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Abstract: Winning with WIMS: Creative Strategies and Alliances between universities and corporate partners to benefit student learning

"The Center has an exceptionally strong education and outreach program and distributed mentorship. The whole program is well integrated with the Center research. The WIMS ERC has consistently demonstrated superb contribution to education at all levels, consistent with the WIMS research area and the cross-disciplinary needs and interests of the students. The energy and dedication of the faculty, staff, students, and associates to the education and outreach activities of the Center is extraordinary. A consistent strength of this program is the multidisciplinary education and research, which gets continual high marks from students, industry, etc. The faculty in many areas are world-class. The support staff is exceptional. Students are well-prepared, committed, and highly valued by industry."

Excerpts from the National Science Foundation Site Report 2003

The Wireless Integrated Microsystems (WIMS) Engineering Research Center is funded by the National Science Foundation, and is a collaboration between three partnering Universities. The University of Michigan, Michigan Technological University, and Michigan State University, the State of Michigan along with a consortium of automotive, microelectronic, and chemical companies are focused on the intersection of three key areas: microelectronics, wireless communications, and microelectromechanical systems (MEMS), working to make these Microsystems a reality. The Center is developing the technology base needed to produce them, including precision sensors, micropower circuits, wireless interfaces, and wafer-level packaging. The WIMS ERC is also developing the interdisciplinary educational programs that will produce engineering leaders for the emerging microsystems field.. The Center has a strong commitment to diversity as shown by the numbers of students impacted and also by the attitudes of the Center staff, researchers, students, etc. Significant efforts have been made in recruiting diverse faculty and students.

Our presentation will address (1) how to go about forming collaborative relationships, (2) the good/bad or how to do it so it works, (3) how the collaboration effects K-16 (middle/high school) programs, and (4) and successes (evaluation, numbers, etc.). The goal of the WIMS ERC Education Program is to educate the next generation of engineers and scientists and to develop a national and international outreach program in WIMS and using WIMS. Outreach initiatives and evaluation are integral to each program. The education program is providing comprehensive opportunities to transfer results of WIMS and MEMS research to educational classrooms for three sub-thrust components: pre-college students, university undergraduate and graduate students, and practicing professionals and general society. Comprehensive WIMS ERC education programs are in place, and others are emerging to provide growing opportunities. Each component has a separate goal and a separate strategic plan. Another generic goal is that faculty, students, and professionals at the three partner universities shall have reasonably.

The strategy for planned growth and introduction of WIMS curriculum units is interesting to participate and observe, starting with demonstrations, then introduction to technology classes, then general science motivational units, and ultimately to curriculum units inserted in core academic subjects/classes in both middle school and high school. The continuing long range goal is to develop a broad WIMS curriculum aligned with science standards, including cross-over standards, in math and technology classes. Based on the cooperative arrangement with an infrastructure of secondary teachers willing to help develop curriculum units, we will seek to support one or two teachers in a Research Experiences for Teachers (RET) program.