files, images, and other content from their devices to the ViewBoard display.

**Browser resources**
The ViewBoard solution provides easy, in-menu access to YouTube and other browser resources, making it simple to supplement presentations and discussions with video.

**Recording**
A built-in screen camera records, saves, and plays back ViewBoard presentations for future reference and sharing, so there’s no need for students to snap photos with their phones.

**Cloud storage**
myViewBoard software provides integrated access to cloud storage platforms, including Google Drive™, Microsoft OneDrive, Dropbox, and Box, making it easy and secure to store and retrieve presentations and documents.

**Security**
Powered by Amazon Web Services and protected by AES-256 encryption, myViewBoard software helps ensure that data is safe from unauthorized access. It provides multiple authentication options, and once the user logs out of myViewBoard, all access and temporary files are deleted without a trace.

Whether you’re dipping your toe in SCALE-UP, going full-scale SCALE-UP, or just heading toward something more collaborative, ViewSonic ViewBoard technology can play a central role in bringing classrooms to life.
Learn More

A well-designed, well-equipped classroom can enable exceptional learning experiences that can encourage problem-solving, foster creativity, and increase knowledge-sharing. Find out how ViewSonic ViewBoard displays and myViewBoard software can help.

About ViewSonic

Founded in California in 1987, ViewSonic is a leading global provider of visual solutions that enhance the way we compute, collaborate, communicate, and connect. The award-winning ViewSonic portfolio includes LED and LCD monitors, smart touchscreen displays, projectors for business and education, interactive flat-panel displays, large-format commercial displays, VDI endpoints, and digital kiosks and billboards. In June 2018, ViewSonic was named the top-selling collaboration display brand in North America, with ViewSonic ViewBoard interactive flat-panel displays taking two of the top three best-selling collaboration display categories.⁷

Sources