Learning

From Concept to Classroom

How the Universal Design for Learning framework played out in real high school classes

Read 6 minutes

In a new study, advancing previous explorations into inclusivity and wellbeing, the Steelcase WorkSpace Futures team, Steelcase Learning, and the architecture and design firm Multistudio teamed up to explore the impact of Universal Design for Learning (UDL) on the experiences of students and educators at Fraser High School near Detroit, Michigan.

For the study, English and math teachers continued to teach in their classrooms and rotated through two UDL classrooms. This uncovered valuable insights into student and teacher wellbeing and performance. The UDL framework is a set of guidelines that can be applied to teaching and learning experiences, and in this study, those principles were applied to the physical classroom.

For the school district, increasing student engagement and encouraging productive student interactions were the main objectives of the UDL classrooms test. “The design of the space needed to be adaptable, allowing students to move around, communicate with each other and the teacher, engage in flexible conversations, and then refocus on their tasks,” says Dr. Carrie Woziak, superintendent at Fraser Public Schools. “This flexibility was a crucial aspect of the experiment.”

“We wanted to measure UDL and its impact on student learning. By examining how much UDL is present in the classroom and considering the social and emotional experiences of the students, we can better understand how these factors influence student learning,” says Dr. Michael C. Ralph, vice president and director of research at Multistudio.

Researchers recruited five high school teachers, each with at least a basic understanding of UDL instructional principles. More than three dozen students also volunteered to participate in the study. Teachers kept their standard curriculum, and testing was done during typical unit plans to avoid altering the education over a semester.

The study included control classrooms with standard tables and stackable chairs and two classrooms redesigned according to UDL principles. One of the redesigned rooms was for a math class, while the other was for an English class.

“It’s really about removing all the barriers from the environment – focused on lesson planning, technology, and how the physical space can align with UDL principles,” says Steelcase researcher Andrew Kim. “It’s about creating an inclusive environment that supports all learners.”

> Steelcase Node chairs along with Numbers desks, stools, and Flowform furniture from Smith System were used in the UDL-redesigned classrooms to provide maximum flexibility.

The UDL design at Fraser was flexible and multi-modal, with huddle spaces where social connections could be made. The classrooms offered movable tables and chairs on wheels, as well as various posture options. This allowed students to stand, sit, or relax on lounge chairs while focusing or reading. Acoustic screens were installed to help shelter students from distraction (and add a vibe), while flexible and mobile storage units allowed tools and resources to be at the ready for all learners.

Wozniak emphasized the importance of intentionality in classroom design. “Our district has been studying the UDL framework for about 14 years. So when we talked about flexible furniture and the need to really think about classroom redesign at the high school level, it was a natural fit for our district,” she explained.

Researchers conducted 74 classroom observations, three waves of student and teacher surveys, interviews of academic coaches, and one teacher focus group session. The study produced three key findings centered on UDL integration, student experience, and tool use.

Greater UDL Integration: Steelcase researchers saw increased UDL practices and behaviors in the rooms designed for UDL setup and equipped with Steelcase Learning and Smith System furniture. Teachers were more mindful of the furniture’s flexible capability in these rooms and planned the space to support different teaching goals. Teachers could supply more background knowledge to students, ask questions that support learning, facilitate goal-directed learning, and help students stay engaged longer.

“Those are just some of the things we saw more often. More effective versions of these key functions in the UDL spaces,” says Ralph.

Andrew Kim from Steelcase says the idea behind a classroom designed to support UDL principles is about the furniture and space changing behavior.

“This data shows that yes, we did see a change in behavior in terms of the teachers’ practices in the control room versus the UDL classroom,” Kim says.

> The design intent for each UDL classroom was to create a diverse palette of places with various activity settings that encouraged more interaction and more dynamic lesson planning.

Enhanced Sense of Belonging and Academic Performance:

The UDL classrooms led to improvements in student academic performance, with the benefit being strongest for students needing a greater sense of belonging. The furniture and design allowed for more collaboration and conversation among students, helping them feel more connected with their peers and a stronger sense of community. Students also said they felt more at ease about making mistakes and learning from them. In particular, the team observed more positive academic performance for students who reported a lower sense of belonging at the start of the study.

“UDL is about inclusion and supporting the full breadth of human variability,” says Ralph. “Our study shows that students with a lower preexisting sense of belonging saw a tremendous benefit from increased UDL in their instruction.”

Teacher involvement was also key, and the study showed that it was equally beneficial to teachers in their instruction, application, and understanding of UDL.” We saw improved aspects of our student engagement because of the intentionality of the professional development with teachers as they designed their space,” says Wozniak.

Preferred Tools: Chairs and personal whiteboards were the most valued tools. Portable whiteboards were used more often in the UDL math classroom. Students used them as scratchpads or for recording group ideas during collaborative work.

Students appreciated the chairs for their comfort and the movement they allowed, which some students found helpful for maintaining focus. Some teachers initially expressed trepidation at having furniture students could quickly move, but the study found it helped build classroom culture.

“We wanted casters on the bottoms of the tables so the tables can move quickly and efficiently. You could have them in rows for a lecture and then quickly move them into group work,” Wozniak says. “Efficiency is an important piece to keep in mind.”

The study’s findings suggest that UDL design can profoundly impact student and teacher wellbeing and performance. Schools can better support their students’ diverse needs by creating inclusive and flexible learning environments, fostering a more engaging and effective educational experience.

“It’s not just one piece; it’s strategically combining all these different pieces. The pillars of UDL have been fundamental to everything we do when designing instruction,” says Wozniak. “When you’re designing your classroom or your lesson, you’re putting the student at the center of that work, which has been critical for the work we’ve done here at Fraser.”