

2016

TREVOR-WILMOT ELEMENTARY STEM Program Impact Report

Supported using funding from the John J. & Ruth F. Kloss Charitable Trust



OVERVIEW

The Trevor-Wilmot Elementary STEM Program introduced students to robotics in a fun and safe environment. Trevor-Wilmot was excited to offer this program to its students because robotics is a gateway to helping children learn to program, problem solve, and apply scientific methods of inquiry.

The educational robotics kits are a new generation of learning designed to help children explore, build, and experiment with both physical and more abstract digital design concepts. This program complemented the formal mathematics and science curriculum and supplemented efforts to expand access to after-school activities for its students.

Since its inception, the grade school has reallocated funding to allow for the purchase of additional LEGO robotic software including updated LEGO software, next gen, and have even repurposed older software. As a result of its popularity among students, there are now robotics programs offered to children in grades K-8th! This investment has created a solid infrastructure for youth to have opportunities in the future.

GOALS

1. Expand youth interest in STEM fields
2. Foster development of creative and critical thinking skills
3. Increase student perceptions of social support



An EEO/AA employer, University of Wisconsin-Extension provides equal opportunities in employment and programming, including Title IX and Americans with Disabilities (ADA) requirements.

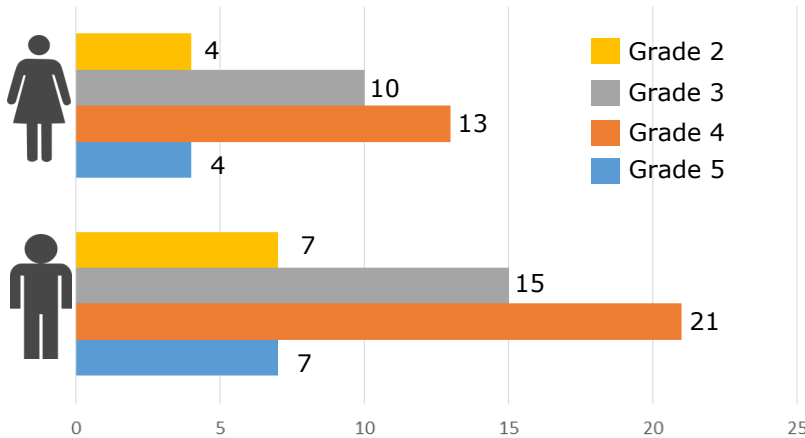
TREVOR-WILMOT SCHOOL DEMOGRAPHICS

**534
STUDENTS***

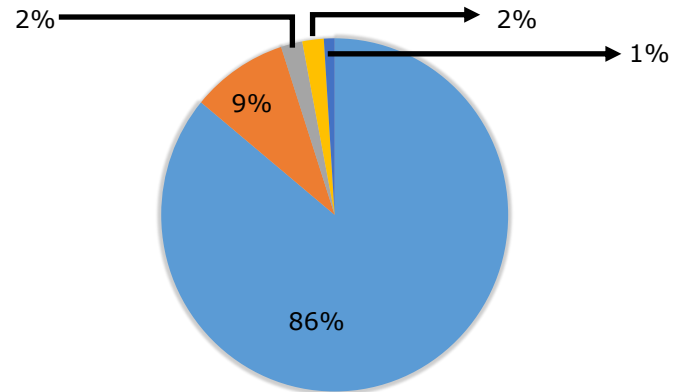


■ White
■ Hispanic
■ African-American
■ Asian
■ American Indian/
Alaska Native

PROGRAM ENROLLMENT BY GENDER



ETHNICITY



*Of the student population, **10%** of students have special needs and **32%** of students are economically disadvantaged.

GOAL 1: EXPAND YOUTH INTEREST IN STEM



An after school program was established in order to provide a safe and interesting environment where students could learn more about robotics.



Students followed a curriculum that included weekly building projects that fostered intellectual curiosity and group collaboration.



Students visited the SC Johnson iMet Center and Bradshaw Medical Inc. where they saw the critical role robots play in everyday manufacturing.



Students experience the value and satisfaction of working together to solve problems.



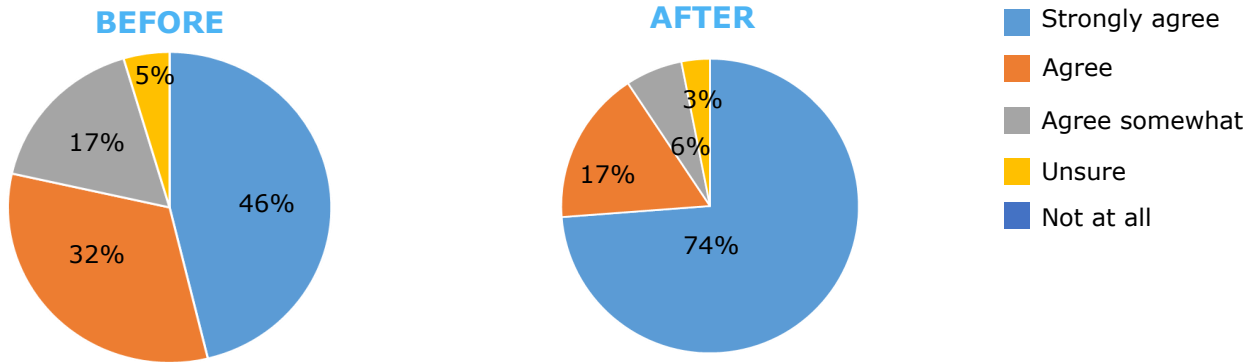
Students toured the Bradshaw Medical Facility where they learn the role robots play in orthopedic surgery.

GOAL 2: DEVELOPMENT OF SKILLS

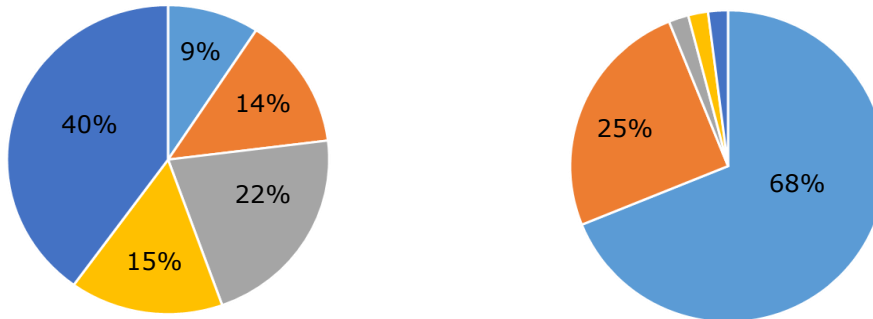
In order to succeed in higher education and the work place, students will need to engage with a wide variety of tasks that challenge their creativity and critical thinking skills. Building and programming robots provides an environment where students can practice relevant critical skills such as solving problems systematically and detecting inconsistencies and common mistakes in reasoning.

Students were given a pre and post survey to measure progress. Below are some of the results.

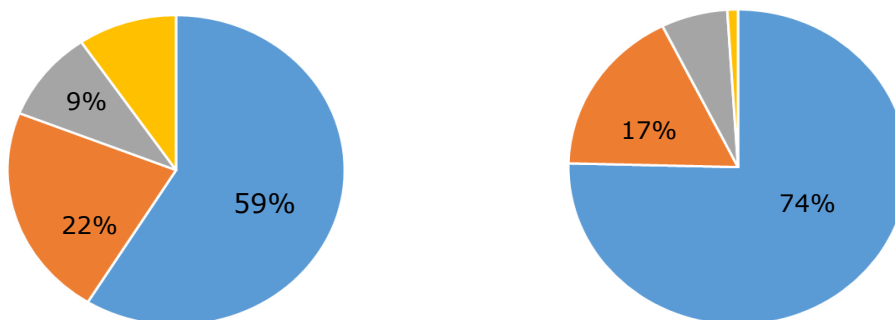
I know how to share my ideas with my classmates and friends



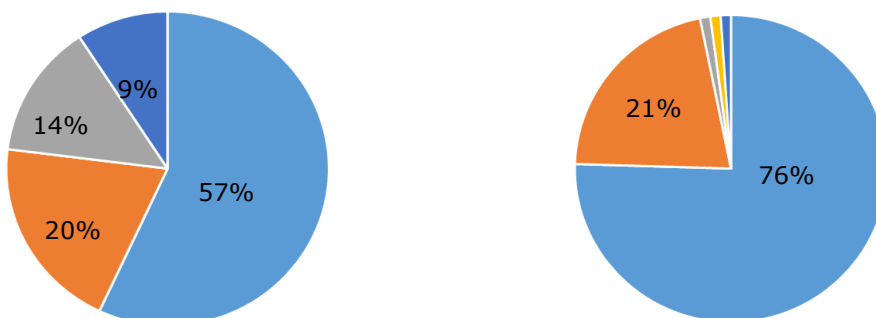
I know how to build and program a robot



I like to solve difficult or puzzling tasks



I like to share my ideas with my classmates and friends



GOAL 3: INCREASE PERCEPTIONS OF SOCIAL SUPPORT

Students who report greater levels of social support by teachers and parents experience lower negative emotional (bullying, victim of bullying) outcomes and higher academic outcomes (Demaray & Malecki, 2003). Young adult student mentors and experienced instructors worked together to create an atmosphere of security and support; one where students felt confident enough to explore, question and eagerly seek answers.



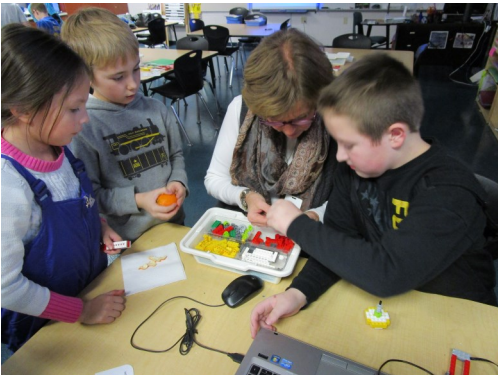
Dedicated faculty devote their time to creating an exciting learning environment.



Student mentors from Carthage College and UW-Platteville working hands on with participants.



FEEDBACK



"I like LEGO ROBOTICS because we got to use the Internet to build and program the robots that we built."

**-Owen
Student Participant**

"I liked LEGO ROBOTICS because we can do fun activities and we can create things and you sometimes can be with friends in a group and have fun."

**-Jennifer
Student Participant**



"Whenever you walk in the door and start building, creativity is your world."

**-Sam
Student Participant**

"One of the main reasons I do this is that I want to give the kids that aren't involved in the traditional extra-curricular activities a chance to be engaged. This gives them the ability to think about the STEM fields in a creative, social fashion; this is the way their brains need to think for the future!"

**-Mrs. Lee
Faculty advisor**

Special acknowledgements to the following:

The John J. and Ruth F. Kloss Charitable Trust for its generous grant
Mrs. Pam Lee- Faculty Advisor, Trevor-Wilmot Elementary School
Gateway Technical College- SC Johnson Integrated Manufacturing and Engineering Technology (iMet) Center
Bradshaw Medical Inc.

*Report prepared by Nancy Retana (Kenosha County UW-Extension) &
Serena Jaros (Kenosha County UW- Extension)*