EDCSL brings engineering to Kalamazoo Boys & Girls Club

Future engineers and scientists at the Kalamazoo Boys & Girls Club studied the forces of flight – drag, gravity, lift, and thrust – last year as part of the outreach portion of the Engineering Design Center for Service Learning (EDCSL).

During the 2005-06 academic year, the EDCSL sponsored twelve after-school programs. The students, who ranged from kindergarteners to fourth-graders, engaged in simple activities that taught science in a fun and exploratory manner.

A typical session usually included 10 to 15 elementary students and 3 to 5 WMU student volunteers.

Each session involved having the students build an item, formulate a hypothesis, test the item, and discuss how the results differed from the hypothesis. Then the students modified their items to see what impact their modifications made on performance.

EDCSL Director Dr. Andrew Kline, assistant professor of Paper Engineering, Chemical Engineering, and Imaging (PCI), coordinated the after-school program with American Humanics' student intern Paula Lupina, who was completing requirements for her certification. She was assisted by engineering student volunteers Andrew Waaso and Vijay Balakrishnan.

According to Kline, the Club serves mostly Kalamazoo Public School students, many of whom are economically disadvantaged and / or academically challenged. “This was an exciting time for them because the Kalamazoo Promise was announced in the fall and immediately the students began talking about their plans for college,” he said. “We shared in their plans by emphasizing the importance of learning math and science, and of course, doing their homework.”

In other sessions, the young students performed three electrical experiments developed by WMU students. The experiments involved circuit boards that allowed students to learn about switches and series and parallel circuits, to work with wires, and to solve math problems within a shape that was determined by the answers. “This activity allowed us to customize experiments to each student’s grade level,” Kline said.

Plans are already being made to continue working with the Boys and Girls Club during the 2006-07 academic year. The 2005-06 academic year was the third in which the EDCSL sponsored after-school events, and the second in which workshops were held at the Boys and Girls Club, located on Lake Street in the Kalamazoo Edison neighborhood.

Other EDCSL-sponsored activities included workshops for current K-12 teachers to improve their Science, Technology, Engineering, and Mathematics (STEM) teaching skills, and a series of service-learning engineering design courses in which WMU students worked in teams with K-12 teachers to design experiments and equipment for use in the classroom.

EDCSL was established in Fall 2003 with grants from the National Science Foundation and the Corporation for National and Community Service / Learn and Serve America program. Other faculty involved with it since its inception include Drs. Edmund Tsang and Betsy Aller, from the CEAS, and Drs. Carol Crumbaugh and Paul Vellom, from the College of Education.

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