



the Labyrinth

Sharing Information on Learning Technologies

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Database of Dreams?

ALAN LEVINE, MCLI

In May of 1992, during my first week on the job at Maricopa, I was off to Mormon Lake for an "Ocotillo Retreat." It was a rapid immersion into the world of technology, teaching, and learning at Maricopa. This was also the first of many times I heard about a desire for a collection or database of the different ways faculty were integrating technology into instruction. In a system as large and diverse as Maricopa, no single person can know all of the different ways technology is being used. Yet, most everyone can see the value of having access to this "database of dreams."

It was this same year that the Ocotillo Support for Technologies Committee published in their Ocotillo report such a compilation:

The committee set out in search of a sampling of current uses of technology in the classroom. The intent of our study was to showcase the users of technology. The general consensus is that a heightened awareness of what is being done and how it was accomplished will facilitate the movement of more faculty into using technology in the classroom.

The committee's report included more than 140 examples representing disciplines from Accounting to Theater Arts and listing technologies including HyperCard, Toolbook, laserdiscs, "Bitnet," VAX, multimedia CD-ROM, Electronic Forum, graphing calculators, Derive, bar code readers, and spreadsheets. This report's summary recommended an electronic database for this information, in many ways a prediction of what we can do now via the web. However, this jumps ahead of the story.

We worked with this Ocotillo committee in 1992-1993 to create a database. The product we created, the Library of Classroom Technology, allowed searches by keywords or a hierarchy of subject categories that could be browsed. Each entry included details on the use of a technology, how long it took to develop or integrate, and optional information on the results of using the technology. (See <http://www.mcli.dist.maricopa.edu/proj/libtech/>). The first batch of information came from the examples gathered in the previous year's Ocotillo report. To gather more content, we distributed a large number of paper survey forms.

So to paraphrase the movie *Field of Dreams*, we thought that "if we build the database...they will come." While this approach succeeded for Kevin Costner's character, it did not work out quite so well for our dream database.

Although we designed a short survey form to gather the information, it required time to be completed and returned to us. For the person completing the survey, there was no feedback to see the results. And we did not have a localized system at each college that would strongly encourage people to report the information for the database. So, the database was sparsely populated, and it faded to the fields like a soft dissolve in the movies.

With time we continued to hear this desire for such a database. Because the print form of the information in the 1992 Ocotillo report was popular, we have twice devoted issues of the *Labyrinth/Forum/Assidere* to themes of "Who's Doing What" (Spring 1995; Fall 1997). Our method for collecting information was calling for items through electronic mail. Like the 1992 Ocotillo report, the result was more of a sampling, but it did help to share broadly the innovations happening in Maricopa.

Perhaps a technological solution could bring the database alive. In our early development of web resources, we saw that this Internet technology was ideal for our "database" since it was widely accessible, easily updated, and not restricted to specific computer platforms. With some of the same goals of the Ocotillo database in mind, we set up a searchable collection of examples of how the web itself was being used in courses. **Teaching and Learning on the Web** (<http://www.mcli.dist.maricopa.edu/tl/>) allows anyone to search by discipline subjects or by keywords. The site provided the ability to let anyone directly submit new items via a web form, and has grown to include more than 770 examples from around the world.

Though still not a database of Maricopa technology uses, it certainly could be the technical basis for such a system. This past year the leadership team for the learning@maricopa.edu (ACE project: <http://www.mcli.dist.maricopa.edu/>

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Maricopa Learning eXchange (MLX)

"[There is a] need for sharing of materials, not reinventing the wheel."

"Best practice sharing needs to happen."

"Encourage sharing of successful methods/techniques between faculty members."

"Individuals can spread the word to others by advertising."

"Cross-district sharing is needed."

KAREN MCNALLY
MCLI

The above comments voiced at Open Space Forums on learning (1997-1999) and during the Convocation 2000 Dynamic Discussions, represent a long-standing desire of Maricopans to establish a method or methods for sharing "Who's Doing What" at Maricopa. In response, faculty showcases have been held during Convocation and at Ocotillo retreats and lists of innovative practices have been printed in the *Labyrinth/Forum/Assidere*. There have also been various attempts to build this electronically, but the technology, or the timing, have never seemed quite right.

Well, the stars may finally be aligned at Maricopa. There is a pervasive focus on learning for all Maricopans and our students as exemplified by continuous dialogues about learning, new facilities built to enhance learning, a model of student services which takes into account learning outside of the classroom, the numerous innovative teaching and learning practices happening in the classroom, and the many other learning-focused activities happening within the district. Technology has also advanced such that the timing now seems right to create an electronic database of "Who's Doing What" in Maricopa.

The concept for the Maricopa Learning eXchange (MLX), a searchable web database, was proposed by the leadership team of the *learning@maricopa.edu* project (<http://www.mcli.dist.maricopa.edu/learning/>) as a means of creating an active "warehouse" of ideas, examples, and resources about learning as applied across the district.

Since examples of learning can have nebulous descriptions, each item in the warehouse is represented as a brown paper wrapped "learning package." A package might be something as simple as a classroom assignment or as complex as a multi-college program. It may contain descriptions plus links to lesson plans, student materials, photos, or other resources.

From the MLX web site, searching can be done by keywords, disciplines, and/or college. A search request will bring up a list of "packages," each with a brief description. Clicking on an individual package takes you to a "packing slip" that details what the package contains, including a history of when the package was created and last updated. Hypertext links allow you to access additional resources, documents, templates, images, etc. that the package owner has provided.

Maricopans can add new "packages" using a web form which will ask for contact information and a brief description of the teaching and learning practice included in the package. To aid in the maintenance of the warehouse, an e-mail message will automatically be sent after one year. It will ask the owners of packages if they still want to have their packages included in the exchange or if they would like to update their packages.

The MLX can be started with some of the ideas presented here in this issue of the *Labyrinth*. However, it cannot be a valuable resource without the participation of faculty, staff, and administrators throughout the district. A prototype of the MLX is currently available, and we hope to have it operational shortly after this issue of the *Labyrinth* is published.

To take a look at the Maricopa Learning eXchange on the MCLI web site go to:

<http://www.mcli.dist.maricopa.edu/mlx/>

Who's Doing What at...

The following list provides just a sampling of different activities, methodologies, and events that support learning from your Maricopa colleagues. These were compiled from information submitted to the *Labyrinth/Forum/Assidere* web site, reports by college representatives to the *learning@maricopa.edu* leadership team, and information provided by the Faculty/Staff Developers and the Ocotillo faculty chairs.

Chandler-Gilbert Community College

"Creating Community in a Changing World" is a year-long 14-credit course which integrates First-Year Composition, Film and Literature, World Literature, Internet, and PowerPoint. It is taught by **Marybeth Mason** and **Bill Holmes** at the Chandler-Gilbert Williams campus. At the end of the year, students post their best work on their own individually designed web pages.

Pam Petty reports that 45 classes on the CGCC campus are currently using Blackboard's CourseInfo to integrate the web into their curricula.

Tom Foster has been working with participating faculty members to support their efforts. According to Pam, student response has been very positive. Participating faculty include **Sally Jesse** (Art), **Vanessa Sandoval** (Counseling), **Cathy Urbanksi** (Business/CIS), **Bill Mullaney** (English), **Mary McGlasson** (Economics), **Olivia Lara** (Counseling), **Janet Spears** (Business/CIS), **Shirley Miller** (Business/CIS), **Robin Atchinson** (Communications), **Al Brown** (Education), **Pam Davenport** (English), **Darby Heath** (Anthropology/Sociology), **Leslie Durhman** (English), **Pam Petty** (History), **Anna Mart-Subirana** (Biology), **Marsh Segerberg** (Biology), **Rulon Parker** (English), and **Pushpa Ramakrishna** (Biology).

Students in **Sharon Fagan's** "Children's Literature" (ENH291) course experience a number of "real world" elements. They write reviews of children's books which are published in a newsletter and distributed to local libraries. They hear guest speakers address literacy-related topics. Students create portfolios which have been used for entrance to the College of Education at ASU. Next fall, students will take part in a linked multiple-week service learning project between ENH291 and MAT156.

An important aspect of **Sharon Fagan's** approach to teaching writing for her First Year Composition students is giving them opportunities to write for "real" audiences outside the classroom. Letters to the editors of local newspapers get their voices heard in the community, FAQs on community service agencies and local social issues provide useful information for other students, and publication of a creative writing piece in a class book culminates a semester of collaboration as writers.

According to **Mary Graci**, the Maricopa Institute for Virtual Reality Technologies (MIVRT) at Chandler-Gilbert Community College is the primary virtual

reality training institute for MCCCDC, business/industry, military, and educational institutions. MIVRT provides a variety of credit and non-credit course offerings that range from basic to advanced virtual reality technology concepts. Non-credit courses accommodate a corporate schedule and provide specific training to meet business and industry needs. MIVRT, which provides MCCCDC a "virtual community" serves our diverse populations through industry leading partnerships and alliances.

Bill Mullaney reports that his students are having a ghoulishly delightful experience in his seminar-style "Literature and Film" (ENH254) course. They are studying the horror genre with a focus on the Gothic novel and the modern horror film. Bill also has developed the Humanities Division's technology instruction and is one of the college's Blackboard champions. He teaches composition classes in both Windows and Macintosh labs where he incorporates e-mail, class listservs, virtual discussions, and Internet research as vital components of the course.

Using nanovisualization and a remote scanning probe microscope at ASU, **Pushpa Ramakrishna** and **David Weaver** have developed educational modules that reinforce key concepts and fundamental principles in biology and physics.

Pam Davenport and **Darby Heath** have created the "Indians of the Southwest" learning community which combines English 102 and the "Indians of the Southwest" anthropology course. In this learning community, students are engaged in primary research on topics such as diabetes among Pima people and the Navajo-Hopi land dispute.

Kim Chuppa-Cornell and **Sandra Stuebner** have revitalized the honors program to provide students greater flexibility in meeting honors course requirements. New Presidential students are enrolled in a three credit Honors Forum as a shared honors experience. Veteran Presidential and Fee Waiver scholars are enrolled in a variety of honors option courses.

As chair of the Faculty and Staff Development Team, **Sharon Fagan** has facilitated special events such as breakout sessions for the All-Faculty Meeting, publication of an extensive semester schedule, a series of Faculty Forums, and new faculty orientation. She is also working on an MCCCDC monograph on critical thinking.

Students are active participants in **Howard Speier's** math classes in which he has integrated technology, science, and engineering through the use of graphing calculators, calculator-based labs, microcomputer-based labs, MathCad projects, and other technologies.

"Global Perspectives" is a learning community which combines ENG102 (Research and Writing) and ENH202 (Contemporary Global Literature). In this single course, **Sharon Fagan** has students read

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literature from cultures outside the United States and investigate social, political, and cultural events in other regions of the world.

Math faculty **Scott Adamson** taught a summer bridge program with INTEL for Native Americans.

Gordon Jesse, Sally Jesse, and Marc Denton have been collaborating with architects in the design of the new Performing Arts Center. Gordon, Sally, and Marc, along with **Ted Wolter**, coordinate the San Tan Arts Festival every year.

Pushpa Ramakrishna, biology instructor, reports that division meetings are held in a different instructor's classroom each meeting time. This instructor spends the first 20 minutes "showing off" equipment and sharing his/her approach to teaching and learning.

One Friday a month, a group of faculty meet to promote dialogue about teaching and learning. The group's first discussion topic was Parker Palmer's book, *The Courage to Teach*.

No classes are scheduled from 12:30 - 1:30 p.m. and from 6:00 - 7:00 p.m. Monday through Thursday so students can take advantage of a variety of resources which supplement their classroom learning and may include guest speakers, cooperative groups, the Math Intensive Care Unit, the Learning Center, the Writing Center, etc.

Because of their work in information technology training, CISCO has selected **Jim Lorenz** and **Kathy Saucedo** to receive large amounts of donated equipment and has asked them to mentor other colleges in program development.

Estrella Mountain Community College

Estrella Mountain has been awarded an Early Adopter Grant from Academic Systems. This will allow faculty to integrate new ActiveContent into web delivered content.

You can find results of **John Bradley's** annual assessment of the Organizational Leadership program on the Estrella Mountain web site. Check "What happens to graduates?" for details.

Nineteen faculty are taking a CIS credit course on the use of Blackboard's CourseInfo which is taught by **Roger Yohe**. Because the class focuses on technical issues, Roger and his "students" also examine teaching and learning strategies in addition to instructional design techniques.

Students in **Roger Yohe's** CIS 105 Honors Class are collaborating with students at the Riverina Institute in Australia by using Blackboard's CourseInfo. They are working in small "virtual" groups (two EMCC students with two Riverina students) to create a PowerPoint presentation on the future of technology in their major areas.

GateWay Community College

Barbara Lacy reports that students in the Maricopa Skill Center Machine Trades program made parts for an ASU student designed and operated satellite.

Additionally, in a much closer-to-home venture, machine trades students used their machining expertise to repair bikes for children of needy MSC students in time for the holidays last year.

The Registered Nurse First Assistant (RNFA) course is a four-credit lecture class taught in six days. **Rosemary Kesler** indicates that a typical course session consists of 18 students from all over the world. Students complete a two-credit clinical component back in their home hospital and must contact the GateWay instructor at least once a month during that time. A surgeon preceptor at their home hospital grades their skills according to required competencies. The RNFA course boasts a 99% completion rate.

After she has edited and graded three or four student papers, **Tracy Pringle** has her students critique and grade a classmate's paper. Each student then revises his/her own paper based on the peer review, is graded on that paper, and also receives a grade for the paper which he/she critiqued. Students also work in groups to critique and grade an anonymous paper.

Peter Zwicky tells us that Physical Therapist Assisting (PTA) faculty have been converting lecture presentations into PowerPoint format and are finding that they are covering material at a faster rate. This leaves more time for review, critical thinking, and problem-solving questions in class. PTA faculty have also been videotaping practical exams for the past two years.

Jim Baugh's students create "flash cards" of key equations and/or facts that must be remembered. They can then use these cards as study aids.

Jacqueline Fergusson credits **Shahin Berisha** for the inspiration in placing her "Preparation for Fundamental Chemistry" (CHM090) course on the web and making it a totally paperless class. With this format, students can access the course material at any time.

Students in **Donna Van Houten's** Nursing classes begin each class with an open-book group quiz which reviews important topics from the previous day's class. Donna reports that not only does this approach get students talking about course content, it also has virtually eliminated late arrivals.

Dean Stover is using a problem-based learning approach in his English 101 class. He asks students what they know about the format or style being used to write a particular essay. Concepts that are not explained well become learning issues they must research on their own prior to the next class. Students then share what they learn in the next class session.

Because Dean does not meet with students in his honors HUM190 class, he uses Blackboard for class discussions. Students lead the discussions by posing questions that other students will answer. Discussion leaders also summarize the responses. Dean has also developed an electronic portfolio where students can store their class work.

Lisa Young's "Water Technology" students do many hands-on activities and field trips so they can see how the theories they are learning in class are applied.

Biology 201 and 202 students can access **David Gerstman's** detailed lecture notes and **Jim Crimando's** anatomy tutorials and quizzes on the web. The American Academy of Anatomists is using Jim's material, and Beagle has given the tutorials "Web Page of the Month" honors.

In a case-based learning approach, **Margie Schultz** presents a scenario of a patient with a specific disorder. Margie selects students (prior to the class period) to discuss how a particular medication or procedure would benefit/harm the patient; other students in the class do a critique. At the end of the semester, the students have developed a patient care map and do a case study debriefing of the entire course of care.

"Educational Happy Hour" is a time for faculty to give presentations and/or demonstrations about their approach to teaching and learning.

In Sonography, **Kathy Murphy** reports that faculty are incorporating PowerPoint, CD-ROM, and/or Internet images into a standardized format for Teaching File Cases. Kathy uses mostly CD-ROMS to show images in her own classes so students can also utilize them outside of class.

Glendale Community College

Tillie Byler focuses on mentoring/training adjunct faculty as adult learners. They work with a Malcolm Knowles assessment of themselves, attend a beginning-of-the-semester workshop, and receive information framed within those areas they have identified as important. Tillie also provides the adjunct faculty participants with two books, Brookfield's *Skillful Teacher* (Jossey Bass) and Parker Palmer's *Courage to Teach* (Jossey Bass). Tillie has also been experimenting with mindmapping as an instructional strategy for presenting information.

First-Year Composition students are placing their writing on web portfolios they create. It is **Maria DeSoto's** hope that students will continue with their portfolios after they leave her class.

"The Way We Really Are: The Police Function, Family and Society Issues for the 21st Century" combines "Marriage and Family Life" (CFS157) and "The Police Function" (AJS230) a linked learning community taught by **Diana Abel** and **Tom Bloodworth**. Students take an introspective look at their own personal, family, and marital relationships and explore different cultural family structures to improve effectiveness in law enforcement occupations.

Through "Campus Audit," **Nancy Siefer** is identifying some of the special areas of faculty interest. This is with an eye toward the sharing of expertise and making connections with colleagues who have similar interests.

Maricopa Skill Center SW Campus

According to **Louise Pelissier**, residents in the southwest valley can now study English and, for

their GED, train for certain jobs in medicine and business, write resumes and look for jobs all in one location. Estrella Mountain, GateWay, and Rio Salado have formed a partnership with the Maricopa County Workforce Development Center to provide these services at the new Maricopa Skill Center SW campus.

Mesa Community College

Students in **Peg Johnson's** "General Microbiology" (BIO205) class no longer use microscopes and slides during practical exams. Peg projects the "perfect" slides from a computer to an eight-foot screen using an LCD projector. Each slide is shown with an accompanying multiple choice, fill-in, or short answer exam question. The images are from a MicroVision CD authored by Peg and available to all MCCC instructors and students on the Internet.

The Student Technology Assistant (STA) Program, directed by **Brooke Estabrook**, has two main goals: 1) to assist faculty in incorporating technology into their collection of teaching tools, and 2) to provide students who are pursuing a technical degree the opportunity to learn up-to-date technologies and have a real-world work experience. Faculty and students work together to advance the use of technology on campus.

Brooke Estabrook also relates that a team of programmers, faculty, and she have completed the first phase of a distance learning umbrella. This is a collection of tools that allows the focus to be on the content of teaching with technology rather than the on-line course management. The umbrella includes "myMCC," a portal for students and faculty, through which they can access such things as an updated list of current students in each section and all web resources for each course

Phoenix College

Eula Bursh's "Math Express to Success" students move from Developmental Algebra (MAT090) to Intermediate Algebra (MAT120) building to College Algebra (MAT150) in a five-credit, one-semester class. Students receive a "full service experience" in a collaborative environment with daily faculty contact, peer tutoring, one-on-one tutoring, and group tutoring.

The Department of Dental Programs has a highly interactive program of Internet-delivered courses which has been expanded in the last three years. Originally designed for use by dental hygiene students, **Debby Kurtz-Weidinger** relates that the courses are now being used by practicing professionals for their continuing education needs.

Paradise Valley Community College

According to **Patti Marsh**, "choices@pvc" Distance Learning Program is the result of a faculty-driven effort to explore nontraditional instructional delivery methods. This program offers five learning alternatives for students: open-entry/open-exit, guided independent learning, flex express, on-line, and instructional television. The "choices@pvc" Distance Learning Program was chosen to be PVCC's

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campus representative for the 1999-2000 Innovation of the Year Award Program.

Marilyn Cristiano reports that the Collegial Support Partnership Program (CSPP) and the Adjunct Faculty Collegial Support Partnership Program (AF-CSPP) bring faculty together to talk and share ideas. The programs, which pair newly hired faculty with veteran faculty, are designed to encourage open communication among college personnel in order to foster student success more effectively and efficiently through collegial support.

The PVCC Employee & Organizational Learning Team recently coordinated the Third Annual President's Advance, "Advancing Toward Becoming A More Learning-Centered College," where 70 employees and students met to discuss learning and ways to advance learning opportunities for students and employees on campus.

Hedy Fossenkemper tells us that "aside from sticking pins in Bill Gates voodoo dolls, PVCC is gearing up for the big transition to Windows 2000." The MCSE (Microsoft Certified Systems Engineer) program has been a runaway success with 15 sections running this semester. For Fall 2000 they will begin offering some of the new Windows 2000 courses and start to phase out the Windows NT 4.0 courses.

PVCC is also moving ahead with the MCSD (Microsoft Certified Solutions Developer) program, which will produce highly skilled Windows programmers. The Web Developer Certificate program has been another big hit with the worst problem being students leaving the program early because they have already found good jobs!

Scottsdale Community College

The Sonoran Sustainable Resources Institute (SSRI@SCC) was established to address the critical issues of air quality, open space preservation, water conservation, and biodiversity which are impacting Scottsdale's future quality of life. **John Sickafoose** and **Roy Barnes** are lead faculty for the institute which offers numerous projects for students such as the refurbishing of an electric car and the installation of photovoltaic panels to recharge the car's batteries. Also included are solar power generation, a demonstration garden which uses native plants, and a study of the urban lake system in Scottsdale's Indian Bend Wash.

Preliminary survey results indicate that **Bernie Comb's** students positively rate his use of Blackboard's CourseInfo template to deliver his "net enhanced" Introduction to Psychology course. While he still meets his classes on a regular basis, all course materials are online. Many student activities also take place online: "Labs" (multimedia tutorials and simulations); asynchronous communications for general questions and discussion; synchronous communication for review before a test; and the posting of announcements, learning objectives, and grades.

Bernie also meets regularly with an interdisciplinary group of faculty and three high school teachers to develop Internet supplemented courses.

John Nagy and student assistants are conducting a genetics/population study of pikas in the Sierra Nevada Mountain region of California. John and some of his students are also taking part in a lung cancer modeling project with faculty from ASU and Midwestern University.

Pat Ashby is working with biology students on a quantitative study of grasshoppers.

Suzanne Kelly is one of six national advisors in the development of a 12-part educational television course on microbiology.

Faculty who wish to develop PowerPoint applications with interactive web applications can turn to **Charles Pflanz** for help. He also has developed a Web-based tutorial to assist all Maricopa faculty.

The Metro Muse is a coffee house format for students to share their talents. These open meetings, held on alternate Thursdays throughout the year, are hosted by **Sandy Desjardines** and feature students who read original poetry, give musical performances, dance, or whatever else they so desire to perform.

The Maricopa Institute for Arts and Entertainment Technology (MIAET) provides Graphic Arts, Music, Performance Arts, and Television/Motion Picture Production, and Post-production students with collaborative opportunities and internships with faculty and industry professionals. **Steve Meredith** tells us that students are currently involved in the development of a county-wide television station on the Cox cable system; the staging of a new multimedia musical, *The System*, based on an original script by two MIAET students; the completion of a documentary on the life of Claudia Bernardi; training videos for Carsten Precision Engineering (Ping Golf Clubs), Motorola, and Strand Lighting; workshops and performances for audiences throughout Arizona; and sponsorship of the Southwest Film Festival and the Artists of Promise Competition.

Six of the twelve Fastrack Business Courses have been converted to Internet delivery mode.

South Mountain Community College

The Storytelling Institute, as described by **Lorraine Calbow**, has four goals: 1) to enhance teaching and learning through storytelling, 2) to recruit and train people who are interested in becoming storytellers, 3) to develop community interest in storytelling as a means for connecting and building bridges in the South Mountain Community, and 4) to provide opportunities for professional and personal growth through storytelling. The Storytelling Institute is interdisciplinary and uses faculty from such disciplines as English, Humanities, Counseling, ESL, Communications, and Religious Studies.

Full- and part-time English, Reading, and Communication faculty gather together for department meetings once each semester. These meetings, hosted by **Jerome Garrison**, chair of the Communication and Fine Arts Division, focus on teaching and learning strategies.

Wilma Patterson is the key faculty member in a Bridges program for Biology students. Students in the program take classes at ASU West as well as SMCC. Faculty from both campuses help students with internships and assist in the transition between the college and the university.

Mathematics faculty **Terry Leyba**, **Ann Lindner**, **Ranjita Saha**, and Helen Smith and have been involved in the curricular reform movement within the District and the state.

Ken Roberts, **Lydia Perez**, and **Sandra Mares** state that course schedule information is downloaded to a FileMaker Pro database each semester. The database gives a clear view of the number of courses offered, their times, as well as the headcount or FTSE the courses generate. The database provides easy access for comparative data review from semester to semester, date-to-date, year-to-year, etc.

Tom Seneseny and **Jon Koehler** have developed a focused, compressed format leading to CISCO certification.

The Department of Education has awarded South Mountain Community College a five-year Title V grant to make transformations that impact student outcomes and college infrastructure. This \$2 million grant addresses "Student Success Systems," designed to increase student persistence from semester to semester and "Curriculum and Faculty Development" aims to develop and offer new occupational certificate programs that meet community and employer needs. It does so by expanding and enhancing a paraprofessional Transfer Degree Program in Education and by developing technologically competent learning communities.

The Dynamic Learning Teacher Education Program brings together a cohort of future teachers for four semesters in the first step of a two-step bachelor's degree program developed in partnership with ASU's College of Education. **Lillian Barker**, **Pete Facciola**, and **Ernest Petrie**, Communication, **Jackie Jaap**, English, and **Yvonne Montiel**, Reading and Education, are the key faculty members who team-teach blocks of classes that feature an integrated curriculum designed around problem-based learning and meaningful projects. These are four-semester internships in community schools.

The ESL program and instructional team have developed a highly effective integrated and well-sequenced program. Key members of the team are **Jerry Cervantes**, **Belen Servin**, and **Lupe Villicana**.

District-Wide 2000 Success Conference

The 2000 Success Conference takes place Friday, October 6. This year's theme is "Creating Connections in a Connected World" and features keynote speaker Dr. Mark Milliron, President and CEO of the League for Innovation in the Community Colleges (and former intern in the Office Of Student and Educational Development).

Creative Pathways

Julie Beaty reports that the Creative Pathways Program helps Maricopa employees grow and learn through temporary placements within the District and the community. Two employees recently teamed to learn new software development skills, and they developed interactive software that helps geology students identify rocks and minerals. Another employee worked in the Information Technologies Department at the District office where he received hands-on training with local- and wide-area computer networks. A nursing instructor plans to share with students, patients, and colleagues new alternative healing modalities she learned at a local naturopathic college.

Employee and Organizational Learning

According to **Emily Weinacker**, the Covey Facilitator Community has implemented a coaching system in which participants in Covey training classes are paired with a certified personal coach who assists their personal development plan to implement principles learned in class. Coaches provide additional content material, assistance with goal development, accountability mechanisms, and celebration activities.

International Education

The International Education Curriculum Project will fund ten faculty to "internationalize" a course they currently teach each semester. The purpose is to provide students, who enroll in such courses, with an awareness of other people and cultures. The participating faculty will also be meeting with the Diversity Curriculum faculty to share information and ideas.

Student Development Services

Mike Rooney reports that all ten Maricopa Community Colleges are currently in the process of implementing the Course Applicability System (CAS). CAS is a Worldwide Web-based application developed to help students make appropriate transfer decisions. It will give students direct online access to information which explain course acceptability and applicability among Arizona's State Universities. New hardware to support the CAS project has been ordered and is being delivered to colleges this month. Full implementation of CAS should take place in the next few months.

Student Success Model

Ernie Lara recently reported at the Learning Paradigm Conference about a new Student Success Model that **Paul Dale**, **Donna Murchland**, the other Deans of Students, and he have developed. This will provide a conceptual framework for student affairs professionals to respond to student needs and will identify student affairs contributions to student learning.

Think Tank

According to **Janet Beauchamp**, The Think Tank is deeply engaged in technology training of K-12 teachers in Arizona. Maricopa Community Colleges was selected by the League of Innovation to be one of three community college pilot sites for the

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Student Learning Through Career Exploration

Career exploration and development services are the basis for growing collaborations among faculty, student services, and information technology.

In 1991, Gary Kilduff, a Counseling faculty at EMCC, began working on the three-stage A.I.M. (Assessment, Investigation, and Marketing) model of career development. In the Assessment stage, students are encouraged to explore their values, interests, and skills. In the second stage, Investigation, students explore career options that are compatible with their interests and skills. In this stage, students also identify academic courses that will provide the knowledge and skills needed for particular careers. Finally, in the third or Marketing stage, students learn job application skills and identify particular job opportunities in their chosen profession.

JESSE CHANLEY
MCC

One of the primary values of the A.I.M. model is its simplicity. However, while the model is simple to grasp, a great deal of information and tools are needed to implement the model. To bring together the resources needed for A.I.M., Gary worked with Michael Springer, coordinator of Career Services at SCC, to develop resources that are accessible and that can be easily expanded. The web meets both of these criteria. Michael explored the growing number of career exploration tools available on the web and began work on a site that would organize career resources according to the three stages of the A.I.M. model.

A good example of the A.I.M. program is on the website of Career Services at SCC (http://www.sc.maricopa.edu/career_services/). Resources are available for all three stages of A.I.M. Assessment links include the Birkman Method® Career Style Summary and the Michigan Occupational Information System Self-Assessment Career Survey. Among the Investigation links are the U.S. News Online: Hot Job Tracks and the University of Delaware's Major Resource Kits. Marketing tools include "How to Write a Masterpiece of a Resume" and "Job Interviewing Tricks and Tips."

At present, counselors and career services staff are striving to inform students and faculty about the existing resources. EMCC counselors utilize the A.I.M. model and tools with students. Gary Kilduff and Michael Springer also presented the model to the EMCC faculty at their orientation showcase in the fall 1999 semester. At SCC, counseling faculty are working with faculty in Hotel Resort management and in the Culinary Arts program to investigate employment information for students. As faculty become aware of the value of these tools, career development can be integrated into core courses of programs.

While great strides have been made with the A.I.M. program, the potential value of this work is just beginning to be realized. Future developments will include linking career information with course and degree information. For example, when a student identifies a potential career and related college program, a degree audit system would allow a student to see how their previous coursework fits with their career interest and what additional courses are needed. Another potential development would be to link course competencies to the personal skill inventories of students. Ideally, as a student completes a course, the competencies acquired and the level of competency mastered could automatically be added to the student's personal skill inventory. For example, when a student completes an intermediate algebra course (MAT120/121/122), the student's ability to factor polynomial expressions and solve rational equations could be added to the student's personal skill inventory. Skill inventories are already a feature of Maricopa Recruiter, the District's job placement website (<http://www.maricopa.edu/recruiter/>).

Improvements in career development tools will assist students in developing effective educational plans for successful careers. The ultimate goal is to integrate career development into all college programs. ●

High and Low Technology Have Roles in Today's Complex Machining Industry

"Making high-tech computer-aided design satellite parts and refurbishing children's bikes helps machine trades students understand that skill excellence can lead to job fulfillment," said Maricopa Skill Center Machine Trades Instructor Tom Lowe, who has taken an entry-level training program beyond the expectations of a beginning-level machining class.

The satellite parts were made for ASUSat1, a student-designed and built satellite initiated by Dr. Helen Reed, director, Aerospace Research Center and professor of mechanical and aerospace engineering at Arizona State University in partnership with over 100 educational institutions and businesses. In addition to making complex satellite parts, the students tested other components of the rocket and followed the progress of the program.

"This was one of the most complex jobs we've done, and it involved a level of accuracy common in manufacturing but not often achieved in entry-level training," Lowe said. "Yet our parts passed the test!"

The satellite launch, January 28, 2000, was watched by millions on the evening news. For the next two years, it will beam information for ongoing studies back to earth. Meanwhile, Dr. Reed and her ASU students, are planning another student-designed project (maybe an electric car), and Lowe is making sure that MSC Machine Trades students will be part of the team.

So why bother with simple bicycle repairs?

For the basic skill training.

"Experience is still the best teacher," Lowe said. "In fact, hands-on training is the heart of the Maricopa Skill Center experience. When you take a bike apart, you have to rebuild it in the proper sequence and torque the bolts to a set tension. Only by trying to rebuild a bike and turning the bolts yourself can you understand the work involved.

"If you know basic machining well, you can learn advanced machining much easier. We want students to understand that there is value in mastering low as well as high-tech skills in this technology-driven world. But, more importantly, we believe that learning how to master all the skills related to your trade and being able to use them in real world settings will not only bring a sense of accomplishment but also a steady paycheck."

The goal for most MSC graduates is a good job that will lead to a successful career. Thus, students in the open-entry, open-exit Skill Center program work through increasingly advanced training modules to reach the first levels of the national machining skills standards (NIMS). Multiple exit points in the Machine Trades curriculum allow beginning students who cannot complete the full program to graduate with employable skills. Some graduates continue at a community college, and take advanced machining classes at GWCC or MCC. Others will learn on the job and may never return to school.

Lowe works to give all of his students not only the basic skills, but also the art and philosophy of good business and personal relationships that will help them wherever they go.

The satellite and bike projects, while demonstrating specific machining skills, have additional values in the SCANS skills set which is used throughout the Maricopa Skill Center. As he has structured the networking and community service activities, they give additional practice in the SCANS thinking skills: *creative thinking* to generate new ideas; *decision making* to evaluate and choose the best solution; *problem-solving* to generate an action plan; *seeing things in the mind's eye* to design a part; *knowing how to learn*, to acquire and apply new skills; and *reasoning*, to discover a rule or principle underlying the relationship between two or more objects.

The projects also enhance the students' SCANS personal qualities: *responsibility, self-esteem, sociability, self-management and integrity/honesty.*

This is the academic explanation. Lowe works on a more basic level.

"I emphasize that we are able to participate in these extra projects because of the networking I do with area businesses and agencies. I show my students that one can enrich his/her personal and work-life through teamwork ... both in the classroom and across the boundaries of school, business and home.

"Life is [made up of] relationships and we need to let our students know that, without being able to use all their skills in the real world, they have only learned part of the lesson." ●

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The American Mathematical Association of Two-Year Colleges has established standards for introductory (before calculus) mathematics. Standards for pedagogy support the use of technology, multiple approaches, and interactive and cooperative learning. Also, quite importantly the AMATYC Standards advocates connecting mathematics with other experiences (to make it relevant and meaningful) and promotes student firsthand participation in mathematics through projects and sustained activities.

As a consequence of teaching three semesters of learning cohorts, where students may follow one instructor through four math classes (MAT082, 091, 120, and 150) "College Algebra Concepts" (MAT 150) is being taught for the first time, this spring at Chandler-Gilbert Community College (CGCC). The course is being taught in the same style as its three predecessors which is mostly active, hands-on learning with cooperative activities, student projects, and presentations.

The first three courses in the learning cohort use Maricopa Mathematics Project modules. Since none exist for college algebra, College Mathematics through Applications, piloted by South Mountain Community College (SMCC), has been selected. This text relies heavily on the use of calculator and calculator-based laboratory equipment.

In order to facilitate group activities, sharing resources, and discussion, the classroom is set up in pods of tables which seat four students face to face. Members are placed into base groups according to college majors, when they can study, and where they live (to facilitate meeting for group projects and study outside of class). After a few weeks, student teams are reformed based upon abilities and attributes (such as age or gender) that are brought to group dynamics.

Howard Speier and Melinda Rudibaugh at CGCC are team teaching the course to approximately fifty students. Team teachers Ann Lindner and JD Mildrew at SMCC provided valuable input to the course foundation. A typical class period involves instructors alternating to introduce various topics. This lasts no more than ten minutes, and then students immediately are assigned a cooperative activity to begin constructing their knowledge of the concept. Roles (assigned by "numbered heads") such as recorder, encourager, taskmaster, and checker ensure equal and simultaneous participation. Frequently a spinner is used to select teams to present results of their work. Papers are placed into the team folders at the end of the period and collected by the teaching assistant of the day.

Students work through six projects over the course of the semester. Most projects require the use of technology, such as spreadsheets, and they must be formally done, as though presented to an employer.

In response to the AMATYC Standard requiring true mathematical experience, a service learning project is required. This is a three- to six-hour (depending on the agency) visit, arranged with the assistance of the CGCC Office of Student Life. Students select an agency which affords them an opportunity to use their math skills as they serve. Sites include local police stations, schools, and the Boys and Girls Club. Students must document hours and write a reflection on their learning.

At the end of the semester students in the MAT 150 learning cohort will take the same common final as all other college algebra students. Their teachers believe, however, that they will possess problem-solving, decision-making, and communication skills beyond the assessment potential of the instrument.

The following excerpt from *learning@maricopa.edu* supports our rationale for creating this course:

In the 7 Principles for Good Practice in Undergraduate Education (Chickering and Gamson, 1987) the authors suggest that "good practice encourages active learning" (1). The principle, anchored in decades of research about teaching and learning, requires us to consider methods to expand the terms of engagement between student and teacher. It suggests that we think about and act on what we know about the way student participation in the learning process leads to higher levels of deep and lasting learning.

Because learning is also interactive it gives the connotation that a learner is actively engaged with others. It suggests the development of four central relationships, each of which can be viewed in terms of its quality and frequency of occurrence. These relationships are:

- *Between learner and faculty*
- *Between learner and others who support the learning process*
- *Between learner and other learners*
- *Between learners and others outside of the college environment. ●*

Invisible Lines of Connection

Whether we know it or not, we transmit the presence of everyone we have ever known, as though by being in each other's presence we exchange our cells, pass on our life force...as though to say, "Go on take us with you, carry us to root in another place."

—n. goldberg...long quiet highway

It has been a fascinating discovery to make all the connections between my life as a faculty member at Maricopa Community College and my life as an overseas educational consultant. My experience overseas reinforces the value of excellent training and collaboration. The many valuable learning opportunities in which I participated during my five years at Paradise Valley Community College and South Mountain Community College have provided an excellent foundation for overseas work and in an expanding network of resources. Because Maricopa supported and created opportunities for me to learn more about international education, cooperative learning skills, innovations in technology, and cross-cultural training, I have been able to contribute helpful training and curriculum expertise and find rewarding work in the Middle East.

Before I left Maricopa, Naomi Story and Alan Levine invited me to be an "international Internet correspondent" to report on cultural, educational, and technological happenings in Egypt and the Middle East. This concept inspired me to learn more about computers and the Internet (and to invest in a sophisticated home computer office in Cairo.) Much to my surprise, within six months of moving overseas, I was hired by the U.S. State Department to coordinate American advising centers throughout the Middle East and North Africa. My home computer office allows me to work with over sixteen advising centers in fourteen different countries from Morocco in North Africa to Oman in the Arabia Peninsula.

The Internet skills I learned allowed me to coordinate a Bi-Regional Advising Conference that was held in New Delhi, India. All of the arrangements, logistics, organizing were carried out over the Internet. We brought together over 76 advisers, which represent 26 countries, to learn about distance education, American accreditation processes, and international student admissions procedures. The many hours I spent working with Mike Rooney's Student Success committees in which I planned advising conferences gave me the experience I needed to coordinate an international conference.

In addition to working as a virtual liaison between Washington and the overseas centers, this year I will fly to Saudi Arabia, Syria, and Qatar to train advisers at the overseas advising centers. My cooperative learning and inter-cultural training skills have allowed me to develop a comprehensive training program for new and continuing advisers. Little did I know that the time I spent trying to create a new advising model at PVCC would provide the foundation for an overseas advising program. Dr. Cardenas and Dr. Cordova did not realize they were helping to support Middle Eastern relations!

One of my favorite learning opportunities was developing my Spanish language skills by studying activated learning courses and immersion programs. Although I don't live in Spanish-speaking countries, I am always amused at how helpful my Spanish language skills have been. On a recent trip to Senegal, where most of the population speaks French or Wolof (the original language), I found that I could communicate with Spanish and Arabic because Senegalese children have to learn three languages. Even though few people spoke English, we could communicate in our collective "third" languages.

I guess it is true that you do not always appreciate what you have until you do not have it anymore. While I was an avid learner and enthusiastic professional developer, I do not think I realized how fortunate I was to have access to the most inspiring, creative, and innovative teachers and programs until I moved overseas. Many of the ideas that we were learning four years ago are just now being accepted internationally. There is increasing interest in technology, American-style education, and cultural awareness. So, everything I learned has been useful overseas.

I like the idea that our professional collaborations are opportunities to share learning throughout the world. It is encouraging to be reminded that a South Mountain Community College storytelling workshop will provide guidance for a keynote speech and that a Paradise Valley Community College collaborative teaching opportunity will provide curriculum for a distance learning adviser training program.

My years at Maricopa continue to provide invisible lines of connection to talented people, creative ideas, and fascinating learning opportunities. ●

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Database of dreams (continued from page 1)

learning/) proposed a new concept for a web database of examples of innovative learning at Maricopa, not restricted to technology. This is the root of the Maricopa Learning Exchange (MLX, see <http://www.mccli.dist.maricopa.edu/mlx/>) described in this issue in an article by Karen McNally. We truly hope that the notion of an exchange of information will compel people to use this system to both receive and share information about learning.

So, here we are again—we have built the database... but will they come?

In this issue we again provide the sampling of who's doing what, cultivated from items people have sent to us since January 2000, and many of them sent via a call for ideas form on the *Labyrinth/Forum/Assidere* web site. Because the concept of the Maricopa Learning Exchange is broader than technology uses, the examples you read here cover a wide range of innovations by your colleagues.

In addition to the short items listed under "Who's Doing What," we also have a few short articles. Jesse Chanley (MCC) writes on how counselors and career staff are using technology to provide students resources for career exploration. From the Maricopa Skills Center, Barbara Lacy shares how "low-tech" skills such as bicycle repair are

important ones the students build on as they move into high-tech skills in the machine industry trades. Also, Melinda Rudibaugh (CGCC) describes a new approach to teaching College Algebra Concepts (MAT 150) where students are actively engaged in problem-solving and collaboration on projects that include calculator-based labs. Finally, our correspondent from Cairo, Jon Lea Fimbres, enlightens us on the way the Internet has provided the "invisible lines of connection" between her former Maricopa colleagues and her.

As you read through the samples of "Who's Doing What" in this issue of the *Labyrinth*, think about being able to access an up-to-the-minute record rather than this printed snapshot in time. Consider the usefulness of searching by disciplines or specific technologies and then being able to download examples of templates, lesson ideas, multimedia presentations, and applications in use by your colleagues! What if you could even see follow-up information that describes the impact or result of this technology on student learning?

Now, that would be something—much more than a dream. This is the concept of the MLX, and it is being built. So, we urge you to visit the MLX site and make it an active Maricopa resource. ●

Who's Doing What (continued from page 7)

AlliancePlus program, which takes teachers beyond normal search engine basics into "unique and compelling" uses of the Internet with students. To date, 232 Phoenix area teachers have received AlliancePlus training, and 67 mentors have been certified to train additional teachers. Think Tank is rolling out Phase II of the project, which includes a teacher pre-service component. Maricopa personnel are training university undergraduate faculty in the AlliancePlus "Saavy Cyber Teacher" curriculum in four Arizona universities.

Training Services

Currently, Training Services is working with a faculty team to develop a District-wide training strategy for Blackboard's CourseInfo. CourseInfo is used to transform the Internet and other online networks into powerful teaching and learning environments. It can be used to support classroom teaching, to develop a course website, or it can be used to deliver an entire online course. ●

Ocotillo Retreat 2000—May 16-17, 2000

DESTINATION: MARICOPA!

The Ocotillo retreat has always been an opportunity to gather shortly after the spring semester to discuss and address issues of instructional technology.

Rather than leaving town, this year the Ocotillo Retreat is going "local"—hosted at Estrella Mountain Community College on May 16th and Mesa Community College on May 17th. The Ocotillo Chairs thought that a locally hosted retreat would allow more people to participate and would provide an opportunity to "tour" some of our own facilities. ***The retreat is open to all part-time and full-time faculty, staff, and students.***

Registration is now open!

RSVP early with our simple web form—<http://www.mccli.dist.maricopa.edu/ocotillo/retreat00/rsvp.html>—to ensure your travel plans. Book your flight early! ●