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node: Keeping Pace with Active Learning

Pre- and post-installation studies at
Northview High School confirms node
transforms the traditional classroom

Steelcase

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node: Keeping Pace with Active Learning

Amidst a variety of changes in education, both educators and designers of learning spaces are rethinking the classroom, looking for a comprehensive space that incorporates user-friendly technology, flexible furniture, and other tools that support active learning.

Laptops, whiteboards and handheld devices have been added to the traditional tools of paper, pens and chalkboards. And a new generation of students, with deep immersion in social, entertainment and learning technologies, expect a media-rich but hands-on classroom experience.

These changes are driving the adoption of active learning instruction models that create more collaborative learning environments, giving students more control over how content is learned and who they learn from. But have most classrooms kept pace? Does the average classroom support the flexible agenda of active learning?

Universally, the answer to this question is no. No matter where in the world you look, the typical high school high school classroom hasn't changed in decades. At almost every educational institution, most classroom furniture is not really suited for multiple modes of learning. Desks and chairs often sit in tight rows that restrict movement, block sightlines and discourage discussion and collaborative work. Moving them is time-consuming and inconvenient to such

an extent that the next class often sits in the configuration of the previous class, whether it's appropriate to the day's activities or not.

Within the four walls of the typical classroom, there is little in common with today's dynamic teaching methodologies, technologies and active, engaged students.

In an effort to better understand how to support the needs of active learning in classrooms, Steelcase Education Solutions (SES) went straight to those with the first-hand knowledge and the most at stake: students and educators.

THE CLASSROOM RESEARCH

SES is a dedicated group within Steelcase created, essentially, to "go back to school": to partner with educational institutions in order to develop active learning solutions that solve for the realities of teaching and learning

today. Through these partnerships, and as a part of its commitment to human-centered design, SES works directly with educational professionals and students, conducting extensive discussions and research to obtain insights from the front lines about what's needed and what actually works in day-to-day classroom use.

During the research, SES performed trend analysis, ethnographic study, photography and interviews in more than 35 classrooms at 12 different schools and universities, and the consultants' observations led to important insights. They found that most classrooms act as a barrier to collaborative learning rather than a tool for learning under the demands of today's teaching pedagogies. Multiple teaching modes are necessary to support multiple learning styles, but classrooms generally do not support easy transitions from one mode to the next.



They documented many examples:

- Moving desks from rows into groups to allow sharing documents or close discussion.
- Sitting in configurations left from previous classes.
- Sitting at a distance from the instructor and each other, with empty chairs at the front acting as a further barrier.
- Looking around other student's heads or backs to see the instructor, a media screen or a speaker in a discussion.
- Stretching or arching backs uncomfortably against a rigid seatback during long class discussion periods.
- Sitting on desks or turning sideways in their chairs while participating in conversation or group discussion.
- Putting laptops on the student's lap because the tablet arm chair is not wide enough.
- Piling personal belongings on the lap or floor.

A NEW SOLUTION

It was clear that a new solution was needed, and that it needed to support a variety of learning modes—lecture, large group discussion, small project groups, and presentation. The class had to be able to convert quickly and conveniently from one configuration to the next. Students needed to be positioned so that everyone could be seen and heard, and instructors needed to be able to see and reach every student.

Inspired by the SES findings and the input of instructors and students, Steelcase Design Studio in collaboration with the design and innovation consulting firm IDEO created node, a chair designed to meet the many modes of learning. Every aspect of node's design was focused on one purpose: to create a chair for the active learning environment of today's classroom. The next step was to put it to the test.



NORTHVIEW HIGH SCHOOL BETA SITE

Steelcase established a partnership with Northview High School in Grand Rapids, Mich., to conduct pre- and post-installation studies to evaluate node's impact on the classroom experience. The two-month study involved an advanced-placement English classroom that the researchers felt confident would expose node to different active learning and teaching modes.

The installation itself revealed something of node's added value. On a Friday afternoon after class was out, the existing student desks were removed and the new node chairs were quickly unpacked, assembled and installed in just two hours, essentially turning a static classroom into an active classroom in a matter of minutes. Easy assembly and installation proved that a classroom can undergo a significant visual and functional change in an evening or weekend with no change to infrastructure.

Once installed, the Northview beta site confirmed important aspects of the previous node research, but it also demonstrated a great deal about how node contributes to the learning environment and delivers a positive impact on the classroom experience.

THE NODE CLASSROOM

The researchers' in-person observations confirmed that node was facilitating the transformation of traditional classroom desks into a more interactive, dynamic teaching and learning environment. They observed more direct communication and presentation, more discovery and team-based approaches, more instructor coaching, and more persistent access to displays of information—all characteristics of active learning.

MOVE

It was node's mobility and how it affects the classroom's performance that made teacher Sheri Steelman take notice. She reported significant improvement in their ability to reach and engage students in an active learning environment. "We use the gradual-release model here in the high school, which means that the teacher does a focus lesson for 10 minutes and then involves the students in that lesson," said Steelman. "The next step is collaboration with peers, and that's the piece that's amazing with these desks, and it's also one of the steps that gets skipped. [Some teachers] might lecture the whole time, but this way, it makes it so easy for students to work together."

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— Sheri Steelman, Northview High School teacher



“It’s comfortable, easy to use, and it makes it easier to pay attention because now I’m able to see and focus on the teacher wherever she is in the room.”

— Northview High School student

Where instructors were once isolated at the front, they now moved easily and frequently among their students. Extra chairs were rolled away. Students sat closer. Often Steelman even sat with the students.

Both instructors and students gained control over where they sat and in which configuration.

Instead of being locked into the existing static configuration of their desks, students could now swivel or “scoot” to work in pairs or groups, often at a moment’s notice from their instructor. Researchers also observed instructors taking the center of a circle of desks for some instruction sessions, then moving to become “guides on the side” during discussion and project work as students smoothly reconfigured from one segment of class activity to the next.

Students could also move independently. Instead of twisting or craning to see the

instructor or media presentation, they could now shift or swivel without disrupting nearby students. When new students joined a group, the others could easily move back to bring them into the circle.

In a user survey, 98% said it improved their comfort in class, mainly due to the flexible seat shell and the swivel function, and 99% of students also said the backrest provided adequate support and 97% said the armrest support was sufficient.

“The chair swivels easily, providing some needed stimulation during class,” said one Northview student. “The arm rests, back support and foot rest are all very comfortable and convenient. Students can sit in a variety of positions.”

“It’s comfortable, easy to use, and it makes it easier to pay attention,” commented another,

“because now I’m able to see and focus on the teacher wherever she is in the room.”

A curriculum director noted that even teachers who hadn’t previously used different classroom configurations would probably now start using them because node’s mobility makes it a quick and natural conversion, said the teacher. “It takes literally seconds to straighten them and put them in whatever configuration you need for the next class.”

She also noted the empowerment that node conferred upon both instructor and student. “A lot of times now, I’m grabbing a chair becoming a part of their group, which has changed how I do things.” Meanwhile, students quickly adapt to whatever is occurring in the classroom. “No matter where I am, they can turn whichever way they want. It’s so instant and so automatic.”

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— Sheri Steelman,
Northview High School teacher





“I like the fact that the backpacks are either hanging or underneath, which gives me room. Before, I was constantly tripping, hooking my foot into a strap as I was walking through.”

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underneath, which gives me room, and because I’m constantly tripping, hooking my foot into a strap as I’m walking through.”

With aisles clear, the instructor moved around and approached the students more easily and frequently.

Students put their laptops on the tablet worksurface alongside their notebook, not on their laps. Personal belongings were stored in the area under the seat, or more often, handbags and backpacks were slung over node’s arm.

CONNECT

Most importantly, from a learning and teaching perspective, node earned equally high praise: 98% said it was easy to move for different activities, and 98% also saying it improved groupwork. Many found node’s comfort bestowed greater ability to absorb subject material, as 80% said it improved their ability to concentrate and focus. Overall, node improved the overall classroom experience for a remarkable 97% of students.

The students appreciated how node affected their in-class performance: 89% of the Northview students said the new seating

High school students say node makes a difference

Students in a dedicated advanced English classroom at Northview High School in Grand Rapids, Mich., found the node chair improved both their learning experience and their comfort in class.

What they said about how node affects the learning and classroom experience:

- 80%**
improves concentration and focus
- 97%**
improves overall classroom experience
- 98%**
improves group work
- 98%**
easy to move into different activities

What they said about how node affects their comfort level in class:

- 76%**
enough horizontal work surface
- 95%**
easy to use laptop
- 97%**
armrest provides enough support
- 98%**
more comfortable
easy to adjust work surface
easy to get in and out
- 99%**
backrest provides enough support
like the look

N=68 students

FIT

Students personal belongings, like laptops, mobile devices, notebooks and textbooks all fit comfortably on the adjustable worksurface, not on their laps as previously seen.

“The work space is big enough to and allows enough room to write,” said one user. “The work surface is easy to move in and out,” said another, “and the chair is easier to move around for groups. It helps my posture.”

On the subject of ease of use, 95% said node made it easy to use a laptop, 98% found it easy to adjust the worksurface, and 98% said getting in and out of node was easy. Horizontal space was adequate for 76%, a proportion that is expected to vary according to a class’s previous desk size.

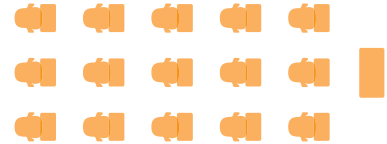
Students of all shapes and sizes could sit comfortably through long discussions or presentations. Instead of arching their backs or adopting uncomfortable poses, students could lean back against the flexible but supportive seatback or swivel their chair sideways to change positions. Overwhelmingly, they reported that node improved the classroom learning experience.

STORE

Steelman commented that both the base of node and the arm were useful for storing student’s belongings like backpacks and hand bags, keeping them off the floor allowing for quicker and easier transitions between classroom modes. “I like the fact that the backpacks are either hanging or



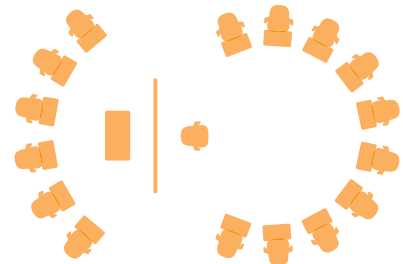
LECTURE



SMALL GROUP PROJECT



LARGE GROUP DISCUSSION AND INTERACTIVE LECTURE



NODE: FOR THE MANY MODES OF LEARNING

increased their levels of concentration and focus. Students were clearly connecting more readily to each other, their instructors and the ideas presented in the classroom.

“My day was easily made better just by using this chair,” enthused a student. “They greatly encourage group activities and help students focus much more on the material.” “You can just focus right on what the teacher is saying,” said a third individual. “When kids were trickling in late, we had to make room and it was really easy to move around to accommodate that,” noted yet another student.

In summary, node’s classroom impact was as good as the survey results suggested.

In every aspect of its performance in classrooms and its perception by students and instructors, node confirmed the value that the Steelcase research and design teams had set out to establish.

The node chair was even a hit on the aesthetic front, with 99% of students saying they also liked how it looked. “I like the design a lot,” said one student. “It’s satisfying to the eye and has nice lines.”

Transformations in students and education left the classroom lagging behind, but node brings it into the 21st century quickly, effectively and economically, without renovation or reconstruction. The purpose of the node chair from the beginning was to

support active learning and modern teaching methods within the traditional classroom. From the response of those who have used it, it’s a front-row seat on education’s next big drive forward.