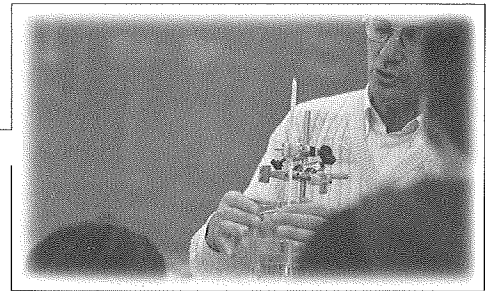
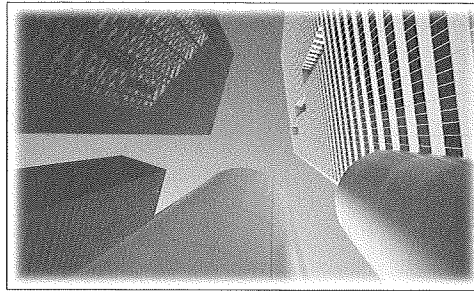




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2+2=5 and everyone wins

Leveraged Equipment

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A Program Administered by
the Minnesota State College
and University System

In 1998 the Minnesota State College and University (MnSCU) system introduced an initiative to assist its colleges and universities in acquiring updated instructional equipment for FY 99. Equipment, however, was only one positive outcome of the initiative. In addition to acquiring new equipment, the leveraged equipment initiative has helped strengthen schools' relationships with business and industry and has better prepared students to enter the workforce. The following report describes how.

The initiative involved establishing a partnership with local or regional companies and requiring a financial or in-kind contribution from one or more of them.

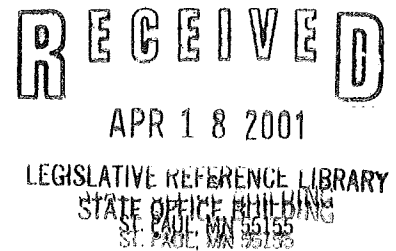
In addition, the school itself was to identify what funds from its current budget would be earmarked for this effort. It was, in effect, a 3-way partnership involving the college or university, its community partner(s) and the MnSCU system office; and required a detailed application process. The critical element of the application included documentation of a 1-for-1 dollar match (business plus college match) to the leveraged funds held for that institution.

So successful was the initiative that the 1999 Legislature responded with \$5 million in non-recurring funds to extend the leveraged equipment initiative in FY00. All MnSCU colleges and universities participated in 2000. The \$5 million allocation was leveraged against more than \$17 million in partnership matches to obtain updated equipment for the institutions.

The following report describes the positive impact the leveraged equipment initiative has had on MnSCU institutions, student education and workforce development.

*Education + Industry =
Skilled Students =
Qualified Workforce*

Summing it up: A Better Minnesota



A childhood dream comes true

□ Erica Mumm has dreamed of becoming a nurse since she was seven years old. As a nursing student at Ridgewater College in Willmar she is turning that dream into reality.



"The simulator that we train on is so realistic...Without this practice, I'd be very nervous."

"In order to achieve our vision, initiatives like the leveraged equipment grant are essential."

The equipment the college purchased through the leveraged equipment grant has been integral to achieving her dream.

"The simulator that we train on is so realistic," said Erica. "You can practice giving shots, catheterizing, listening to the heart, lungs and bowel sounds and other things I'll be doing on the job. Without this practice, I'd be very nervous."

The local hospital, Rice Memorial Hospital, and Lippincott Publishing contributed both financial and in-kind grant matches to the college's nursing program in order to make the acquisition of two patient simulators possible. The simulators are designed to teach all skills from basic patient care to advanced nursing. Instructors can create various real-life scenarios to allow students to practice their problem-solving skills. Instant feedback that models a human response gives students practice opportunities that would not be possible with human subjects; and realistic simulation also allows

students to experiment with new techniques and devices with no potential for harming a living patient. This improved learning modality will increase job retention rates and performance.

But the commitment hasn't ended with the two simulators. The purchase of these simulators has sparked renewed partnerships with several health care facilities in the area. For example, the Job Skills Partnership is seeking additional funding to develop an entire "nursing simulation center" modeled after a center in Baltimore. Their vision is to equip the center with 12 simulators, allowing nursing students and incumbent nurses to learn and enhance skills, knowledge and decision-making abilities. The center will be a hands-on resource for two under-served populations: ESL and welfare-to-work students.

"The purchase of the two initial simulators through the MnSCU Leveraged Equipment Grant has brought a whole new energy to preparing our students to enter the workforce," said Lynn Johnson, Director of Nursing, Ridgewater College. "Industry and education have come together like never before, but this is just the beginning. In order to achieve our vision, initiatives like the leveraged equipment grant are essential."

□ "The citizenry of Minnesota is getting a very good buy through the leveraged equipment program," said Doug Tatge, Dean of Academic Affairs at Alexandria Technical College. The college's Center for Automation and Motion Control, in particular, more than doubled its funding grant through partnerships with four vendors in the motion control industry.

The college as a whole received 11 grants totaling \$278,083. The college raised the total to \$341,796 through leveraged funding.

"The leveraged equipment program is brilliant," said Tatge. **"One of the greatest benefits is that it forced us to do some industry networking, which has resulted in some very close partnerships."** Some of the industry partners include JH Foster, Parker Automation, Sauer-Sundstrand Corp., and Braas Company, among many others.

Tatge says that the updated equipment the Center for Automation and Motion Control purchased does a great job of preparing students to enter the workforce.



The four vendors have provided training on how to use the equipment, and one vendor even set up a display of additional equipment for students to study. Tatge is hopeful the display will become a permanent part of the center's program and is arranging for the other vendors to set up displays as well. This, Tatge contends, is not only educational for students but great exposure for the vendors. "No matter how you look at it, the leveraged equipment program is a win-win for students and industry. I can't imagine a better way to prepare students to enter the workforce."

A catalyst for industry partnerships

*"No matter how you look at it,
the leveraged equipment program
is a win-win for students and industry.
I can't imagine a better way to
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Good chemistry makes for good students

"I'm hopeful that my knowledge of operating this equipment will make it easier to find a job in the future."

"This Gas Chromatograph will provide students an opportunity to work on an instrument that is used in today's laboratory setting and will prepare students for the basics in chromatography that can be used in any organic laboratory."

□ Winona State University received several leveraged equipment grants. The university's chemistry department leveraged its grant considerably. It received an allocation of



\$56,533 and leveraged it for a total of \$116,759.

According to Professor Mark Engen, who implemented the grant in the chemistry department, the grant has had a major impact on the chemistry program through the acquisition of several Gas Chromatograph / Mass Spectrometers (GC/MS). **A GC/MS is a critical piece of instrumentation for any chemical laboratory. They are widely used in industry, government, and academia.**

"It has been a huge benefit," said Professor Engen. "A student synthesizing a particular chemical compound can now obtain a mass spectrum of that compound immediately. A mass spectrum is like a fingerprint and helps one to verify the purity and identity of the compound."

Professor Engen contends that the new instruments not only improve the university's chemistry program, but also benefit students and faculty. **"It has had a great impact on our program. The ability to allow students hands on use of GC/MS gives them an advantage upon graduation.** It has also impacted faculty research, by allowing mass spectral information to be attained on site."

Junior Chad Leonard wishes the university had purchased the equipment earlier. "The GC-MS is a fairly quick way to confirm that your product is pure. It also can tell you what your impurities are," said Chad. "I wish we had this instrument a couple of years ago; it makes doing research a quicker process. GC-MS are used all over in industry such as the Mayo Clinic in Rochester, where they have a couple dozen of these instruments."

Sophomore Dan Flack is hopeful using the new equipment will make his job hunt a little shorter. "I am grateful that we are able to familiarize ourselves with some current equipment. Many of the instruments that we used were very old and not used

much in the industry," said Dan. "I'm hopeful that my knowledge of operating this equipment will make it easier to find a job in the future."

Professor Engen said that the leveraged equipment grant encouraged the chemistry department to develop partnerships with additional companies in the area and strengthen existing relationships. "Both our new and existing partners in the chemical analysis field were supportive of our efforts to provide students with training on this advanced instrumentation. Some of our supporters also decided to provide internships for our students."

One of the partners, Minnesota Valley Testing Laboratories (MVTL), based in New Ulm, donated a Hewlett-Packard Gas Chromatograph to the university's chemistry department.

MVTL's New Ulm office provides laboratory services on a broad range of sample matrices, including food, soil, water, groundwater, wastewater, biosolids, sediment, biota, fuels, waste, feed, fertilizer etc.

MVTL provides analytical services on a variety of environmental and R&D projects for clients in industry, government, and private engineering/consulting companies.

According to Jay Geifer, Environmental Section Leader for MVTL, "This Gas Chromatograph will provide students an opportunity to work on an instrument that is used in today's laboratory setting and will

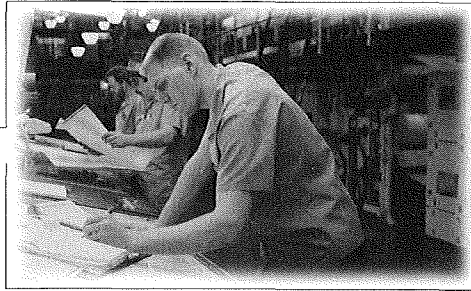
prepare students for the basics in chromatography that can be used in any organic laboratory.

"Because of budgeting at the college level, funding for current instrumentation is not a priority and does not give the student a chance to develop skills they can use at entry level positions in the work force," said Geifer. "It is our hope that this instrument will give some great hands-on experience to these students at Winona State University.

"Looking back on my experience in college, it would have been an advantage for me to have developed my skills on more current equipment, **and we at MVTL hope to give this same advantage to the students at Winona State University.**"

A report from Bruce Peterson,
Dean, St. Cloud Technical College,
on the Leveraged Equipment funds

A lasting impact:



*Any funding that elevates
the standards of instruction will benefit
our state for years to come.*

SCTC continues to see growth in enrollment.

*We believe that is a direct result of
our ability to continue to provide current
technology in our instructional programs.*

□ The Leveraged Equipment funds have been a great enhancement to our college by enabling us to purchase equipment we had previously gone without. Historically, technical colleges have been unable to keep up with the changes in technology currently used in most industries. Any funding that elevates the standards of instruction will benefit our state for years to come. Adequate funds for equipment is critical to enable our colleges to provide quality educational opportunities to our students.

St. Cloud Technical College was very fortunate to receive many donations from industry early in the college year. The availability of the leveraged equipment funds at the beginning of the college year allowed us to capitalize on the many revenue streams to develop a comprehensive plan for our campus. **This plan was a great motivation for all our college staff to work harder on getting support from industry partners.** Because we had the early commitment of donations from

industry partners and the commitment of funds from MnSCU, we were able to build our plan and begin purchasing the granted equipment early in the college year. The total allocation to St. Cloud Technical College was \$204,857. The total amount leveraged was \$1,062,067.

The benefits to students have been many. First of all, the addition of projection equipment has provided faculty the opportunity to prepare new materials for classroom presentations to enhance the technological quality of materials. Better presentations lend themselves to increased student attainment of skills.

Students have also benefited by having increased access to technology of the classroom. From computer stations to generate presentations and class projects, to in-class presentations using the projection equipment and laptop computers, students have been given many opportunities to further develop their skills in preparation for future employment. With the incorporation of laptops in instructional programs, students have gained great benefits from increased access to Web information, enhanced communications between instructors and other students, and generally increased the student's technical ability levels. On the next page is a list of the equipment the college purchased.

The remaining equipment items on the list have been additions of new tech-

nologies in the programs listed. The new equipment has provided new opportunities for student skill development that did not exist prior to the purchases. All of these are examples of equipment currently used in area industry settings. **As a result of these purchases, our students are better prepared to fill positions in industry immediately out of college without having to learn the operation of those pieces of equipment when they reach the work site.**

The equipment enhanced the instructional delivery in each of the affected programs. The most visible benefit has been the ability to increase the technology applications in delivery of classroom materials. The response from students has been very positive. SCTC continues to see growth in enrollment. We believe that is a direct result of our ability to continue to provide current technology in our instructional programs. **This equipment has provided us opportunities to modernize many programs of our college to come closer to the standards of the industry partners we prepare graduates for.**

St. Cloud Technical College is proud of our connections to business and industry. We have made a concerted effort to bring industry involvement into our programs. This past year we began to see the rewards of those efforts. The industry partners we have participating in our advisory committees continue to provide considerable

input into our programs, from curriculum changes to searching out support to bring in new technologies for our programs. **Our college is seen as a leader in our region for providing technically competent graduates to fill the needs of these industries.** Business leaders look to our college to provide these graduates and consequently are investing in the preparation of our students to meet the needs of their businesses. Following is a list of our industry partners.

IBM Corporation
Practice Masters
Danko Equipment
Soderberg, Inc.
Lincoln Electric Company
Standard Iron
Toyota Motor Company
Daimler Chrysler Corporation
Owatonna Tools Corporation

EQUIPMENT PURCHASED:

9 DATA/VIDEO PROJECTION SYSTEMS
 FIELD ANALYZER FOR OPTOMETRIC PROGRAM
 ENGINE WASH SYSTEM FOR AUTOMOTIVE PROGRAM
 PRINTING PRESS
 AUTOMOTIVE TEST EQUIPMENT
 LAPTOP COMPUTER IN CADD
 SHEAR AND PRESS IN WELDING
 PUNCH SYSTEM IN WELDING
 NETWORK EQUIP FOR NEW CLASSROOM TECHNOLOGY
 LAPTOP COMPUTERS IN ADVERTISING AND PRINTING
 PRESSES AND MILL FOR MACHINE TOOLING
 DATA/VIDEO PROJECTOR IN AUTO BODY
 CLASSROOM NETWORKING FOR STUDENT LAPTOPS

Shortening the learning curve

□ "With training on the latest, state-of-the-art telecom equipment, my students are better prepared to work in the industry, are more marketable and may even be able to make



better wages," said William Snippes, a telecom instructor at Dakota County Technical College.

Lucent Technologies contributed \$16,573 to the college's telecom department's leveraged equipment grant of \$30,000, for a total of \$46,573. "We live in a digital age, where information is provided by an array of physical and personal networks," said Robert J. Bluemer, Director of Operations, Education & Government Markets, Avaya Communication (formerly Lucent Technologies).

"In the next millennium, the technology "have's" and "have-not's" will be defined by those who have access to, and truly understand how to apply and communicate this information."

"As we migrate education into career development, it is organizations like Dakota Technical College, that realize education and employment fulfillment can only be realized by successful partnerships with corporations who need professionally trained (and certified) employees."

The positive relationship with Lucent provided inspiration for additional networking among other telecom equipment vendors in the area. Snippes occasionally seeks consultation, advise, training and other support from these vendors and is very appreciative of the positive relationship and impact it has on his teaching. Tim Falk, a former student of Snippes, can attest to the impact the grant had on his education.

"When I started my job at Qwest, the learning curve was so much shorter for me than for those without training on the Lucent telecom equipment," said Falk. "My training at Dakota was great background. It helped me get the job I have now as a design service engineer."

"In the next millennium, the technology "have's" and "have-not's" will be defined by those who have access to, and truly understand how to apply and communicate this information."

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Minnesota State Colleges & Universities