

RESEARCH SUMMARY

RAISING EXPECTATIONS FOR A NEW STEM PROGRAM

Forest Hills Northern High School
GRAND RAPIDS, MICHIGAN

Steelcase Education Active Learning Grant Recipient, Cycle 1

Forest Hills Northern High School used an Active Learning Center (ALC) Grant to create a dynamic classroom for its new STEM Academy, a select four-year program designed to give students a strong foundation for post-secondary studies in science and engineering.

Students enrolled in the program to collaborate on year-long projects, with opportunities to design experiments, gather data, prototype models, refine results and clearly communicate data-driven reasoning.

SETTING POSITIVE EXPECTATIONS

The Forest Hills grant team set out to measure student perceptions of the relevance of education, the purpose of learning and the value of collaboration in the context of the STEM curriculum and pedagogy, as well as the new ALC. Further, they were curious to discover any gender differences in attitudes and confidence with respect to STEM subject matter in light of research suggesting that girls lag boys in these areas.

Survey data show that the STEM experience met student expectations, with 31 out of 37 students saying it did so “moderately” to “extremely” well. The vast majority of students surveyed indicated that STEM education is relevant in their lives, prepares students for careers and should be a priority for K-12 schools. Gender differences in student responses were less distinct – boys and girls surveyed on their feelings about

“group projects and collaboration” were generally positive, rather than neutral or negative.

ENCOUNTERING UNEXPECTED CHALLENGES

Results in the Forest Hills Northern ALC should be viewed with consideration of some extenuating factors. In year two, all of the ALC classroom furnishings were moved to a different location. Unlike the first location, the new room was not carpeted. This caused the noise level to increase. And because the furniture’s casters had been selected for a carpeted setting, they were not the type designed for hard surface flooring and tended to slide more than desired. Further, instructors reported that the “shape of the room was a bit awkward as the existing HVAC system hindered full use of the room.” The school plans to install carpeting to improve the room’s performance in future years.

“It is clear that [the ALC] furniture was designed with student collaboration in mind.”

*Forest Hills Northern High School
Year 2 Report*

Another challenge is that the room was shared more broadly, by several different teachers during the course of the day, many of whom had not been trained on use of the classroom tools and furnishings. The overall age of students using the space also shifted downward, and some of the youngest students were observed to use mobile seating as scooters and storage spaces as trash receptacles.

EMBRACING MOVEMENT AND VARIETY

In spite of challenges, instructors enjoyed the ability to easily move desks and seating to create different classroom configurations from class to class and hour to hour. They were surprised by “how well the Node chairs allowed students to swivel their chairs and share” with

others behind them and said that the Verb personal whiteboards were “used extensively” by students who would “jot down ideas and hold discussions with groups.”

Interestingly, the color of seating also became a benefit. Forest Hills Northern High School chose Node chairs in four different colors to furnish the ALC, and instructors used this variety, sometimes to group students by chair color and other times to assign individual roles within a group by chair color.