**Maricopa
Center for
Learning and
Instruction**

The Labyrinth/Forum/Assidere: A Means to Explore and Support "Teaching Scholarship"

JOHN NELSON, PVCC

*I teach Interdisciplinary Studies at Whatcom Community College in Washington. I've developed a program to integrate mathematics across the curriculum. My quest for that one room, two hours, three-days-a-week when we inspire the world of "Try it," "Let's see," and "Yes, you can" has often left me feeling drained and isolated. When colleagues and students want me to "spell-it-all-out" in my classroom, I get the same feeling I had as a child when the teacher "sat me down" and told me to "color in the lines." I longed to create my own dot-to-dot puzzles. On those days, I would read my favorite just-so-story (Rudyard Kipling's "Elephant's Child") and console myself that at least **someone** understood about "satiable curiousity." These days, I sit at my computer at 2:00 a.m. looking for inspirations and like minds. In one of those early morning quests, I recognized one.*

The words "New Paradigms for Mathematics" (Field, 1993) drew me into your labyrinth. The date of the publication of that article coincided with what I knew were the first integrations of the ideas of Vygotsky into an interactive math program. There it was: "student-centered," "active team learning," "participatory knowledge," "concepts rather than skills" ... This woman could draw a dot-to-dot puzzle! With one "double-click, I followed Betty Field to Labyrinth and Forum *where I discovered a community of teachers who "color outside the lines." You like mazes and labyrinths; I'll bet you understand dot-to-dot puzzles, too.*

I am excited, intrigued, and grateful to have found you. Thanks for including me in the exchange. J.M.

This personal narrative from Joanne Munroe essentially illustrates one of the most important aspects of the *Labyrinth/Forum/Assidere's* role in the continuing dialogue about effective teaching and learning at MCCD. Aspiring to be more than a medium which reports our colleagues' ideas, our publication also strives to encourage its readers as they confront new ideas and create change.

Along with our spring issue's general theme of "Who's Doing What at Maricopa," the Maricopa Learning Exchange and the Maricopa Institute for Learning are two important incentives described in this issue. While the *learning@maricopa.edu* leadership team is in the process of laying the groundwork for the Maricopa Learning Exchange, the Maricopa Institute for Learning has already awarded fellowships for studying the *scholarship of teaching* and, according to Holly McKinzie Beene, it endeavors "...to provide faculty time to investigate, research, and develop teaching and learning scholarship in ways that promote deeper understanding of student learning—and to do so in a public manner."

So, this issue not only features these two Maricopa programs and various MIL fellows' projects, but it also highlights many others who have written about their innovations.

Joanne Munroe, an instructor from outside our community who has made a connection to Maricopa, and Holly McKinzie Beene, an instructor who teaches within our community, are two authors representative of our contributors. Their works capture the themes and concerns expressed in our collection of articles and informative pieces.

In addition to the opening comments for this article, Munroe has submitted "Metaphors, Mathematics, and Myers-Briggs OR How I Learned to Love Chaplin and Venn." Her article relates how the *Labyrinth/Forum/Assidere* has connected her to a community of teachers who have similar values of "flexibility, passion, and a playful tone in the classroom."

fo•rum \'fōr-əm, 'for-/ *n*, [L; akin to L *foris* outside, *fores* door — more at DOOR] (15c) **1 a.:** the marketplace or public place of an ancient Roman city forming the center of judicial and public business **b.:** a public meeting place for open discussion **c.:** a medium (as a newspaper) of open discussion or expression of ideas

Spotlight

Metaphors, Mathematics, and Myers-Briggs
or How I Learned To Love Chaplin and Venn

JOANNE MUNROE, WHATCOM COMMUNITY COLLEGE
BELLINGHAM, WA

After reading articles—by Betty Field, in particular—and links online to the *Labyrinth* and the *Forum* which discuss interdisciplinary approaches and problem-solving, I was intrigued to find a "community" of teachers who wrote about classroom simulations, with an emphasis on problem solving, and the use of metaphors to speak of mathematics. The exchanges which juxtaposed metacognition, games, and the diversity of learning styles and, which framed some of the success stories in terms of Myers-Briggs analyses, moved me in a way that is hard to describe. (The best that I can say is that it got to my "teacher's soul.") The call for papers and the assumption that current research would "lay the groundwork" for the "Maricopa Learning Exchange" proposed, encouraged me to join the dialogue. I think I share your vision.

For me, flexibility, passion, and a playful tone in the classroom are indispensable. In terms of flexibility, I have found that using a Myers-Briggs-type indicator to identify learning styles and then using the results to fit projects to a particular "mix" of students, not only works well for me, but helps my students to accommodate one another. The passion is the easy part. With each student who understands dialectical reasoning, with each student who says "I thought I was stupid because I couldn't do math, but I'm not and I can," with each student who comes to the blackboard to "teach" a problem to the rest of us, I feel the "life" in the classroom and the thrill we teachers get when we are "in the zone." Inevitably, when I'm "in the zone," the students experience the joy, the delight, and the incredible fascination that mathematical patterning holds for me, and they want to "know how to get that."

For some of my colleagues, creating a playful atmosphere in a logic course is an oxymoron. Yet, if I were to identify one element that makes the integration of mathematics across the curriculum easy and successful, it would be that I approach mathematics as art, as language, and, fundamentally, as radical free play. Inspired by the Steve Martin play, *Picasso At the Lapin Agile* (1996), a marvelously witty look at twentieth century theory, in which Picasso and Einstein use napkins and pencils in a duel over which of them is most creative and which of their creations is most "beautiful," I try to show the students how to "bring a beautiful idea into being." In teaching them the "closed system" of deduction and the value of an algorithm, I have first worked to convince them that the structure, the pattern (confirmed or violated), is the baseline of what Keith Devlin (1994) has called the "sense of the simplicity, the precision, the purity and the elegance" from which we derive the creative and aesthetic aspects of abstract thinking and, ultimately, the incongruities which give us humor. The works of John Paulos,

especially *Mathematics and Humor* (1980), encouraged me to use incongruity theories, jokes, and humor, in general, to teach the often confounding and unpalatable elements of counterintuitive thinking: the necessity of logic, patterns, rules and proofs.

I had such success with using Paulos' ideas to teach Venn diagrams, and I was so inspired by the works of Keith Devlin and Reuben Hersh, that I began to use musical notation, choreographer's notes, and Renaissance art (vanishing point/perspective) to help my students recognize the nature and vitality of abstract reasoning. The most controversial innovation I introduced was a lecture/practicum on mathematical "patterning" and proof in which I introduced brilliant timing, exquisite "choreography," and identifiable incongruities in a clip from Charlie Chaplin's *City Lights*. In my opinion, "the pattern...pattern...confirmation" and the "pattern...pattern...violation" sequences helped some students see, for the first time, what we mean when we speak of forced inferences.

In that same lesson, I told the students the story of "Theseus and the Labyrinth," and I asked them to hold on to the Chaplin images as though they were Ariandne's thread. Intriguingly, we made unprecedented headway with the propositional calculus problems we had been investigating. It seemed that all that we had needed was a common reference point, an intersubjective "thread" that we used together to negotiate the path. Then, we had it, and whether it was the patterning or the moments of laughter we shared, as we moved toward the intersection of horizons, the mood was lighter. The tension was gone. The passion was there. We all saw it. We all had it. The problems were play. ▲

A note to John Nelson, PVCC:

Thank you to an A+ *editor*

John, since this is your last issue, we'd like to take a moment to thank you for all your hard work and dedication as our faculty editor of the Labyrinth/Forum/Assidere *over the last three years. We wish you success as you move forward. It has been a priviledge to work with you!*

—MCLI

Spotlight

The Maricopa Institute for Learning: Developing a Public Conversation about Teaching and Learning

HOLLY MCKINZIE BEENE, MIL FACULTY CHAIR, GCC

At Maricopa we are frequently reminded that a great number of conversations are conducted about teaching and learning. These include both informal and formal exchanges that focus on the nature of our work: how we can not only keep doing what we already do — but do it more effectively. Sometimes we focus on method and sometimes, every now and then, we find ourselves in a moment that births deeper reflection about the essence of what we do as teachers — and what we expect our students to do as learners.

In informal conversations, we often engage in dynamic exchanges that occur in what Nancy Dixon (1997) calls "The Hallways of Learning." The power of the metaphor is that the building hallway invites multiple perspectives; just think about how colleagues wander by, join in if the topic strikes their fancy, and feel free to wander away. The limitations of hallway learning are that these gem-like moments of our professional lives are essentially time-constrained and more or less private ... rarely does the impact of such conversation extend beyond the hallway. All of which brings me to the importance of formal conversations that make public our thinking and insight.

Lee Shulman, president of the Carnegie Foundation for the Advancement of Teaching, recently stressed in his keynote address at the 8th annual AAHE conference on faculty roles and rewards that there is a powerful difference between *scholarly teaching* and the *scholarship of teaching*. Scholarly teaching is what each of us does every day and what we aspire to in every aspect of our professional lives. The scholarship of teaching is a thoughtful and public examination of the nature of teaching itself; this engagement requires that we understand more about both teaching and the other side of the coin — learning.

The Maricopa Institute for Learning (MIL), now in its pilot year, is a fellowship program modeled on the PEW National Fellowship for Carnegie Scholars. MIL grew out of the efforts of the ACE Learning Team (an intercollegiate Maricopa group sponsored by the American Council on Education). The fellowship is designed to provide faculty time to investigate, research, and develop teaching and learning scholarship in ways that promote deeper understanding of student learning — and to do so in a public manner.

MIL is not an award for teaching excellence, nor is it a teaching improvement workshop. The Institute's primary purpose is to create a community of scholars who will contribute to the scholarship of teaching and, like the national Carnegie/Pew scholars (who come primarily from 4-year institutions), will "explore not only the teacher's practice but also the character and depth of student learning that results from that practice."

References

"Our Work." Carnegie Academy for the Scholarship of Teaching and Learning (CASTL)/Carnegie Foundation for the Advancement of Teaching. Available: http://www.carnegiefoundation.org/OurWork/OurWork.htm (15 February 2000).

Dixon, Nancy M. "The Hallways of Learning." Organizational Dynamics 25 (Spring 1997): 22-33. (Available electronically through Wilson Select database at Maricopa Community College library web sites; access protocol varies.) ▲

The Vice-Chancellor for Academic Affairs and Student Development (AASD) solicits MIL fellowship nominations in the fall from College Presidents, Deans of Instruction, and Faculty Developers. Nominees are then invited to submit project descriptions for the fellowship year. These applications are ranked in a blind scoring process by a screening committee of faculty and administrators. Fellowships for the following academic year are announced in the spring.

If you would like more information about the fellowship program, contact:

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or one of the 1999-2000 Fellows:
Barbara Fahey, SCC
Marian Gibney, PC
Mangala Joshua, MCC
Rosemary Leary, EMCC
LynnAnn Wojciechowicz, SMCC

The MIL website is:
http://www.mcli.dist.maricopa.edu/mil/

Spotlight

Illuminating Integrated Humanities Classes with Historical Storytelling

LynnAnn Wojciechowicz, SMCC

I teach a two-semester integrated humanities class entitled "Ideas and Values in the Humanities." The first semester starts with Ancient River Valley Civilizations and proceeds chronologically to the European Renaissance. The second semester starts with the Renaissance and concludes with the Modern World. Civilizations in Asia, Africa, and the Americas are touched upon along with those in Europe.

The first part of my MIL fellowship project is to research and craft in-depth stories of five people from the cultures we study in the second semester of the course. In addition to giving a glimpse into the life of each famous person, I hope to embed the important ideas and values of the people in this particular culture at this particular time.

Needless to say, my biggest challenge has been choosing whom to research. For the Renaissance, I chose Sir Thomas More (1478-1535), the Lord Chancellor to King Henry VIII of England, who gave up his life rather than compromise his belief that the Pope in Rome was the head of the Christian Church. More was really a Medieval man living at a time when the world around him was beginning to reflect Renaissance values. For the Baroque time period, I chose Sor Juana Inez de la Cruz (1648?-1695), the Spanish Baroque poet, playwright, and essayist from Mexico. She lived during the time of the Spanish Inquisition, when ideas and people were censored by the Roman Catholic Church. Women were expected to learn homemaking skills and marry or enter the convent where they were "married to Christ." A woman like Juana Inez Ramirez, who lived for learning, and who was a poor, illegitimate creole, faced many challenges. From the European Enlightenment, I chose Wolfgang Amadeus Mozart (1756 - 1791), the Classical composer. I chose Mozart because I love his music and lately much has been written regarding the effects of his music on learning. Representing the Early Twentieth Century, I chose Frida Kahlo (1904?-1954), a Mexican painter married to the muralist Diego Rivera, who overshadowed her during her lifetime. However, her reputation is continuing to grow. For the Age of Affluence, my last subject was Jean-Paul Sartre (1905?-1980), the father of Existentialism. He lived in France during the Nazi occupation of the Second World War. I chose him because students have difficulty understanding the concept of Existentialism. I hope that knowledge of Sartre's life experiences will help them to understand his ideas.

The second part of my project is assessment. I gave students a test at the beginning of the semester to determine their knowledge of these five people. At the end of the semester, I will conduct a post-assessment test to see if they report additional knowledge. I am also monitoring mention of these people in the essay exams students write at the end of each unit of study. In the past, I noticed that students always included details from literary stories I told in class as examples in their essay exams. This semester I am recording this evidence as it relates to my project. At the conclusion of spring semester, I will analyze the results.

This Maricopa Institute for Learning Fellowship has allowed me the time to do research and develop stories I would not normally have the luxury of doing. Additionally, the assessment analyses I am doing will document the value of using historical stories in an integrated humanities class. ▲

Spotlight

Re-framing and Renewing a Learning Project

MARIAN GIBNEY, PC

Over the last few years, I have been looking at the way I teach psychology. New technologies and new ideas about teaching and learning are always being developed, and I began to realize that some changes were necessary in my approach to teaching psychology. As my MIL project, I intended to re-frame my thinking about teaching because I have always been interested in the process of learning, both from the point of view of the teacher as well as that of the learner.

The question I started with was, " What do I really want students in my Introductory Psychology course to learn?" This seemed to be a rather simplistic question because I want them to learn the content of the course, but is that all? What about other aspects of learning such as application of the concepts, improved test-taking skills, better writing skills, critical thinking skills? I knew I could never achieve all of these in one semester, so I looked at which of these were most important for my focus. To help me clarify what I thought were critical elements for my course, I started with a self-assessment tool from Angelo and Cross (1993) called the Teaching Goals Inventory. This instrument is one way to help instructors focus on what they really think is important to teach.

As a second part of the project, I wanted to hear from the learners. What do they want to know when they had completed my course? What kinds of things make them want to come to class? Which do they dread? In order to get student input, I started with a small open-ended survey. This survey asked students open-ended questions about how they learned best, what type of classroom activities they liked, what they did not like, and what they liked instructors to do in class. In this way, I hoped to get a picture of student learning in general, rather than targeting specific, predetermined teaching techniques.

The preliminary outcomes of this project are exciting. Using the results of the self-assessment instrument, I am developing classroom activities and assessment practices that correspond more directly with my teaching goals. I found that just thinking about my goals and actually writing down how important each element is allowed me to focus classroom time to better meet these objectives. The preliminary student survey was predictable and surprising at the same time. Students never identified a particular teaching strategy which helped them learn best, but they did give some reminders. They learn best when the teacher is enthusiastic and organized. About the same number of students indicated that they liked group work as indicated that they liked lecture. As an extension of my project, the survey is being administered to all students in the psychology department. This will enable us to gather a wider variety, and more representative indication of student needs and ideas.

In summary, I have been engaged in a study of the "why," the "what," and the "how" of my teaching and learning efforts. The expected outcome of this project is a dynamic teaching portfolio in which I can identify, define, and measure outcomes of my own goals and activities as well as those of the students.

Reference
Angelo, T.A. and Cross, K.P. (1993). *Classroom Assessment Techniques: A Handbook for College Teachers*. San Francisco, CA: Jossey-Bass. ▲

A Critical Thinking Project

BARBARA FAHEY, SCC

Because critical thinking is on nearly every school's list of educational goals, appears in the title of a skyrocketing number of textbooks, and is the focus of seminars, workshops, conferences, newsletters, journal articles and presentations, it is pretty interesting that faculty generally cannot agree on a definition of it, a means of measuring it, or effective methods of teaching it. In fact, it is not uncommon to hear a colleague insist that critical thinking cannot be taught. Having the advantage of being trained in the humanities rather than the sciences, I am free to assume that there is such a thing as critical thinking and that certain behaviors are evidence that it is taking place.

Now, I can focus on trying to discover what kind of instruction can help students improve their ability to engage in it. I begin this exploration of critical thinking instruction with some basic assumptions:

- critical thinking is natural to human beings.
- critical thinking is a complex behavior which involves a hierarchy of skills that must be developed more or less in sequence.
- learning to think critically requires opportunities for practice.
- teaching critical thinking requires modeling critical thinking behavior.

- enabling students to understand the concept of critical thinking and to recognize critical thinking behaviors can facilitate the development of critical thinking skills.
- establishing behavioral criteria to assess critical thinking and enabling students to assess their own thinking can facilitate development of critical thinking skills.
- in spite of grading requirements, the results of instruction may be delayed.
- any improvement in the ability to think is good.

My project is planned in three stages: I (Summer and Fall 1999)— I researched what has been tried in various kinds of classes (including methods or designs that did not succeed or had unexpected results) and extrapolated principles, practices, assumptions, etc. II (Fall 1999 and Spring 2000) I began to experiment with two or three instructional designs that focus on the development of basic or intermediate critical thinking skills. III (Spring and Summer 2000) I intend to revise, retry, rethink, and elicit input from colleagues. I expect that Stages II and III will continue until I retire. ▲

Spotlight

Inquiry-Oriented Physics Instruction

MANGALA JOSHUA, MCC

Many students in physics courses have naive beliefs and misconceptions about the physical world. The main cause of these preconceptions is that the students have developed incorrect or incomplete mental models to explain their experiences with the physical world. For example, if you ask the students to compare the forces exerted on each other when a Mac truck collides with a stationary Volkswagen, the majority of students would say that the Mac truck would exert a larger force on the Volkswagen. This seems quite reasonable based on their experience. Students know that a Mac truck's collision with a Volkswagen will result in more damage done to the Volkswagen, and this is been interpreted to mean that the Mac truck must have exerted a larger force on the Volkswagen. However, Newton's third law states that two interacting bodies exert equal and opposite forces.

After completing the mechanics section of the course and going on to electrical interactions if a similar type of question is asked, one finds that most students still hold to this misconception, which shows how deeply rooted these beliefs are. The knowledge that the students bring into the classroom will shape what they learn. Therefore, these preconceptions have to be dealt with in the classroom.

As an MIL Fellow, I am studying and implementing a fairly new approach to teaching physics. It is based on the modeling method of instruction researched and developed by Dr. David Hestenes at Arizona State University. The modeling theory is grounded on the thesis that scientific activity is centered on modeling: the construction, validation, and application of conceptual models is used to understand and organize the physical world.

In this type of a classroom, the students are actively engaged, working in groups, experimenting, analyzing, and constructing models that explain the physical phenomena they are exploring. They refine their ideas and models by collaborating in their groups.

The teacher is a facilitator, directing students to guided activities and experiments. Probing questions are asked and ideas are seeded to make the students think and develop models for the phenomena they are exploring. When the groups come together for a final discussion, the teacher guides the discussion to bring out the main ideas and concepts. This enables the students to construct their own knowledge.

Listening to the students' conversation in groups give insights to the beliefs and preconceptions that the students bring with them. This past semester I have learned a great deal by listening to such conversations. ▲

Self-Directed Learning in the Chemistry Lab

ROSEMARY LEARY, EMCC

...as your first assignment, I want to issue you a challenge in the form of a question. What information, skills, or behaviors must a qualified and capable lab student be able to demonstrate by the end of the course? Based on your criteria, how will you demonstrate that you are qualified and capable?

So began a group of students CHM130 lab and my exploration into the feasibility of moving from a very teacher-directed laboratory format to more student-directed and open-ended investigations.

To my amazement and delight, the students generated a list that would typify most, if not all, introductory chemistry laboratory courses. Because the students themselves determined the topics to learn, they had a self-interest in the material. Instead of blindly following a set of detailed instructions they began asking questions. The questions led them to seek sources of information and rely on each other for answers instead of on the instructor.

My role quickly became one of a facilitator, guide, and coach. Rather than provide direct answers to questions, I help the students formulate questions and strategies. Students also needed to learn the intricacies of working in a group and negotiating differences in opinions and approaches. They needed guidance in formulating lab procedures and in writing their work into a formal report. And considerable time was directed toward reassurance. Many of the students lacked self-confidence. They were afraid they would not obtain the "right" answer, that they would do something wrong, or all of their work would lead nowhere.

The laboratory projects still need refinement, and not all students were pleased with the experience. However, most of the students did express some level of satisfaction. Students felt that they had more independence and creative freedom; however, they didn't like relying on "unreliable peers" or the feeling of "being clueless." They were ambivalent or negative about working in groups at the beginning of the semester but more positive as a result of the experience. For the most part, the students came away with a sense of accomplishment and some sense of the connection between learning chemistry in school and aspects of their everyday life.

I have committed to expanding my attempts in this direction for spring semester and beyond. For me, it has provided an answer to my frustration with students coming to lab, blindly following a set of detailed procedures, answering questions, but not always drawing connections between their work in lab and their work in lecture. It has also provided another way for me to share with my students the joy of investigation and discovery and the self-confidence that comes with self-directed learning. ▲

Spotlight

Rio Salado's ABE Transition Program

JEANNE HARRINGTON, RSC

The Rio Salado Transition Program is a proactive strategy designed to assist adult students as they move from adult basic education to college coursework. While many who complete the GED or ESOL program will go on to seek immediate employment, others are prepared for and desirous of higher education and training.

The Transition Program offers services that a student who is unfamiliar with the system often requires. In addition to recruitment of potential candidates through site visits to ABE locations, program advisors help the students understand and maneuver the system. They provide initial advisement, placement testing, help with class selection and information on the services offered by the colleges. The program staff has also developed a series of workshops aimed at better preparing the student for the college experience.

The number of students transitioned last fiscal year testifies to the demand for this kind of program. By June of 1998, 127 students had transitioned into the nine other Maricopa colleges. Figures for fall 1999, and spring 2000, come to over 200. These students transition into academic, tuition-bearing ESL classes as well as computer classes and general studies. Many enter specific courses of study leading to a certificate or degree.

Rio Salado intends to expand this program over the years so that more adults can successfully transition into MCCCD. ▲

Center for Native and Urban Wildlife at Scottsdale Community College

VIRGINIA KORTE, SCC

The Center for Native and Urban Wildlife (CNUW) at Scottsdale Community College (SCC) began operation in January 2000. Through a grant provided by the Nina Mason Pulliam Charitable Trust and in collaboration with the McDowell Sonoran Land Trust, and many other community organizations, the Biology Department established CNUW, an organization dedicated to preserving desert wildlife through community education and participation. By increasing awareness and appreciation of the Sonoran Desert and restoring damaged desert habitat, CNUW supports the conservation of Sonoran Desert ecosystems for the benefit of all desert species including humankind.

New facilities for CNUW include a Greenhouse/Vivarium, an Outdoor Propagation Center, and a Learning Center. These resources aid in the successful completion of CNUW's goals which include desert habitat restoration projects, research and rearing of endangered amphibians and fishes, elementary and high school student outreach programs, an Internet-based network devoted to desert and urban wildlife preservation, and a community outreach process designed to educate our society of the value of desert wildlife diversity.

CNUW emphasizes participatory education in its fabric. This organization is student-driven and provides part-time wages to student workers and opportunities for volunteers. Hands-on learning opportunities, intended to attract and retain students, provide them with practical experience. Additionally, important community resources

are woven in our partnerships with other organizations such as Arizona Game and Fish Department, Desert Botanical Garden, Liberty Wildlife, Phoenix Zoo, and City of Scottsdale, for educational experiences and transitioning into the workplace.

The Center for Native and Urban Wildlife programs are based on the belief that simple explanations to students about the value of particular wildlife species or wildlife habitats are not sufficient. Encouraging direct participation in projects involving the preservation of endangered species, habitat restoration, or wildlife species surveys produces students with knowledgeable and practical experience about desert conservation issues.

Students and faculty of SCC, with the McDowell Sonoran Land Trust and the City of Scottsdale, propagate native plants to revegetate disturbed desert habitats. Once a working cattle ranch located in the McDowell Sonoran Preserve within the City of Scottsdale, Brown's Ranch is one of CNUW's current habitat restoration projects.

Successful restoration of desert ecosystems and reintroduction of endangered species are important outcomes of CNUW's programs. Perhaps the most important measurement will be in CNUW's steady progression of influence within the hearts and minds of our community members. ▲

Self-Directed Learning 101
DEAN STOVER, GWCC

Because of a FIPSE grant GateWay received last year, I went through a week-long, intensive training session to become a tutor. This training gave me the knowledge to use the problem-based learning approach first devised by Howard Barrows at the Southern Illiois University School of Medicine. One of the key elements of problem-based learning is to use real-world problems to motivate student learning; their need and desire to solve the problem will inspire them to become self-directed learners.

In the pilot project we learned that students cannot suddenly become self-directed learners in one semester. We needed to slowly guide them from dependent to independent learning.

Because one of our goals as teachers is to help students become more independent learners, I am now applying my knowledge about self-directed learning to my first year composition class. On the first day of any new writing assignment, I no longer ask students about the reading they were supposed to do for that class. Instead, I ask them to tell me what they know about that particular writing assignment, such as a persuasive essay. Usually, the students bring up most of the ideas that I want to discuss: thesis, topic sentences, rhetorical strategies, introductions, conclusions, transitions, research skills, documentation, etc. For each idea, I ask a student and anyone else in class to explain the idea to the class. If I do not think the explanation is clear or detailed enough, that idea becomes, according to problem based learning, a "learning issue." By the end of the period, we have a whole list of learning issues for the class. Students then select one or more of the leaning issues and are charged to find out more about those issues so they will be prepared to discuss those ideas in more detail, and explain how that information will help solve the problem of writing an essay.

When students return to the next class, some have completed outside reading on their learning issues and others have not. They hope that I will give them the answer. At this point, I will either give them some time to do reading in class or ask them to do more research on their own time. If another day passes and they do not have the information or understand the information, I will provide the information at that point. My goal is not to keep information from them but to keep the pressure on them, for as long as possible, to find the information on their own. Holding students responsible for finding the information that will help them solve a problem should help them retain the information.

This approach is helping students become more self-directed and makes them more confident learners. As one student wrote in her evaluation essay last semester, "I think this is a method that should be taught more often to allow students to learn things on their own and become more independent learners." ▲

Teaching Scholarship (continued from page 1)

While Munroe's article relates her excitement of teaching with metaphors, Holly McKinzie Beene stresses the need to communicate in a formal medium. Beene, who wrote "The Maricopa Institute for Learning: Developing a Public Conversation About Teaching and Learning," notes that the informal interactions in which we often engage are powerful for their dynamic quality and multiple perspectives, but they are limited because they are "time constrained and more or less private." Because such "hallway learning" has its restrictions, Beene urges educators to participate formally in conversations that *publicly* display "thinking and insight."

In its unique niche, the *Labyrinth/Forum/Assidere* serves as a resource and a positive support for its readers. Our spring issue provides an opportunity to take part in the dialogue about effective teaching and learning. Read and engage in this dynamic process already begun by these authors. ▲

Assidēre

Sharing Information on Assessment

In this issue of *Assidere*, René Díaz-Lefebvre discusses the Multiple Intelligences/ Learning for Understanding (MI/LfU) project. This is the result of the efforts of a multidisciplinary team of faculty at GCC. The team has successfully implemented a unique approach to teaching/learning/ assessment based on the work of Howard Gardner. René explains that the project at GCC allows students to have a variety of learning options to follow as they engage in learning academic material. He also writes about the connections between assessment, the MI learning options, and the role of rubrics in the assessment of understanding.

We are introducing a new regular column that will be sponsored by the District Student Academic Achievement Assessment Committee (DSAAAC), which is composed of faculty and administrators that support assessment efforts across MCCCD. *Assidere* becomes an avenue for DAC to develop awareness of assessment among faculty across the District and to share information and resources. The first article discusses the goals of the committee and its membership.

Also in this issue, we describe the in-house and online assessment/evaluation resources which are available at the MCLI to Maricopa faculty and administrators. ▲

"Just Tell Me What I Have To Do To Get An 'A' In Your Class!"

RENÉ DÍAZ-LEFEBVRE, GCC

Have you ever noticed a young child in awe of the world around her as she explores and is open to learning in many different ways because she uses her imagination and creativity to solve problems while having fun?

I recently was speaking with a friend about her seven year old son. It seems as if this very capable kindergartner was not doing well on his spelling tests. Instead of writing down the word after the teacher said it, the little boy was in awe of and wondering why the 'C' in CAT went one way and not another. His mother went on to explain that he was asking other questions, "What is happening between my brain and my hand as I begin to write?"

Wow! I hope I get this kid in one of my classes someday! Sad to say, his mother informed me the school (teacher, principal, school psychologist) is recommending the little boy be kept back a year because "he is off in his own little world" and not progressing as he should.

Multiple Intelligences/Learning for Understanding

What happens to many of these students who grow up and proceed through a school system, including higher education, that does not recognize or acknowledge the many ways people are "intelligent?" How many bright, intelligent people do you know who have fallen between the cracks because they learn in a different way? Your son, daughter? Hmmm. On the other hand, I don't know how many times I have heard students ask, (or sometimes demand!) "What do I have to do to get an 'A' in your class?" Quite a paradox and dilemma for those who chose to teach and reach today's student.

Changes in education come about slowly, perhaps too slowly for the rapid pace of change that marks modern systems. In an open letter to every president of an institution of higher learning in America, The Wingspread Group on Higher Education (1993) urged "Putting learning at the heart of the academic enterprise will mean overhauling the conceptual, procedural, curricular, and other architecture of post secondary education on most campuses" (14).

Community colleges are often the first institutions of higher education to feel the impact of change because they are so closely positioned to work with communities which represent a microcosm of society and its values.

Howard Gardner's multiple intelligences theory (MI) asserts that all people possess at least eight capacities for solving problems and creating products (Gardner, 1983). In addition, according to Gardner, to understand means to be able to express information through a "performance of understanding," which involves students giving presentations that demonstrate their knowledge of academic material. This gives them an opportunity to act as "mini experts" on a subject and allows them to teach their peers (and instructors!) information they have learned themselves.

Multiple intelligences/learning for understanding is one approach around which a group of dedicated Glendale Community College faculty members, representing a variety of disciplines (biology, anthropology, Spanish, chemistry, nursing, psychology,

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mathematics, art) have been focusing their efforts over the past few years. The MI/LfU project at GCC allows students to explore different approaches to learn academic material in college level classes through performances of understanding called "Learning Options," which use one or more of the intelligences identified by Gardner.

Assessment and the MI Learning Options

Students are assessed in order to discuss what their dominant or preferred intelligences are, and they are given a variety of learning options to choose from in learning course content. The learning options sculpture, collage, poetry, drawing, interview, book report, mime, role playing/acting, creative dance and musical/rhythmic provide students with guidance and an opportunity of learning academic material in a different way. This "different way" is, hopefully, a way in which they can understand the material better. The basic premise of the learning option maintains:

A.   Not all students learn or understand the material in the same way. Yet, for many paper/pencil testing is the only method used for assessing how they are "smart."

B.   The teacher is the content expert and makes the decision on what terms, concepts, topics students need to know. These terms and key topics are included in the learning option format.

C.   The purpose of the learning option is to provide choices and creative options accentuating the different intelligences. Creativity and use of one's imagination is highly encouraged. The written and reflective component in an integral part of the student's learning experience.

D.   The learning option provides an opportunity to reinforce material which is covered in class or information in the textbook.

E.   Learners are encouraged to be creative, use their imagination, get out of their "comfort zones," and have fun!

A Creative Grading Rubric for Understanding

Upon completion of the learning option, students are expected to satisfy the following criteria to successfully complete the assignment and earn the maximum number of points or earn the highest grade.

Most teachers view the assignment of grades as burdensome and unpleasant, yet something we have been doing and will continue to do for a long time. I am not going to spend time arguing the pros and cons on the effectiveness (or non effectiveness) of grades. In my opinion, grades are detrimental to real learning and understanding. The title of this paper suggests a widespread belief among students, their parents, employers, and others, that a letter grade equates what a person knows and understands. The long history of assigning grades does not promise

an end to this important component of evaluation soon. I suggest no blame; I can, however, propose a different evaluation and assessment format that is being utilized in the MI/LfU project at Glendale.

A rubric is a set of guidelines for comparing students' work. Rubrics provide descriptors for varying levels of performance, and rubrics answer these questions: by what criteria is performance judged? What does the range in the quality of the performance look like? How are different levels of quality described and distinguished from another? The rubric faculty use provides a tangible way of grading for understanding. The learner is assessed by utilizing five criteria: creativity/imagination, demonstration/performance, organization/format, reflection/metacognition, and evidence of understanding. Indicators within the criteria provide specific areas of competence. This type of assessment helps teachers and students to set standards, create instructional pathways, motivate performance, provide diagnostic feedback, evaluate progress, and communicate progress to others. Learners are given the grading rubric at the beginning of the course so they know right at the start of the course what they need to do to get an "A!"

In Their Own Voices

Reactions, evaluations, and comments from project participants have been favorable and supportive. Willie, a 26-year-old returning student sums up his experience in an MI/LfU class,

> *I believe an MI approach probably could be utilized in any college class, although I don't believe that will ever happen. You are still learning the material; you're only doing it in a different way—a better way if you ask me. I get through so many classes by cramming the night before the test; I don't learn much, but it gets me an "A" in the class. In this class, I actually learned something. It was a little more work, but as much as I hate to admit it, I enjoyed it. The poem took me all weekend to write, but it felt great when it was done. I will never forget it. Thank you for challenging me to try something different. I had a BLAST!*

Comments from the project faculty have reflected similar sentiments on the teaching and learning outcomes from applying the MI/LfU concept based format of assessment and evaluation. One of the project faculty states,

> *By far the greatest reward of this experience thus far has been realizing the depth of thought and feeling shown in the works presented as part of the MI project. The poetic soul is very close to the artistic soul, and when given the opportunity, the two will merge in a wonderful ways. I had some strong pieces of poetry presented this semester. Even some of the most hard boiled personalities allowed themselves to reveal that part in some of the work presented. When asked, many said that doing the MI projects did open doors to learning that they had not considered. They did have to reach into a part of themselves to complete the circle of learning. It did not come from the teacher. The students*

had to take more responsibility for what they accomplished in this class.

The MI/LfU Institute

On April 27-29, 2000, Glendale Community College will host the first international Multiple Intelligences/Learning for Understanding Institute. You are invited to join the project faculty members and their students as they share their dedication to design educational experiences for students that encourage learning information in creative, imaginative, and different ways. The theme of the Institute is "The Sky's The Limit: Unlocking Student Creativity." One of the highlights of the Institute will be Dr. Howard Gardner who will participate in a dialogue on Friday, April 28. In 1999 he published two books on education: *The Disciplined Mind: What All Students Should Understand* and *Intelligence Reframed: Multiple Intelligences for the 21st Century*. For more information visit our web site at: `http://www.gc.maricopa.edu/mi-lfu-inst` or call (623) 845-3616.

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District Student Academic Achievement Assessment Committee (DSAAAC/DAC)

The District Student Academic Achievement Assessment Committee (DSAAAC), also referred to as DAC for brevity, meets once a month to support assessment efforts across the Maricopa County Community College District. Currently, DSAAAC has two goals:

1. to provide the Governing Board with a district picture of assessment (Goal Approved 11.19.99)

2. to hold annual faculty assessment forums (Goal Approved 11.19.99)

The first goal respectfully acknowledges the need for the existence of each community college's individual assessment efforts. It is based upon the NCA philosophy that assessment is a faculty-owned and faculty-driven process. The goal is also intended to respond to the Governing Board's Goal that students will demonstrate selected general education skills and abilities.

The second goal aims to create and maintain an awareness of assessment among faculty members across the District.

Members of DSAAAC are currently working together in order to produce a document that will enable it to meet its first goal. Additionally, DSAAAC members are making plans for the Third Faculty Assessment Forum which will be held in fall, 2000. ▲

Chairs of the College Assessment Committees

CGCC	Scott Silberman
EMCC	Kathleen Iudicello and Gail Snyder
GWCC	Sue Kater
GCC	Pam Joraanstad
MCC	Mark Gooding
PVCC	Fred Stahl
PC	Brent Jameson
RSC	Laura Helminski
SCC	Barbara Fahey and Pat Medeiros
SMCC	Jerome Garrison and Ken Roberts

DSAAAC members

CGCC	Scott Silberman
DIST	Margaret Hogan, Rachel Madsen, and Shiji Shen
EMCC	Kathleen Iudicello and Gail Snyder
GWCC	Sue Kater
GCC	David Raffaelle
MCC	Andrea Greene and Mark Gooding
MCLI	Maria Harper-Marinick
PC	Georgia Gudykunst and Brent Jameson
PVCC	Kenneth Hart
RSC	Laura Helminski
SCC	Barbara Fahey amd Pat Medeiros
SMCC	Jerome Garrison and Ken Roberts

assidere: *to sit by (ad=near to; sedere=to sit)*

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The MCLI Assessment and Evaluation Resources

As part of its mission, MCLI offers expertise, consultation, and resources to the Maricopa communities in support to their efforts to enhance learning through assessment and evaluation. The main purpose of the MCLI A/E Resources is to provide access to useful information related to the assessment and evaluation of teaching and learning processes, programs, and institutions.

In-House Resources
MCLI houses over 400 assessment-related resources.

Assessment Plans
The collection includes assessment plans from some Maricopa colleges and from other institutions of higher education.

Tools
The collection includes samples of commercially-published tests and surveys related to the assessment of student outcomes. They include:

Academic Profile
Accuplacer
Adaptive Style Inventory
ASSET
California Critical Thinking Skills Test
Cornell Critical Thinking Test
Critical Thinking Assessment Test
Cultural Diversity Inventory
Ennis-Weir Critical Thinking Essay Test
ICAT (critical thinking)
Logical Reasoning Sampler Set
Nelson-Denny Reading Test
Problem Solving Style Inventory
Tasks in Critical Thinking
Watson-Glaser Critical Thinking Appraisal

For a complete listing of available tools, visit our Web site.

Books and articles
Our collection of books includes:

Assessment and Program Evaluation by J. Stark and A. Thomas
Assessment Essentials by C. Palomba and T. Banta
Assessment for Excellence by A. Astin
Assessment in Community Colleges: Setting the Standard for Higher Education? By T. Banta
Assessment In Student Affairs by M. L. Upcraft and J. H. Schuh
Behind Outcomes: Contexts and Questions for Assessment by P. Hutchings
Effective Grading: A Tool for Learning and Assessment by B. Walvoord and V. Anderson
Feedback in the Classroom: Making Assessment Matter by K.P. Cross
Handbook for Multicultural Assessment by L. Suzuki, et. al.
How to Communicate Evaluation Findings by L. Morris, et. al.

Implementing Outcomes Assessment: Promise and Peril by T. Banta
Instructing and Evaluating in Higher Education: A Guide for Planning Learning Outcomes by R. McBeath
Multiple Assessments for Multiple Intelligences by Bellanca, et. al.
Responsive Assessment: A New Way of Thinking About Learning by M. Henning-Stout
Time will Tell: Portfolio-Assisted Assessment of General Education by A. Forrest
Using Assessment to Strengthen General Education by P. Hutchings, et. al.

For a complete listing of books and articles, visit our Web site.

Newsletter
Assessment Update

Journals
AAHE/ERIC Higher Education Research Report
Assessment and Evaluation in Higher Education
Community College Journal of Research and Practice
Journal of Educational Statistics
New Directions for Institutional Research
New Directions for Program Evaluation

If you are interested in being added to the routing list for any of these journals, please contact Shelly Laug at:

`shelly.laug@domail.maricopa.edu`

Videos
Critical Thinking: Infusion and Assessment (Video series); Richard Paul - presenter

Tasks in Critical Thinking Workshop; Linda Hays - presenter

Online Resources
MCLI Web site for Assessment and Evaluation:

`http://www.mcli.dist.maricopa.edu/ae/`

The site is organized in three sections: assessment, institutional effectiveness, and evaluation. Each section offers information specific to the area, tools, links to other web sites, and a current listing of local and national events, as well as a listing/description of the MCLI in-house resources. There are also special focus areas such as critical thinking, problem solving, portfolios, and special NCA papers authored by Dr. Cecilia Lopez. ▲

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Assidere is published by the Maricopa Center for Learning and Instruction for the faculty of Maricopa Community Colleges.

Assidēre • Spring 1999