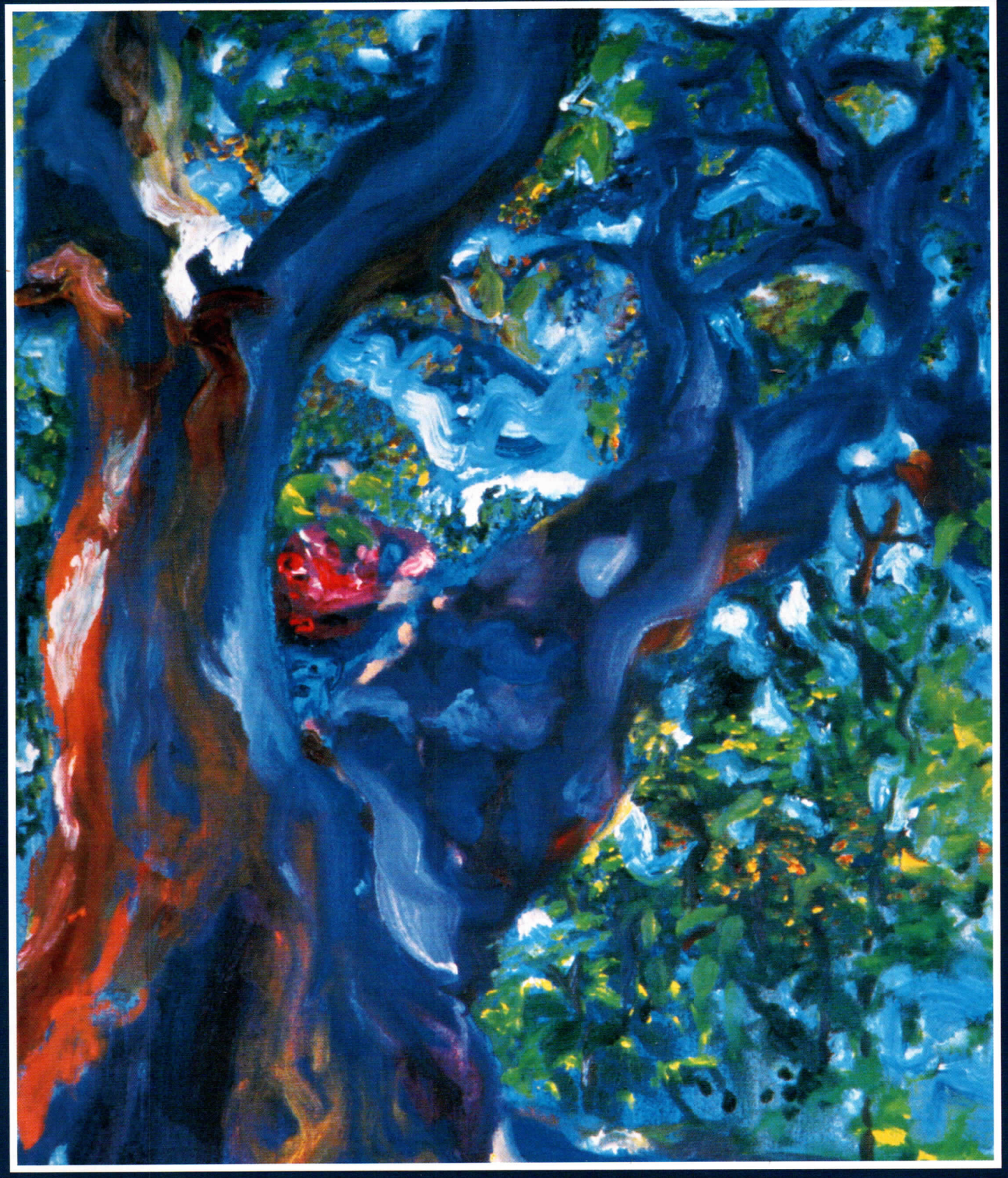
DISCOVERY

RESEARCH AND SCHOLARSHIP AT THE UNIVERSITY OF TEXAS AT AUSTIN



VOLUME 14 NUMBER 4

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DISCOVERY
Research and Scholarship at The University of Texas at Austin

Volume 14 Number 4

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DISCOVERY, a nationally award-winning magazine, samples current research, scholarly, and creative activities at The University of Texas at Austin as a public service to inform readers about faculty research and to inspire the University community.

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COVER: *Tree of Knowledge,* Ron Grimes
ABOVE RIGHT: *Chihuahua,* Beverly Barrett
ABOVE LEFT: *Naked to the Moon,* Laura Storm
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THE UNDERGRADUATE EXPERIENCE

All discoverers were undergraduates at one time. It is during this period of their training that they often are introduced to their discipline and are schooled in its fundamentals. Great discoverers often cite some undergraduate teacher or teachers who provided the inspiration for their lifetime devotion to discovery.

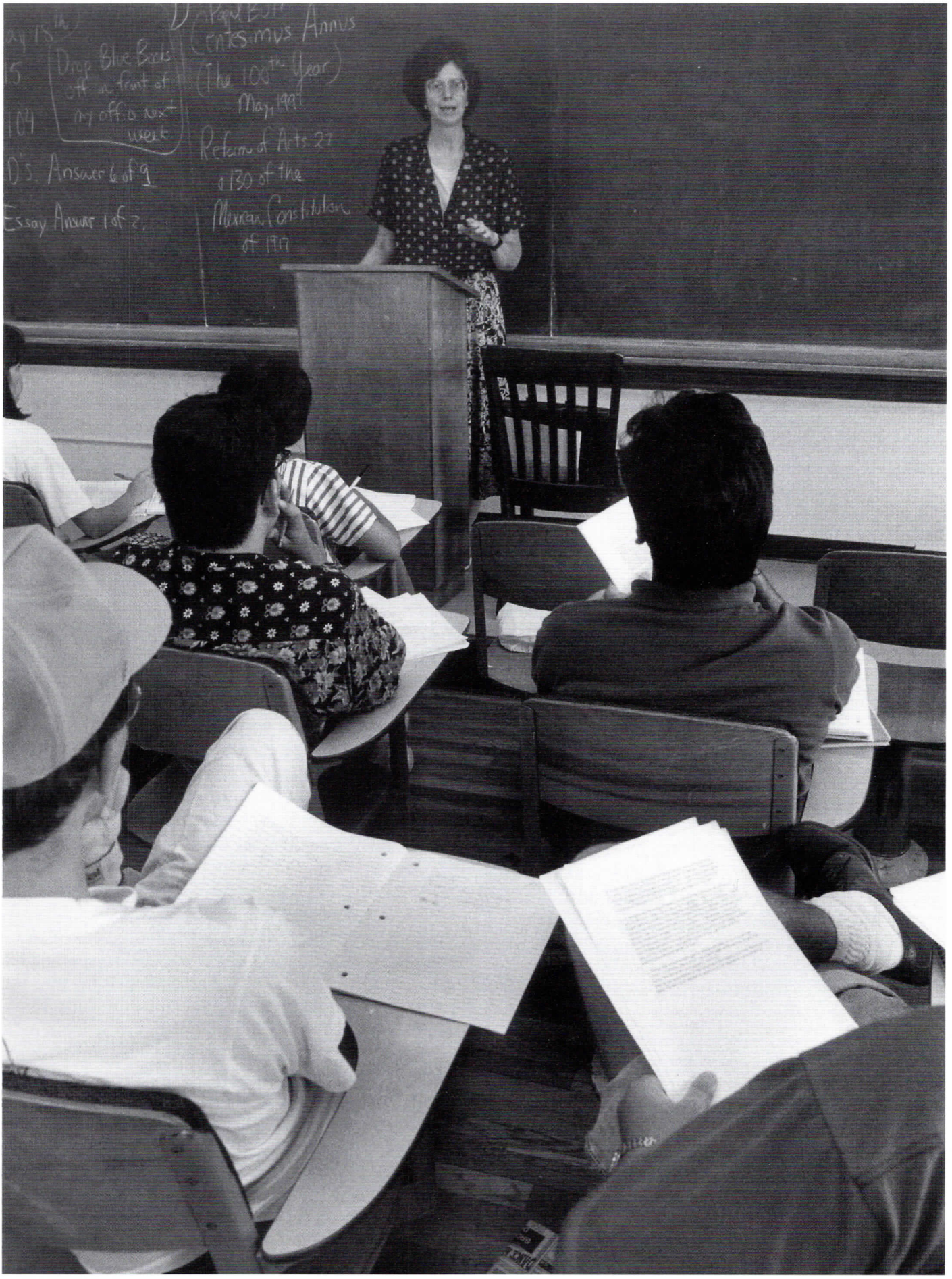
DISCOVERY, in its twentieth year, seeks to deepen public understanding about the exceptional graduate research and scholarship that makes The University of Texas at Austin a premier national institution. This special issue of the magazine moves beyond its mission of featuring university research to showcasing the undergraduate experience on campus. Faculty who are exemplary teachers and scholars offer the reader a thoughtful discussion about their chosen profession. Robert D. King, former dean of Liberal Arts, writes that "teaching undergraduates is the most essentially fundamental obligation of a university. It is from that sacred mission that public trust in higher education derives—and makes of a university a noble institution rather than only a useful one." Throughout the University's history men and women faculty who loved teaching have made a remarkable difference in the lives of undergraduates. Many a person recalling their undergraduate years remember a teacher "who made our educational experience not just an intellectual one, but a personal transformation, and who changed the way we look at the world and how we live," as engineering professor Philip S. Schmidt describes.

This issue of DISCOVERY is dedicated to those men and women who brought about a "personal transformation" in the lives of their students.

—Carol S. Hatfield

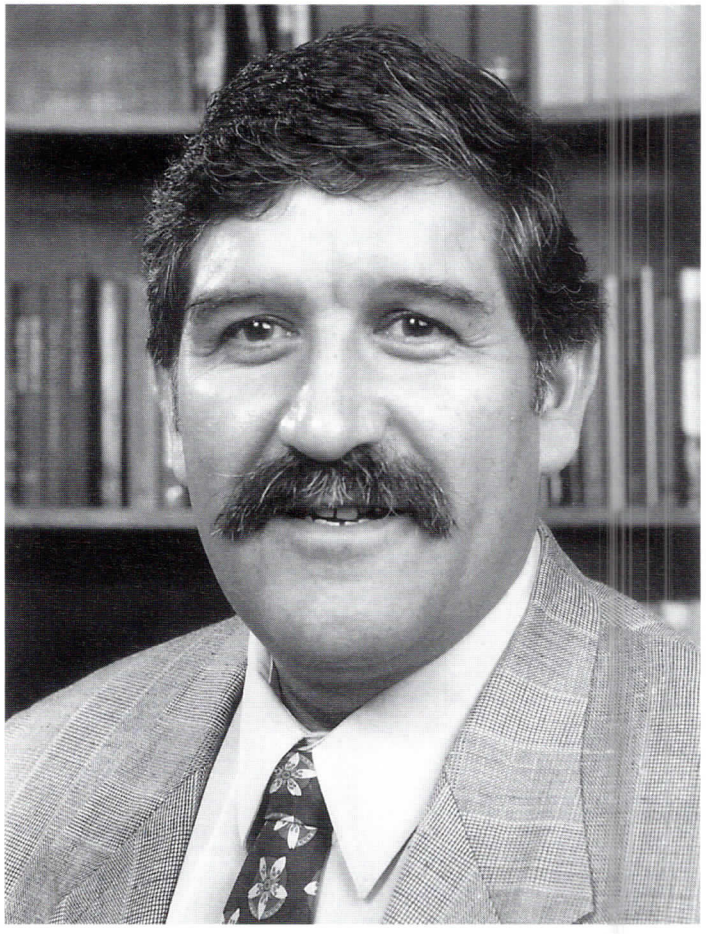
Illustrations: Undergraduate work is featured throughout this DISCOVERY. Students from the Department of Art and Art History provided a diverse array of visual art for publication. This outstanding department seeks to establish "cutting edge" contributions to the variety of disciplines, including design, studio art, art history, or visual art studies. Photojournalism undergraduates, as a class project, took the documentary photographs seen in the magazine. The Department of Journalism has one of the few national programs to produce outstanding photojournalists regularly. Former students have earned seven Pulitzer Prizes and many other national and international awards for photography and writing about photography, teach at colleges and universities, and have successful careers in many aspects of photography.

Credits: Matthew Raymond assisted the editor in acquiring undergraduate art work. Ralph Elder at the Center for American History provided faculty photographs for Margaret Berry's article, and many of them are the work of former *Daily Texan* photographers. Professor J. B. Colson, head of the UT photojournalism sequence, loaned photographs from his fall semester class for publication.


Drop Blue Books off in front of my office next week
(Centesimus Annus
(The 100th Year)
May, 1991
Reform of Arts. 27
& 130 of the
Mexican Constitution
of 1917
D's Answer 6 of 9
Essay Answer 1 of 2.

PREFACE

RICARDO ROMO



While change is often lamented, it is inevitable in higher education. Educational reformers at The University of Texas at Austin are encouraged by new instructional initiatives and programs conceived by President Robert M. Berdahl and Provost Mark G. Yudof. In 1994 the president spoke before the faculty and encouraged them to accept a philosophy of change. Acknowledging that the problems of universities today are profound, he added "but our opportunities to transform ourselves and our society are exciting."

Nowhere is that transformation more apparent than in UT's renewed commitment to undergraduate teaching. For four years the president has allocated substantial resources and energy toward the improvement of undergraduate instruction, and his actions speak well for his commitment. In the past two years alone, his administration established an Academy of Distinguished Teachers to reward outstanding classroom professors, instituted a new Freshmen Seminars program for first-year students, allocated several million dollars for classroom renovations, and initiated a major buildup of information technology networks. My comments will focus on some of the major teaching initiatives and their impact on undergraduate students.

Freshman Seminars. Teaching freshmen students has long been one of the most challenging undertakings of UT Austin. According to the American Association for Higher Education, "a consensus is emerging that the first years of undergraduate study—particularly the freshman year—are critical to student success. This idea partly reflects the fact that the transition from high school to postsecondary study represents a major discontinuity in both expectations and behavior for most students."

In 1995 UT's administration wanted to provide first-year undergraduate students with a small-class experience. Because of limited instructional funds, the administration needed an innovative way to create small seminars without increasing salary costs. Enhancing the small-class experience was possible if administrators and retired faculty could be encouraged to return to the classroom and if some faculty were willing to teach an "overload" class. Initially, eleven brave souls took the plunge. The president and the provost, two of the busiest people on campus, led by example as they submitted their class syllabi.

The academic goals of the Freshmen Seminars are to help students develop their critical reading, writing, and discussion skills and to introduce them to the resources of the University. I was appointed director of the experiment, and in the first year, the program enrolled 150 students. The development of reading and writing skills was the primary focus of the small sections, and discussion skills were addressed in a large-group session which met once a week. Each Freshman Seminar section was limited to fifteen students to allow for greater personal attention and interaction. The topics ranged from "Spies, Espionage and Traitors" to "The Constitution on Campus." All sections were designated as part of the Humanities program in the College of Liberal Arts. The program expanded to thirty-three classes in Fall 1996.

The courses have been an immense success with students and faculty alike. Students in the semi-

nars got to know each other and, as a consequence, they interacted and helped one another in finding the key to a successful first year. They unanimously reported that they appreciated the opportunity to get to know their colleagues and professors well. It has been demonstrated that "knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans."

For the faculty, getting to know freshmen students—discovering why they came to attend UT Austin and what interested them academically—proved a rewarding experience. Many of them have informed us that they appreciated the opportunity to interact more personally with students and, as a result, to learn more about their lives. In the informal settings, professors as well as administrators learned about the freshmen's adjustments to the campus, as students freely discussed the quality of cafeteria food, problems in finding parking, the continuing saga of messy roommates and much more.

President Berdahl has commented how he looked forward to Monday afternoon—"a special time"—when he and Professor David Bowman team taught a history seminar comparing German landed society with the American Southern society of planters and slaves. Former Liberal Arts Dean Robert King assigned his students to read popular spy novels, tempting me on at least one occasion to refer to him as Professor 007. Students enrolled in King's classes can all attest to his excellent teaching style, and there was no mystery about his demanding assignments. Professor Wayne Danielson, a journalism professor and expert on the application of software technology to the Internet, taught a class on reading the newspapers. At 8 a.m. sharp, the students began the seminar by reading several newspapers, all the while enjoying coffee, orange juice, and donuts kindly provided by Professor Danielson. Students discussed the ideas addressed in the newspapers, wrote letters to the editors of *The Daily Texan* and other newspapers, and many of them were excited when they saw their letters in print.

Research studies show that "students learn best when they are given multiple opportunities to exercise and demonstrate skills. For example, students learn more when they participate in frequent discussions of presented class material, produce considerable written work, and apply learned material to new settings or contexts rather than when they simply listen to lectures."

Collaboration and team building was encouraged in the Freshman Seminars. The students worked hard, some of them researching and writing a paper once a week. Professors agreed that the hard work enabled the students to improve their analytical skills and, in many instances, empowered them intellectually as they raised their reasoning ability to new levels. Professors expected their students to sharpen their written and oral communication skills as well as to apply originality and imagination to their assignments. Many accounts were given about the students' first encounter with interactive research on the World Wide Web or their exciting study sessions with classmates.

Recognizing Good Teachers. Since teaching has a heightened status at UT, its evaluation and reward must be taken seriously. In Spring 1995, President Berdahl established the Academy of Distinguished Teachers to honor twelve members who have demonstrated outstanding teaching, personal commitment to students and the learning process and an ability to inspire and motivate students in the classroom. Professors are nominated by their departments and deans and are selected in a competitive peer and administrative review process. New members serve in the academy for a period of eight years and may be reelected. The academy, which is limited to eighty professors in active service or roughly 6 percent of the tenured faculty, exemplifies the University's commitment to quality instruction and brings richly deserved recognition to dedicated classroom teachers. Academy members receive a permanent annual salary increase of $5,000.

When students are asked to share their expectations of an outstanding class experience, they are most likely to mention competence, enthusiasm, and fairness. Professor George Forgie, a member of the Academy of Distinguished Teachers, knows a great deal about good teaching. A Civil War historian and a highly esteemed teacher in the history department, Professor Forgie offers the view that successful teaching begins with the professor's

interest in the subject and an ability to convey his/her enthusiasm for the material. Professor Forgie loves talking about history and is known for holding long discussion sessions with his students in his office after regular class hours.

Peter Beidler, author of the 1997 book *Inspiring Teaching*, suggests that good teachers are those individuals who "really want to be good teachers." It should come as no surprise to us that students respect teachers who really try to help them learn. Students supporting the nomination of Professor Mario Benitez to the Academy of Distinguished Teachers wrote: "My attention was captured and the sessions ended much too quickly." Another student wrote."[Benitez] always made me feel his most important concern was that I understood each issue and how these topics affect learning."

Likewise, students nominating Professor John Trimble to the Academy spoke eloquently of their former professor. One student noted: "His insights are brilliant, his grasp of the material consummate. He is able to analyze any argument; applaud its strengths and illuminate its weakness; discuss ramifications; draw comparisons; and usually 'brings it home,' so that topics become personally relevant." Another student added: "I never had anyone spend as much time on my work as Prof. Trimble; he often spent longer editing our papers than we did writing them!" Tributes on Professor Trimble's evaluations were many and such comments as "challenging," "accessible," "erudite," and "even-handed" were common. Most significantly, his students commented that he "genuinely cares for his students."

Center for Teaching Effectiveness. When the faculty development movement began about twenty years ago, one of the most consistent observations made by its proponents, regardless of institution, was the delight faculty members took in the opportunity to talk to one another about teaching. This has been true for faculty participating in activities sponsored by our Center for Teaching Effectiveness as much as it was true for faculty at small liberal arts colleges where teaching is a primary goal.

Each year the Center organizes two University-wide conferences where faculty who are committed to teaching have an opportunity to come together and compare notes. It does not much matter what the main topic is; an important part of these conferences is the discussion that goes on outside the formal presentations. Once, reviewing the upcoming busy fall semester, the Center's staff decided it would not matter if they canceled the January conference that year; no one would notice. How wrong they were! Around mid-November faculty began calling the Center and asking about the conference. When was it? Where would it be? Could they register early? These faculty confessed to feeling isolated and cutoff from the kind of intellectual stimulation about teaching that they received on a regular basis in conducting their research.

For too long teaching has been thought not to need or want the kind of collegial interaction that is a standard part of disciplinary work. In reality, the opposite is the case. Faculty enjoy talking about their teaching and exchanging ideas with other faculty. With teaching becoming more acceptable as a key component of scholarship, feelings of isolation are being broken down and team efforts at problem solving in teaching are becoming more common. The Center's programs are geared to helping faculty overcome any feeling of isolation.

Speaking before the General Faculty shortly after arriving on campus, President Berdahl did not mince words in stressing the importance of teaching. "Education of students is the most important thing we do," he stated. He added that while we need to "expect much" from students, "we also need to push ourselves hard and expect much of ourselves as teachers."

One manifestation of this desire to work together is the Quality Teaching Project, a cooperative effort between the Center for Teaching Effectiveness and the UT Quality Center. Faculty band together in this project to attack problems that no one individual could resolve. The coming together of UT Austin faculty resulted from a meeting held at the invitation of the Ford Motor Company. A large coterie of faculty, staff, and administrators gathered at the Ford Training Center in Dearborn, Michigan, to discuss introducing Quality concepts into the University. From that meeting, several faculty-staff teams were formed to work on projects important to the institution. One faculty-staff team is investigating and collecting data on the quality of the freshman year experience; because UT Austin is such a large institution, it is easy to lose one's way, especially for freshmen.

Undergraduate Teaching. There is no doubt that undergraduate teaching is a priority in the Berdahl era. The University of Texas at Austin is proving it is possible to be a flagship university dedicated to teaching as well to research and scholarship. The successful teachers at the University of Texas have been able to link scholarship and profession-

al interests with their teaching. Studies have demonstrated that doing research and creative work, broadly defined, is an important means by which faculty remain vital, engaged learners connected to their disciplines and professional fields, and this work is directly connected to their teaching and their students' learning.

The new emphasis on undergraduate teaching is reaping many benefits for students and faculty alike. Undergraduate course offerings continue to be enriched by seasoned and committed faculty interested in programs such as the Freshmen Seminars. As a former undergraduate at UT Austin, I know that I am not alone in appreciating what a dedicated and caring professor can give. Brett Campbell, another former undergraduate, perhaps spoke for many who have known a great teacher when he offered his impression of Barbara Jordan. "The students learned from [her] first hand the importance of being serious about what we do, about the central place of values in government." He added: "Rigorous, yes. Demanding, absolutely."

It is no secret that good teachers are the heart of a university, and no university can be great without them. We are proud that they are a part of The University of Texas at Austin.

Dr. Ricardo Romo is vice provost at The University of Texas at Austin. A native of San Antonio, Texas, he joined the UT History Department in 1980. In 1985 Dr. Romo was the Chancellor's Distinguished Lecturer at the University of California, Berkeley. He was a Fellow in 1989-1990 at the Center for Advanced Studies in the Behavioral Studies at Stanford University. His principal teaching and research areas concern American twentieth century social and legal history. Dr. Romo teaches a course entitled "Civil Rights in America," and his current research deals with the major Latino civil rights litigation of the twentieth century. His book, *East Los Angeles: History of a Barrio*, recently went into its seventh printing. Dr. Romo completed his undergraduate studies at The University of Texas at Austin and earned a doctorate in history at the University of California, Los Angeles. Dr. Romo may be reached at romo@mail.utexas.edu or 512-471-4339.

ROSALIE AMBROSINO

Connected to Community

The foremost mission for those of us interested in teaching undergraduates should be educating and preparing these students to assume leadership roles in a rapidly-changing society. How can we teach them to be leaders in a future that we cannot accurately predict? We can encourage them to learn actively in ways that are most optimal for them; to take risks and strengthen their analytical thinking, even if they make mistakes; to assess ideas and issues from a diversity of perspectives; to be able to apply their learning to the "real world"; to consider how historical and contemporary factors, including values and ethics, shape the development and application of knowledge; and to realize that regardless of the profession or path in life chosen, their ultimate success will depend on the ability to develop positive connections with others. This last concept, helping students feel connected to a broader community, is the essence of learning.

Regardless of the profession or path in life chosen, their ultimate success will depend on the ability to develop positive connections with others. This last concept, helping students feel connected to a broader community, is the essence of learning.

Building on the concept of community can be adapted to most undergraduate classes and degree programs. Options facilitating this type of experience are labeled "active learning," "experiential learning," and "community service learning." Students are encouraged to learn through active participation in and beyond the classroom and to examine their own experiences within the context of the knowledge base and theoretical framework incorporated within the course. Experiential learning supports the development of high-level analytical skills, including application, synthesis, and evaluation. It also promotes the development of these skills as a collaborative effort involving the teacher, fellow students, and members of the community beyond the university. This type of learning, while not new, requires different approaches on the part of student, teacher, and community and has distinct advantages for all three.

Few undergraduate students come to the classroom ready and able to learn experientially. This lack of readiness is partly developmental for students in their late teens, as they are still learning to integrate and synthesize higher order concepts, and partly because the majority of students are accustomed to more traditional learning experiences and expect them to be the "norm" in the college classroom. If, as a faculty member, I give a lecture, defining and explaining concepts and drawing from my own life experiences, the majority of my students listen intently and take copious notes. However, if I ask students at the beginning of the semester to tell me about their experiences in a certain area, such as identifying a values dilemma they have experienced or might possibly experience while doing required volunteer work out of the classroom, a few students hesitantly come up with ideas and no one takes notes. Students usually don't believe their own ideas or experiences, or those of their peers, have merit. So experiential learning means starting where the students are and setting them up for success by conveying expectations and encouraging them along the way.

One approach to experiential learning is to give students an opportunity to experience similar events, such as arranging for them to work with children from at-risk environments and then sharing their observations from that experience. Once the observations are listed, the class can discuss them and see if any patterns emerge that fit into a framework. The instructor and students can compare the students' findings with various theories from literature and research. Students can critique their own categorizations with models from the research liter-

ature and identify the strengths and weaknesses of each model. They can then generate additional questions to explore that shed further light on the topic. And as they volunteer at social service agencies, they can expand their thinking by considering the broader implications of their findings. In this manner, students can construct their own meanings from personal experiences and then compare their findings to those of other students as well as to assigned readings and additional material presented by the instructor.

One student, for example, came from a middle class community with limited experience with persons of different economic and ethnic backgrounds. Married with a young child, she continually talked in class about how she and her husband, also a student, were struggling to make ends meet. She said she knew about poverty because she lived in a small apartment without enough money and with difficulty affording child care. From this point of view, she insisted that everyone could be successful with perseverance and hard work. She had little time for broader frameworks reflected in assigned research articles, as she continued to maintain that people could "make it" if they really wanted to and that something was wrong with them if they failed.

After volunteering for several weeks at a social services agency and being assigned to work with a single mother with young children, the student's outlook changed completely. Voice shaking, she recounted the previous week's experience with her family. The woman and her children lived in a subsidized apartment complex with no working light fixtures and no heat despite repeated attempts by the mother to have the lights and heating system repaired. She was lighting the gas oven so her school-age children could see to complete their homework and so her family could stay warm. When my student accompanied the mother to a nearby drug store to buy cough medicine for her sick child, she noted that she was the only white person and the clerk immediately asked if she wanted help while others stood in line to be served. "I really thought that racism was pretty much imagined," she wrote in one of her papers later, adding, "I will never again say that I am poor. I had no idea what poverty was about." This student was now able to integrate her new experiences and several theoretical frameworks used to look at poverty to arrive at her own, much broader, perspective.

Students not only expand their own experiences through such involvement, but become comfortable at assessing ideas, their own as well as others, and arriving at new ways to view issues. A number of years ago, when my use of experiential learning in classes was much more limited, I received a telephone call from the executive director of a large social service agency that employs a number of our graduates. "I'm concerned about the students you are graduating," he said. "While they are technically competent and can handle situations familiar to them, they are not self-confident when a new problem comes up they haven't yet experienced. They come to me, present the problem, and expect me to tell them what to do. It's almost as if they are sitting in a lecture hall, waiting for the professor to tell them the answer."

I use experiential learning to help students strengthen observation and assessment skills and to be able to ask critical questions about specific issues and figure out what frameworks or information might be useful in understanding the issue.

This conversation served as a wake-up call to determine better ways to get students to think independently. I use experiential learning to help students strengthen observation and assessment skills and to be able to ask critical questions about specific issues and figure out what frameworks or information might be useful in understanding the issue. Experiential learning also helps students take risks to look at issues in new ways and to vision multiple alternatives to address those issues.

A vital part of experiential learning is collaboration--the mutual sharing of ideas that results in synergy as ideas are tossed out, expanded upon, combined, changed, and new ideas and themes generated as the discussion progresses. Collaboration involves learning to trust others, giving honest critique and feedback, depending on others, an obligation to contribute because others depend on you, and working together to connect experiences to one or more theoretical frameworks. Students learn to use time wisely and be prepared when they come to class. These skills serve students well when they enter a workplace that now relies on teamwork and collaboration rather than individual effort.

Experiential learning does not come easily; it can be frustrating for students and the instructor, especially when it is first introduced. It is not uncommon to hear these kind of comments. "I can learn it much better on my own. Why do I have to work with other students who know less than I do or have different viewpoints than I do?" Or "I did all the experiences, but can't I just enjoy them without having to analyze them and try to apply them to all this theory?" Then at the end of the semester, one hears these comments. "I like the fact that we went beyond the 'ivory tower' and were able to connect theory and academic knowledge to the real world." "I see things in new ways that I've never thought about before." "It made me work that much harder to realize that others would be using and judging my work based on actual contributions to the community, and that it was not just a paper only my instructor would read and grade."

Former students report they continue to be involved in the community and interested in social issues, regardless of their major. Some indicate they had more realistic expectations after graduation and began working. And others say they felt fairly confident about their abilities and were willing to take risks not just in the workplace, but in their personal lives, that they might not otherwise have taken without their prior learning experiences.

Experiential learning also requires different strategies for the instructor. While some individuals believe that teaching from an experiential learning perspective is much easier than from traditional methods, this is not the case. In the straight lecture mode, the instructor is in greater control of the classroom; he or she controls the content and decides when students can ask or respond to questions. Teaching experientially, on the other hand, requires more knowledge about a topic since the instructor has to make points and apply content drawn from student experiences.

It is essential to be extremely well-prepared and organized when teaching from an experiential perspective because class sessions tend to go off in multiple directions. Use of "critical incidents," or the experience of one student or group, can be used during a class session to help students understand key ideas and generate additional ideas and questions. The ability to summarize and identify themes and common points is critical so students don't become unfocused and lose track of what they are doing. While more demanding than traditional teaching, teaching from an experiential perspective produces richer opportunities for learning and making connections across disciplines and prepares students for their future world.

Most important, perhaps, is that the instructor creates a safe environment so maximum use can be made of experiences. Students must feel comfortable talking in class, sharing ideas that may be new or controversial, and supporting or challenging the ideas of their peers. "That's an interesting perspective. What evidence do you have that supports it?" "Tell us more about why you think that way." "In what ways can your experience be tied to what the authors say about race and oppression in the articles we read for class today?"

The experiential teacher must be a cheerleader, mediator, advocate, resource person, and connector.

I have learned to let students struggle with ideas without rescuing them when the going gets rough and not suppressing conflict when it occurs. As a faculty member, I have to take responsibility for establishing ground rules of mutual respect, listening to each other, critiquing ideas and not the person, and supporting diverse opinions so students see the value of disagreement. As the semester progresses, students learn that synergy and better ideas often result from honest critique.

In no way have I mastered experiential learning; the main joy of teaching is that I continue to learn from my students, far more than they learn from me. While it is exciting to see "the light go on" as students make connections and share their enthusiasm when we come up with a new perspective or approach to a problem or an idea, there are still times when I feel that I have let students struggle too much or not enough with ideas or not allowed students to go head to head with ideas as long as they might have when discussion became heated. The beauty of teaching from an experiential perspective is that there is no "right" way. So there is considerable room for personal and professional growth, and that is the reward of teaching.

Other rewards of experiential teaching differ somewhat from traditional teaching. In experiential teaching, the faculty role is more of a facilitator, helping students create their own experiences and learning environments, navigating them through the process, and raising questions and issues. The experiential teacher must also be a cheerleader, mediator, advocate, resource person, and connector. Rewards are less likely to be wild applause for well-executed lectures or being invited to give major addresses at public events. Rather, rewards are seeing the individual and collective growth in students throughout the semester and, later, seeing students go beyond one's expectations and theirs in terms of their creativity and thinking and taking pride in successes in their professions and communities.

What makes teaching a rewarding experience? It is the shy Asian student with limited English skills who said she never participated in class discussions and who now is an outstanding leader in the class. It is the outspoken older woman who thought women who stayed with violent spouses were weak and who now plans to make a career working with battered women after a semester of volunteer work at the local shelter. It is the white student from the Rio Grande Valley who insisted it was wrong to focus on differences among people because differences created barriers and who reversed

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her position after attending an African American church with one of her classmates. She said she realized that by ignoring differences she had failed to see the rich diversity of experiences and had deprived herself of incredible opportunities.

What does the community gain from experiential learning? Since a college campus is an extension of its community and plays an interdependent role in a community's life, UT Austin students learn to give back to the community. Undergraduate students, both majors and non-majors, who complete social work courses with experiential components contribute over 50,000 hours of volunteer time each year to social service agencies, public schools, hospitals and health clinics, county jail and other corrections facilities, and a myriad of other community programs. Undergraduates in other degree programs, such as pharmacy, nursing, engineering, business, communication, and education, complete similar activities in their respective areas.

UT Austin faculty must stay connected with the external community, for we cannot teach students about being a part of a community if we are not a part of it ourselves. We must be integrally involved in community life through activism in service agencies, business, industry, public schools, and through collaborative efforts as well as individual service. We must continue to learn experientially and be certain that we and our students are giving effectively to the community. Just as an elite professor-lowly student perspective will not work when using experiential learning in the classroom, an "ivory tower" elitist approach will not work when providing experiential activities in the community. It is critical to determine what the community expects and needs and what the expectations are of students and faculty so that a mutual partnership is attained. This means developing relationships with community agencies and groups and seeking continual information from them.

Students should graduate from The University of Texas with an awareness that responsibility comes with their education, and this means giving back and being a reciprocal part of their profession and their community. They should have some concept of the importance of collaboration and mutual problem-solving and analysis. They need to have experience taking risks and learning how to think for themselves. They need to understand there is usually not a single answer to a problem, but a variety of strategies to be considered. They need to recognize the importance of assessing all aspects of an issue to ascertain which strategy is most effective. Then they will be able to apply guidelines to a variety of situations in a continually-changing world.

I want my students to have a wide range of experiences with multiple cultures and a broad framework that can be used to understand their own cultural experiences, the cultural experiences of others, and how their own experiences and those of others interact as they live and work in a diverse society. If a new cultural group surfaced, I want my students to have the tools to know how to learn about and work with that group in a sensitive and knowledgeable way, to synthesize what they have learned in my class and other classes, and to apply and go beyond this basic knowledge as they live and work in the world.

It is these types of students who will become leaders in the future. They are the people who can use theory and knowledge gained at UT Austin, who had their world view and ways of thinking changed in ways that allow for new ideas and knowledge, and who can build on that knowledge. I hope our undergraduates leave the campus with an awareness that they have an important stake in whatever community they live in and that they have a responsibility to contribute to the growth and well-being of that community. We must help undergraduate students see these connections and provide them with the capacity to build new connections to bridge the challenges of the future. Tomorrow's communities depend on how well we teach today's students. D

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ABOVE: *Farewell Hug,* Jon Pattillo
RIGHT: *Dancing Close,* Emily Joyce

ROBERT KANE

Values and Ethics

How do you teach values and ethics to university undergraduates? That question has haunted me for years. I don't mean merely teaching what individuals or cultures or societies or religions said or believed about good or evil, right or wrong. We professors do that all the time. We tell students what the great philosophers and literary figures wrote about values, what the major religions believe, how values differ from culture to culture and society to society, how ideas about right and wrong have changed through history (usury, or lending money for profit, was thought to be a sin in medieval times but is considered a great good in our own time), and how people's values influence and are influenced by their religion, politics, biology, culture, and environment.

But can we teach what really *is* good or evil, right or wrong objectively speaking—not merely what has been believed, but what is *worth* believing—without seeming to merely add our own subjective bias or point of view to the mix? It is a daunting problem and an important one. Undergraduates hunger for direction in matters of values, as everyone does—especially in these times when we live in a Tower of Babel of conflicting points of view about fundamental values.

For me, this was not just a problem of teaching or research, but a personal problem. I could scarcely convince students something is objectively worth believing in the welter of conflicting messages we receive if I could not convince myself. Nor were teaching and research separable in this case. Knowing what to say in the classroom depended on finding my own way through the Tower of Babel and finding that way depended on answering tough questions from students who would not accept simple or facile answers. My attempts to answer those questions for more than a quarter of a century led to my writing a book, *Through the Moral Maze*, on ideas developed in the course of teaching at The University of Texas.

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It is ironic that the qualities of *open-mindedness* and *objectivity* so valued in universities make it difficult to pronounce what is "objectively" or universally right or wrong. Anthropologists and sociologists describe the values of different societies or cultures, but it is bad academic form to add in the classroom that one of these societies or cultures has the right set of values and all others are inferior. This is viewed as interjecting a preference or point of view into one's research, an offense against the scientific ideal of objectivity. (Anthropologists are especially wary of doing this since they were charged early on with imposing Western values on the "primitive" cultures they studied.) Thus, paradoxically, when the ideal of "objectivity" (which works so well in the natural sciences) is transmuted into the social sciences and humanities, it actually inhibits pronouncements about objective and universal rights and wrongs that hold for all peoples and all cultures; and, as a result, when it comes to values, the university, with its credo of "openness" and "objectivity," can end up standing for nothing in particular.

As a philosopher, I thought this paradox worth pondering because it reflects a problem that pervades not only universities, but the whole of modern culture. We live in a world of conflicting points of view about fundamental values—the Tower of Babel. In such a world, there is a deep philosophical problem involved in trying to defend the claim that one point of view is right and all others wrong. To argue that one view—your own, for example—is objectively right and others wrong, you must present evidence. Yet the evidence is gathered and interpreted from one's own point of view. If the dispute is about values, some of the evidence about good and evil is not going to be accepted by those who fundamentally disagree with your values. Your values also need to be defended by other fundamental values and beliefs (perhaps you will refer to the Bible or Koran or some other sacred text) that are not going to be accepted by those who have basic disagreements with your point of view. (Even those who

share your sacred text may not interpret it as you do).

A troubling circularity is a natural consequence of such debates—the circularity of defending your own point of view *from* your own point of view, of defending your values in terms of other values you also hold, but others may not. The problem arises because we inevitably see the world from some particular point of view limited by culture and history. How can we climb out of our historically and culturally conditioned perspectives to find an objective standpoint on values above all the competing points of view? Natural science seems to have the requisite objectivity, but this is because, and to the degree that, it remains neutral about values. This problem haunts the modern intellectual landscape. One sees variations of it in many fields of study and everywhere it produces doubts among reflective people about the possibility of justifying belief in objective intellectual, cultural, and moral standards.

A natural but controversial reaction to this problem is common in free and democratic societies like our own. People think to themselves that since it seems impossible to demonstrate that their point of view is the right one (and since everyone else is in the same condition), the only proper stance to take is an attitude of "openness" or tolerance toward other points of view. Judgments about good and evil, right or wrong, they reason, are personal matters and should not be imposed on others against their will. Hasn't much of the evil of human history come from those who thought they had "the correct view" and had the right to impose it on others?

But such an attitude of openness or tolerance, though it comes natural to persons reared in democratic societies, is often disparaged by theorists and social critics. Allan Bloom, in his *The Closing of the American Mind*, argues that such openness (an "openness of indifference") is the scourge of our times, infecting society, education, and young people in perverse ways because it leads to relativism—the belief that no point of view is any better than any other—and hence to an indifference to objective truth and absolute right.

I think Bloom is wrong about the consequences of such openness. What I came to realize in my research and teaching is that openness, properly conceived, does not lead to relativism or indifference, but (quite the contrary) to a belief in some universal values. This may seem surprising to say in the current intellectual climate, but I think it is true. To see why, the first step is to view openness to other points of view on matters of value not as an invitation to indifference, but as a *way of expanding our minds beyond our own limited perspectives* to find out what is true from every perspective (objectively true), not just from our own perspective. Openness is thereby viewed as a way of searching for the objective truth about values, not a denial of that objective truth. This is the proper role of openness in universities. It is how "openness" and "objectivity" are supposed to function in the natural sciences, for example, where they function well, requiring consideration of theories opposed to one's own and restricting undue bias in favor of one's own—all in the interests of finding the objective truth about nature.

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Why not think of openness in the search for objective *values* in the same way? Systems of values (as great sages, like Confucius and the author of the Bhagavad-Gita, remind us) are not just abstract theories able to be tested in a laboratory; they are ways of life ultimately only tested by being lived. So openness to systems of values other than one's own (to discover what is true about values from every point of view) would mean *respecting other ways of life*, letting them be lived or experimented with or tested in a way that is appropriate for values, that is, in action or practice.

We can now see why people have shied away from this line of thought. Does it mean respecting or tolerating *every* point of view and allowing it to be lived, which would include the ways of life of the Hitlers, Stalins, ruthless dictators, killers and other evildoers of this world. Then openness really would amount to a relativism of indifference. But the fact is that such openness does not imply respect for every point of view. To the contrary, it turns out that you cannot open your mind to *every* point of view in the sense of respecting every way of life. There are situations in life (many in fact) in which it is impossible to respect every point of view. The idea is to "open your mind to all other points of view in order to find the (objective) truth about values." But the truth you find is not that "you should open your mind to all points of view." Openness of mind is an initial attitude in the search for truth, but openness of indifference or relativism is not the final one.

Why is this so? Consider a situation where you are walking down the street and see a woman being assaulted and robbed in an alley. If you try to prevent the assault or call for help, you will not be respecting the point of view of the assailant by interfering with his desires and purposes. If you just "walk on by" when you could have helped, you will not be respecting the point of view of the woman being assaulted. The fact is that you cannot have it both ways in such situations; you cannot respect both points of view. When William Kidd and his pirates attacked Philadelphia in the eighteenth century, pillaging and raping, some of the resident men with pacifist beliefs would not protect their women. In effect, they were not choosing a non-violent world in which everyone's desires and purposes were respected. They were choosing that the desires of the pirates be respected and not the desires of their own women.

So there are situations in life in which, when you are thrust into them, you cannot treat every point of view or way of life with respect, *no matter what you do*. You cannot be

"open" to every point of view. When such situations occur, I say that the "moral sphere" has "broken down"—the moral sphere being the sphere in which every way of life can be respected. When the moral sphere breaks down, we must treat some ways of life as less worthy of respect than others. But which ones? For guidance at this point, we must return to the original ideal of respect for all, or openness. Recall that this ideal was not assumed to be the final truth, but a guide in a search for that truth. (Montaigne said that ideals are like the stars to the ancient mariners. We never reach them but we guide our path by them.)

Thus when the moral sphere breaks down, we cannot follow the ideal of respect for all to the letter, but we can follow it in spirit by trying to restore and preserve conditions in which the ideal of respect for all can be followed once again. We must try to restore and preserve it by stopping those who have broken it and made it impossible for others to follow the ideal. In our examples, that means stopping the assailant and the pirates, by force if we must, since their actions broke the sphere—which answers the question of *who* is to be treated as less worthy of respect when the moral sphere breaks down and it is no longer possible to treat everyone with respect.

Now stand back for a moment and consider what all this means. It means that the attitude of openness to all ways of life, when put to the test in practice, does not lead to relativism and indifference, as critics like Bloom suggest, but actually leads to the conclusion that some ways of life are less worthy of respect than others. In other words, relativism—or the belief that every view is as good as any other—like openness, turns out to be an impossible ideal when put in practice. What was said of the assailant in the alley and of the pirates, can be said of the Hitlers, Stalins, murderers, rapists, oppressors, exploiters, and other evildoers of the world. By their actions, they place themselves *outside the moral sphere* and make their ways of life less worthy of respect by making it impossible for others to respect them and everyone else too.

We can look at the above line of reasoning in another way. I argue in my book that there are two ways of searching for absolute values (those that hold for all persons and all points of view) in a pluralist world of conflicting points of view. The "old way" was to position yourself in one of those points of view—your own—and argue that it was the right view and every other view wrong. But this way founders on the circularity problem discussed above. The other way is to open your mind initially to all points of view in order to find out what is true from every point of view. This way you lift from yourself the burden of proving your point of view is absolutely right and every other view wrong, and place the burden of proof on everyone equally to *prove themselves* right or wrong by their actions.

Relativism, or the belief that every view is as good as any other, like openness, turns out to be an impossible ideal when put in practice.

Some ways of life will then make themselves less worthy of respect by breaking the moral sphere and thus make it impossible for others to treat them and everyone else with respect. What then can be said about the rightness of your own point of view? It is to be treated no differently than the others. If *you* break the moral sphere then you make *your* view less worthy of respect by others. This is burden of proof enough for anyone. For the "proof" (whether for your way of life or for others) is not carried out by "arguing" in the abstract that one view is better than others, but by how you *live and act*, just as we should expect for a theory of ethics or values.

Do we have to wait till someone actually breaks the moral sphere and shows themselves less worthy before intervening? No, because respect for the ideal requires not only *restoring* the moral sphere when it has broken down, but also *preserving* it from breakdown in the future. We would not be respecting the ideal to the degree possible if we failed to take reasonable steps to forestall future breakdowns. Thus we punish criminals not only to stop them here and now (restore the sphere), but to deter them and others from committing similar acts in the future (to preserve the sphere). Likewise, we can act preemptively if we see that the moral sphere is about to be broken. Those who read Hitler's *Mein Kampf* could see that his life-plan was a moral sphere breaker, and they had every right to intervene by force if they saw he would carry it out. Unfortunately, we know that many of Hitler's contemporaries could not believe he meant what he said.

Along with relativism, the existence of exceptions to traditional moral commandments (thou shall not kill, lie, steal, cheat) is another source of confusion about values in the modern world. For example, self-defense and just wars are commonly recognized exceptions to the one rule against killing. But questions arise about exceptions. Where do you draw the line on them? And if moral commandments have exceptions, can they be universal or absolute? What our reasoning shows is that exceptions to moral rules can be dealt with in the same way as relativism. For exceptions to rules arise at just that point where relativism fails—where the moral sphere breaks down. Violence and force are not usually allowed (inside the moral sphere), but when the moral sphere breaks down (as in assaults or warfare), violence and force may be needed to restore it.

Take another traditional commandment—thou shall not lie. Lying usually means not treating others with respect, using them as means to one's own ends. But exceptions are possible. In a test case often used by teachers of ethics, the following occurs. In Nazi Germany, the Gestapo arrive at your door and ask if a Jewish family is hiding on your farm. You are in

fact hiding a family, but should you tell a lie? In this case most people feel an exception to the rule against lying may be in order. But why? Notice that this case is structurally similar to the assault in the alley. The moral sphere has broken down because you (the farm owner) cannot treat everyone with respect for their purposes and desires in this situation. If you tell the truth to the Gestapo, you choose to favor their purposes over the Jewish family's. If you lie, you respect the Jewish family's purposes, but not the Gestapo's. Again, you cannot have it both ways. The only question is *who* will be treated as less worthy of respect, not whether someone must be; and that should be the ones who broke the sphere, the Gestapo.

You should lie. It is not that lying is merely permissible in this case. It is the right thing to do. The very same ideal which tells you that lying is usually wrong (inside the moral sphere) tells you that it can be the right thing to do when the moral sphere breaks down. And so it would be also if someone forced you to play a game of cards threatening to kill your children if you lost. Cheating is usually wrong (inside the moral sphere) but in this case (where the moral sphere has badly broken down) it would be right to cheat in any way you could.

In such ways, the above reasoning supports many of the traditional ethical commandments endorsed by the major world religions (against killing, lying, cheating) *and* many of the commonly recognized *exceptions* to these commandments as well. The exceptions are not ad hoc; they follow naturally from the principles themselves. We see why pacifism is right inside the moral sphere, but cannot be the generally right when the moral sphere breaks down.

I also argue to my students that this reasoning leads to the Golden Rule ("Do unto others as you would have them do unto you") in one of its most plausible traditional readings—respect the ways of others as you want your own way of life to be respected—*up to the point* where the moral sphere breaks down. One can also derive in the same way the Jeffersonian rights to life, liberty, and pursuit of happiness upon which our Constitution and those of other modern democracies rest—to respect others' ways of life is to respect their right to live and pursue happiness as they wish—*up to the point* again of moral sphere breakdown.

These are remarkable results. Starting with "openness" and "objectivity" toward all points of view and ways of life—the ideals that are suppose to motivate the search for truth in universities and which work so well in the natural sciences—we do not arrive at relativism or indifference but rather at ethical principles like the Golden Rule and the Mosaic commandments that are deeply embedded in virtually all the major religious and wisdom traditions of human history. We also arrive at ideas of universal human rights (to life, liberty, and the pursuit of happiness) that underlie modern free and democratic societies from the same principles. In his classic treatise, *On Liberty*, John Stuart Mill expressed the belief that by maintaining a condition of openness and allowing all points of view to be heard, the truth would emerge. My argument is a version of this claim: by being initially open to all points of view, the "ethical" truth emerges that some ways of life are more worthy of respect than others, and some less worthy.

> The cherished commitment to openness and academic freedom in universities is not a prelude to indifference or a way of standing for nothing in particular. It is ultimately an ethical commitment.

So, even while we allow all views to be heard in universities, we need not stand by mutely testifying to the doctrine that no view is any better than any other. Indeed, we *cannot* do that if our goal is to remain as open as possible to all in the search for truth. The cherished commitment to openness and academic freedom in universities is not a prelude to indifference or a way of standing for nothing in particular. It is ultimately an ethical commitment: "Be open if you wish to understand other points of view. That may be the correct attitude to start with if you want to find the truth, but remember that this attitude does not mean anything goes. You cannot take such an attitude of openness and not be willing at times to stand up and affirm that some ways of acting really are right and others wrong, and that some ways of life really are better than others, more worthy of respect, and some less worthy. You cannot cherish openness and tolerance and say anything less." D

Dr. Robert Kane is the author of *Through the Moral Maze: Searching for Absolute Values in a Pluralistic World*. M. E. Sharpe Publishers, Armonk, N.Y., 1994.

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Photograph by Ted S. Warren

ABOVE: *Eyes,* Tanya Lujan
LEFT: *Let's Unite These States of America,* Kathi Nordone

MELVIN OAKES

Undergraduates and the Research University

When I open DISCOVERY I generally expect articles about the exciting research carried on by our faculty, research staff, and graduate students. It came as a pleasant surprise, therefore, to be asked to write an article that addresses our undergraduate students. This broad charge provides me with the opportunity to discuss the relationship of the faculty at large research universities with their undergraduates. This is an issue which I, along with many others, have wrestled with for many years. It remains, in my opinion, one of the main unresolved issues facing major research universities today.

Imagine the following. You are a faculty member working at your desk and someone knocks at your door. It is likely that the unwelcomed interruption is a student. Opening the door requires some self-convincing. Maybe it's a graduate student. This prospect is encouraging. You pause to list the reasons for your sudden willingness to open the door. This is pretty easy. (1) The student may be seeking a dissertation or thesis supervisor. At last, some much needed help with your research program. (2) It may be your current graduate student with new and exciting research results, results that could lead to publications, grants, speaking invitations, and even national and international recognition for both of you. (3) The student might wish to sign up for your limited graduate seminar, enabling you to escape the 300+ freshman class threatened by the chair of your department. (4) It may be a student seeking advice in a related research area, and you recognize a possible new collaboration. (5) The student is about to leave for a new job and promises that, as soon as she is settled, you will be invited to participate in an upcoming symposium. She will also explore the feasibility of your becoming a company consultant.

Curiosity, joy in discovery, and motivation to learn are valuable traits for all. They make for an informed citizenry.

You note with satisfaction that all five items on your list are held in high regard by your colleagues and, in most departments, are quite prominent on any merit raise evaluation sheet. The list could go on and on and, of course, it could include negatives such as the student reports a piece of equipment has broken and you will have to spend the whole weekend repairing it. You quickly conclude that the positives far outweigh the negative.

The person repeatedly knocks at the door, so it probably is an undergraduate. Graduate students know that one knock is enough to get a response if there is going to be a response. In all fairness you decide to list the number of reasons which would encourage you to wish that the visitor is an undergraduate student. This second list presents far more of a challenge and illustrates, I think, a critical issue in undergraduate education at major research universities. Before you begin, you have this uncomfortable feeling there is going to be something noble, maybe even altruistic or missionary, about this list. You push on. (1) Maybe it's a really good student and you can convince him or her to stay around for graduate work. (2) Maybe they know someone who is a good graduate student! What happened to being noble? (You have to confess that these items belong on the graduate list.)

You start over with genuine good intentions: (1) It is an opportunity to further educate a young mind. "That sounds pretty good," you say proudly. You are about to continue with the list when a reminder on your computer interrupts and says "Manuscript of review paper due at Editor, February 22. Research Proposal due in Dean's Office, February 23. Final Defense of Student Dissertation February 24, Read Dissertation." You panic and remind yourself that most of the items you are likely to come up with do not appear on your Merit Raise Evaluation Form.

At this point you try to decide, do you open the door at all? You long for doors with peepholes or one-way mirrors. Why don't they

require all undergraduates to wear a bell? You decide that the only way to stop the knocking is to open the door. You open the door to greet an undergraduate. The expression on your face conveys so clearly just how happy you are to see him. The undergraduate wonders why you tap your foot during your conversation and why you don't invite him to sit down. You later wonder why he never came back.

Reading this story today will prompt many to say, "You exaggerate," and I would somewhat agree. However, when I first wrote this anecdote several years ago for a speech, far fewer would have made that charge. We can thank the current administration for its efforts to make this story an exaggeration. For me the question still lingers, "How do I make that undergraduate list?"

Many dedicated faculty have made their own positive undergraduate lists. I hope that in the years ahead they will share them with other faculty, students, and ultimately with the public. If the public understands our genuine interest in the undergraduate as well as it understands our interest in the graduate student, we will replace much of the current antagonism with cooperation, support, and even admiration. I would like to offer some items for inclusion on the undergraduate list.

- Undergraduate students, like graduate students, seek to become productive members of society. You as a faculty member are an important part of the process whereby this happens. It is a privilege and a responsibility accorded you by the citizens of the state and, in particular, by students' parents. Often it is stated that the economic benefits from graduate students are far more important to society than those benefits derived from the work of our undergraduates. The number of bachelor degree students and the varied roles they will play in the economies of the state and the nation suggest otherwise. It is here we find our leaders of government, industry, and community. The nation will be weakened if we neglect either group of students.
- Curiosity, joy in discovery, and motivation to learn are valuable traits for all. They make for an informed citizenry. You obtained your faculty position at a research university because you are thought to possess these traits to a high degree. You are given an opportunity, not accorded faculty at many smaller colleges, to seek new knowledge with the expectation that you will foster these traits in all the students you teach, not just graduate students. Joy in discovery has no discipline or classification boundaries, as faculty teaching freshman courses will bear witness. A student who makes a new idea her own shines as if illuminated. It is only through the development of these traits in our students that we will graduate lifetime learners, a goal we all espouse and accept.

Great discoverers often cite some undergraduate teacher or teachers who provided the inspiration for their lifetime devotion to discovery.

- Undergraduate students identify with their university, graduate students to a far lesser extent. It is the undergraduates who will be the future supporters and advocates of our institution. The quality of their experiences as undergraduates will determine their enthusiasm and willingness to provide much needed financial and political support. Positive experiences in the classroom, in advising, and in laboratories will build support for our academic programs among our alumni.
- All discoverers were undergraduates at one time. It is during this period of their training that they often are introduced to their discipline and are schooled in its fundamentals. Neglect of the training of undergraduates leads inevitably to poorly prepared graduate students and low quality graduate research. This will have serious implications for the nation's research infrastructure. Our ability to compete in the global economy will surely suffer.
- Great discoverers often cite some undergraduate teacher or teachers who provided the inspiration for their lifetime devotion to discovery. To inspire does not require that you be a great discoverer, only that you be an evangelical one. Wilbur Wright commented that, among the various technical papers by Langley and Lilienthal on human flight which he and Orville received from The Smithsonian, one particular paper provided valuable inspiration. This paper by Louis Pierre Mouillard did not provide technical inspiration; rather it was the infectious tone of his belief that flying was possible which inspired Wilbur. All our students can profit from the inspiration of our faculty.
- The knowledge revolution overwhelms each of us every day. Students in the beginning of their study especially need help in deciding what knowledge to absorb and what knowledge to ignore. All sentences, paragraphs, and ideas in textbooks are not of equal importance. We must guide the student on a proven path through this maze of knowledge to a useful destination. This choice of path or paths requires judgment which can only come from experience, experience that a faculty member, a discoverer and longtime student, possess. It is critical that we be involved with the direction of undergraduate education. It is too important simply to let it evolve.
- Career decisions are among the most important and difficult for undergraduate students to make. They need advice from a variety of people. (a) First, they need accurate information about various careers. (b) They need some assessment about job opportunities. Students often give too much consideration to this assessment. They fail to recognize that their goal may require seven to ten years of training. I know few economists who would attempt to project job opportunities for any profession that far into the future. (c) They need sound academic advising that will enable them to successfully and expeditiously get the training required for their chosen profession. Professional advisors and faculty must work closely to accomplish this. (d) Students must determine if their goals are realistic. This is critical. While ultimately a student decision, it is here that faculty have a unique role to play. Faculty observe students as they are learning. They

have witnessed many students seeking the same goals. They are familiar with students who have attained their goals. They can provide useful advice for students, and students should have an opportunity to hear it if they choose.

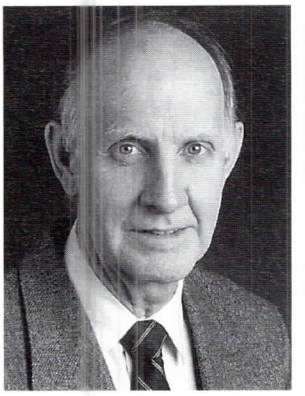
This information often cannot be conveyed with simply a grade. Many students, as we know, receive low grades but have very high potential. They could achieve their goals if motivated or if obstructions and distractions were removed. We have seen over and over again a faculty member's intervention salvage a capable student or redirect a misguided student. Many problems facing students are uniquely solvable by faculty. They have the resources, authority, and experience. Responsible faculty will seek the necessary training and information to provide quality advising. Faculty advising at large research universities often is quite limited. The task generally defaults to the overworked and dedicated professional advisors. Faculty have a responsibility to participate in the advising process. Our graduates will be the better for it.

- Undergraduates have always participated in UT's research effort. The students not only profit greatly from the experience, but they also can be a productive addition to a faculty member's research program. In the past, students were willing to volunteer their time for research. Today, however, this symbiotic relationship is threatened by economics. As the cost of an education increases, students are compelled to have part-time jobs. Few are fortunate enough to find paying research positions. Their jobs likely have little connection with their academic work. Such jobs are more and more impacting negatively, not only on their research opportunities, but also on study time and academic extracurricular activities. This has serious consequences for our graduates. A degree today represents for many students far less study time than we have expected in the past. Our administration is correct to set student aid, loans, and scholarships as a high priority, even as it seeks to raise tuition and fees. The quality of a college education is at stake. To preserve exposure of undergraduates to research, long considered a reason for our better students to attend a large research university, will require faculty advocates on behalf of these students.
- We need to remember that the Texas Constitution did not say UT Austin should be "a Graduate University of the First Class" or "a Research University of the First Class." No; it said "a University of the First Class." Over the past two decades many have worked diligently and successfully to reach this goal for our graduate programs. We did not limit the schools with which we sought to compete. Our list of competitors included both the top private and public universities in the nation. Today many of our graduate programs are now on a par with the very best in the nation. The decision to go to Texas or Harvard is not always an easy one for prospective graduate students. Faculty and the administration must continue to work hard to maintain this excellence built around our strong research programs.

The job is not finished, however. We must make our undergraduate program also First Class. Our goal should be to make the choice between attending Texas and attending Harvard a difficult one for prospective undergraduates as well. Many groups on campus have diligently studied what makes a great undergraduate institution. The Committee on Quality of Education, chaired by Dean James Dolusio, addressed issues such as small classes, more personal evaluation of students' work in their courses, quality advising, faculty and student ratios, inequitable distribution of resources on campus, priority received by undergraduate teaching, upgrading undergraduate instructional facilities, closer supervision of teaching assistants, and more emphasis on student writing. Following this committee, Professor Frank Bean chaired a committee on "Enriching the Undergraduate Experience," and their report is summarized in this DISCOVERY.

President Robert Berdahl and Provost Mark Yudof marshaled faculty, staff, and students to bring about many of the recommendations of these committees and have commissioned new studies. They correctly recognize that "community" is a hallmark of our nation's great undergraduate institutions. Throughout every corner of the campus today groups are working to implement this theme. The Campus Master Plan Committee, the Provost Committee on Advising, the Freshman Year Enhancement Committee, the Admissions Committee, the Center for Teaching Effectiveness, and the Student Housing Committee are only a few of the many groups attempting to personalize the campus and strengthen our undergraduate program.

For me this is a most exciting time to be at The University of Texas at Austin. It rivals the 1960s and 1970s when the campus launched its plans to become a Top Ten internationally-acclaimed research university. Around the campus everyone worked to make the dream a reality. New ideas aimed at accomplishing that goal were welcomed and supported. I believe we are on the threshold of "doing it again" for the undergraduate program. If successful, we will have achieved a true community of discoverers, an Eden for both learners and teachers. D



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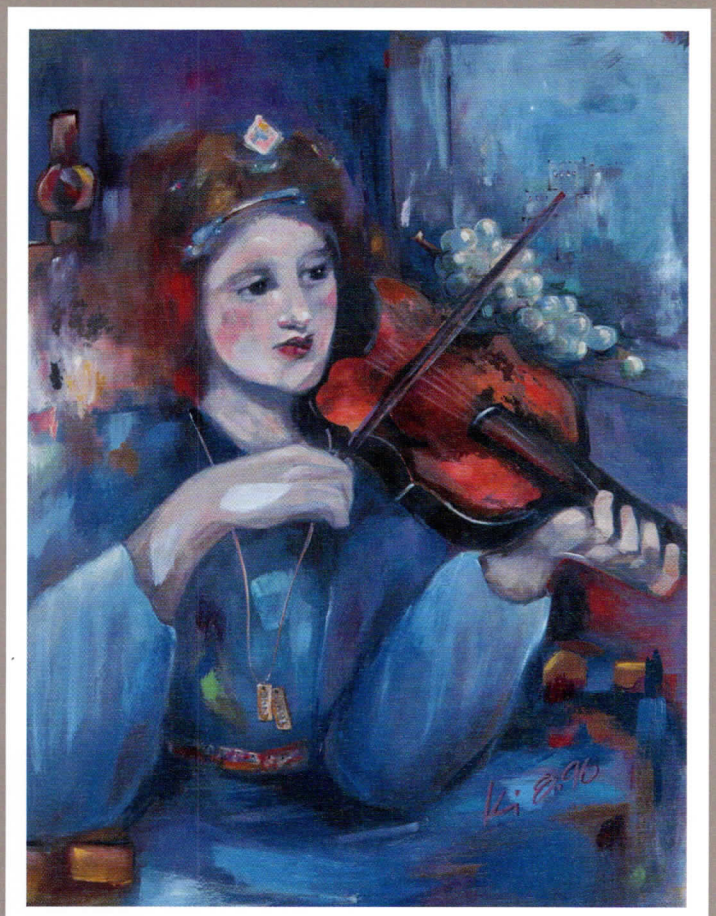

ABOVE: *Children of the World,* Nicole A. Bent
LEFT: *Sing Truth,* Kathi Nordone

PHILIP S. SCHMIDT

Great Teaching in a Great University

Remember the teachers who made our educational experience not just an intellectual one, but a personal transformation, and who changed the way we look at the world and how we live? They are the Great Teachers. Each of us, if we are lucky, had a few Great Teachers in our lives. I've been blessed to have known several and let me describe why I think they were Great.

Miss Jennings, my fourth grade teacher, was the quintessential tough-as-nails schoolmarm. Teaching for her was a calling. I was one of those students who made life miserable for all the Miss Jennings' of the world. Today I would be clinically diagnosed with attention deficit disorder, but back then I was just a pain in the neck and most students like me regularly were sent to the principal. To send me to the principal was a cop-out for Miss Jennings. Instead, she asked my mother's permission to keep me for an hour after school every day to see if she could find my "on" button.

Miss Jennings had a beautiful stamp collection, and she especially liked stamps that pictured interesting information about their countries. Each day, after a few minutes of chores to pay for my incorrigible behavior, she sat me down to help her paste stamps into her stamp collection. She would note what stamps caught my interest, then send me to the encyclopedia to look up something about the stamp's picture. Before long, my hour after school became a reward for paying attention in class instead of a punishment for misbehavior. At the end of the year, Miss Jennings gave me one of her treasured stamp books, and I continued collecting stamps and looking things up for years to come. Thanks to Miss Jennings, geography still fascinates me and it is my best subject in Trivial Pursuit.

Remember the teachers who made our educational experience a personal transformation and who changed the way we look at the world and how we live? They are the Great Teachers.

I had other Great Teachers in public school. Mr. Boettcher, after recognizing that I didn't have the patience to produce a decent term paper, encouraged me to build a planetarium for a junior high science project. Mrs. Moore, my twelfth grade American History teacher, had us act out the Battle of Gettysburg with me as General Robert E. Lee. The planetarium was a great success, and I'm an avid stargazer as a result of it. And I've never forgiven General Longstreet for procrastinating and losing Gettysburg to the Yankees. While I did not become a professional historian or geographer or astronomer, history and geography and astronomy continue to enrich my life.

As a freshman at MIT, I worked in the Cryogenics Engineering Lab of a world-renowned professor, Dr. Samuel Collins, inventor of the machine that is still used to liquefy helium. Dr. Collins believed in pointing students in the right general direction and letting them learn by doing; that belief even extended to naive freshmen. One afternoon I laid an expensive vacuum vessel, which had just been emptied of liquid helium, down on a stone lab bench, which while cool to my hand was as hot as a furnace to the chilled vessel. The "boom" as the vessel imploded into a pile of glass fragments was unforgettable. As Dr. Collins raced in, he had only two questions: "Are you okay?" and "Do you know why that happened?" The answer to the first question, after my eardrums returned to normal, was that only my ego was damaged. The answer to the second was that I had no clue.

Dr. Collins gave me a book and instructed me to read about thermal shock and the effect of extreme cold on brittle materials. He reassured me that breaking things is the norm, not the exception, in a research lab where one is working under extreme conditions at the edge of one's experience. He told me that "failure" in research

is only a *real* failure if you didn't learn something from the experience, and that analyzing the cause of failure is often the most enlightening part. It is a lesson I often repeat to myself and share with my students, particularly when they are discouraged by perceived "failures," whether in the lab or in less-than-perfect exams or in their personal lives.

Certain special characteristics make a few teachers stand out as Great Teachers. Each of my Great Teachers had a contagious passion for learning and a need to instill that passion in others; each of them related to me personally, not only as a student but as a unique human being. All used their special interests and expertise not just to impart knowledge of their particular discipline, but as a vehicle to teach larger lessons on how to think and how to live. And all of them profoundly changed my life, not only by providing me with intellectual stock, but by instilling the confidence to take chances, a sense of self-worth, a good set of values, and a social ethic.

I frequently think back on what I learned from my Great Teachers as a guide to how I can most effectively teach others. My first and foremost responsibility is to convince students that the subject is important, so they will want to learn. How has it affected our world, in what ways do we use it in everyday life, what is the larger lesson, how is learning it going to make you a better person? I promote experiential and exploratory learning by pointing them toward the resources they need and guiding them in how to use these resources, rather than by telling them exactly what to do. I encourage them to stick their necks out, to use their intuition to project the answer to a problem first, and then subject it to careful analysis.

Students in engineering are often astounded to learn that real problems don't necessarily have a "right answer," and they may in fact have many acceptable solutions, some better and some worse. The engineering method focuses on subjecting problems to scientific analysis, but mathematics alone does not necessarily provide the best solutions in the real world. Teaching someone to be both creative and practical requires developing their analytical skills, but equally important and more difficult, it means helping them acquire an intuitive and moral basis for decisions.

One of the most difficult skills to "teach" is the ability to think critically. How do students learn to question what they read and hear and to interpret it with appropriate allowance for its inherent uncertainty and relativism? The noted educational psychologist William Perry carried out a classic study on intellectual development of Harvard undergraduates during the late 1960s, and his research has since been extended to many other student populations. Young people typically enter college with a dualistic world-view: a world of absolutes where professors know all the right answers and where students must simply memorize the answers and apply them to every possible question. In time, most students develop a more mature perspective in which the questions themselves are often fuzzy, in which "right and wrong" and "best and worst" have complex shades of gray, and in which their interpretation depends in part on the viewpoints of individuals and their culture. How can teachers help students advance along that developmental path so they can deal with issues as they exist in society instead of in a textbook?

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While no universal approach applies to everyone and to every discipline, a common denominator appears among my Great Teachers. It is personal engagement. Critical thinking may begin in the classroom, but mostly it is a one-on-one, or at least a few-on-a-few, process. It needs an environment where an array of information resources exist with easy access, where learning is an ubiquitous activity engaged in by everyone everywhere all the time, and where standards are high and people expect their ideas to be challenged. Most important, it requires plenty of opportunity for students to interact personally with faculty and with each other. Does such an environment exist at The University of Texas at Austin?

Certainly, Texas is a vibrant community of scholars where learning is a continuous process at all levels. Our students have access to some of the best libraries and research facilities in the world and, with the advent of Internet, instant access to information resources now extends globally. We are the original source for much of this information. Faculty must always be learning to stay abreast of and contribute to their fields of scholarship. Every time I submit an article for publication, I must place my best arguments on the line and expect them to be critiqued and challenged by my peers. That is the essence of scholarship. It is quite difficult for me to set myself up as an unquestioned authority in an environment where questioning of intellectual authority is a natural and sacred part of the culture.

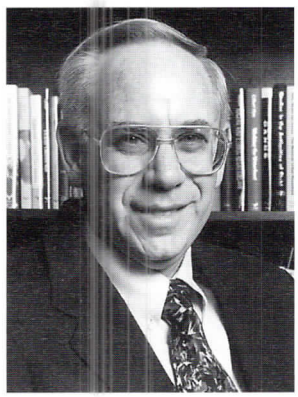
What about access of undergraduate students to the scholarly community and research enterprise? No question the UT Austin student-faculty ratio works against it. Given our enrollment numbers, it is often impossible to afford the luxury of small classes that would encourage the ideal amount of in-class and out-of-class engagement. Nor is it possible in most departments, just based on the sheer numbers, to engage every student directly in ongoing research to a degree comparable with places like MIT or Stanford.

While we are always seeking to develop new programs to expand these opportunities at Texas, for the foreseeable future they will depend to a great degree on the personal initiative of individual students and the personal dedication of individual faculty members.

Nationally, and at UT Austin especially, a renewed emphasis is directed at the importance of undergraduate education in the mix of services that universities provide. New initiatives to recognize and reward excellence in undergraduate teaching are being instituted, such as the establishment of the Academy of Distinguished Teachers. Technology is greatly enhancing our ability to engage undergraduate students in a meaningful way. Electronic mail and class newsgroups (a.k.a. electronic bulletin boards) encourage a new way of bridging distance and time, substantially increasing our opportunities to communicate with students and for them to communicate with one another.

I hold "virtual office hours" every evening and on weekends from my study at home, and almost continually when I'm in my campus office or in the lab. Computer-based media add an exciting new dimension to our stock of learning resources, and we have extensive plans to provide universal access to these kinds of resources to all of our students all of the time. The better these resources and the more easily our students can get at them, the more opportunity we have to use our time doing what constitutes Great Teaching rather than just serving as information sources.

A growing perception in our society, and one receiving much consideration in administrative and political circles, is that we can increase the "efficiency" of higher education by requiring faculty to spend more hours in the classroom and by gradually replacing teachers with technology. Yet neither computer terminals nor brilliant lectures will transform our lives like Miss Jennings, Mr. Boettcher, Mrs. Moore, or Dr. Collins. That only happens when Great Teachers connect with eager students eye-to-eye, brain-to-brain, and heart-to-heart. When all of our students can point to such occasions as a highlight of their educational experience at The University of Texas, we will have a truly Great University....with a capital G.



Dr. Philip S. Schmidt holds the Donald J. Douglass Centennial Professorship in Mechanical Engineering and is Head of the Process Energetics Program in the Center for Energy Studies. He is internationally recognized for his research on industrial applications of microwave heating and has won a number of teaching awards. In 1994 he was named as one of the fifty U.S. Professors of the Year by the Carnegie Foundation, and he was selected in 1995 as one of the inaugural members of the Academy of Distinguished Teachers. Dr. Schmidt can be contacted at pschmidt@mail.utexas.edu or 512-471-3118.

BELOW: *Tender Moment*, Kristina Singer
RIGHT: *Fireman Small*, Erika Waak


ARTHUR

UNDERGRADUATE RESEARCH

In classrooms and laboratories on campus and in sites off campus, University of Texas undergraduate students are engaged in a host of research projects. From developing materials at microscopic levels, to taking a big-picture look at whole environmental systems, to exploring the creative processes of some of the world's most distinguished artists, such research projects enhance the undergraduate experience for students. The Undergraduate Research Fellowship program, initiated in 1996 by the Vice President for Research office and student body president Jeff Tsai, offers small grants of up to $1,000 to undergraduates to support their research projects. In its first year fifty-nine awards were made for a total of $49,000. Research topics ranged from DNA translocation to the behavior of lemurs in Madagascar's forests to the dynamics of AIDS activism in Brazil. Many undergraduates find that involvement in research projects gives them an edge in the job market. For others, a project helps them decide what direction they want—or don't want—to pursue in graduate school. To a person, students and academics agree that the opportunity to be engaged in a meaningful research project means the difference between a good undergraduate experience and an exceptional one.

The following mini-articles highlight only a few of the research endeavors underway involving UT Austin undergraduate students.

COLLEGE OF NATURAL SCIENCES

Undergraduate research projects in the College of Natural Sciences nurture the next generation of researchers. From projects that involve reducing nitrogen molecules to nitrogen atoms to studies of reptile reproduction, undergraduate students learn basic research techniques that prepare them for graduate schools and research careers. In addition to about 800 undergraduates conducting research projects as part of laboratory classes, many other students are involved in research endeavors underwritten by $20,000 that College of Natural Sciences Dean Mary Ann Rankin has committed for such efforts.

One such program, the Dean's Scholars, was initiated in 1983 to encourage the college's brightest undergraduates' participation in research. Each Dean's Scholar receives individualized attention through small study groups, faculty mentoring, and social activities. Scholars are encouraged to select an academic area of interest, identify faculty and graduate students in that area, and explore a research program in that aspect of the science. This approach stimulates students' process of personal discovery and has led many Dean's Scholars to graduate school and M.D./Ph.D. programs after earning their bachelor's degrees. Dean's Scholars also have won Marshall Scholarships, Cambridge, and National Science Foundation Fellowships and other prestigious awards for their research and other achievements as undergraduates.

The Undergraduate Research and Experience Program provides fellowships to support undergraduate research at the Science and Technology Center for Synthesis, Growth and Analysis of Electronic Materials. This interdisciplinary investigation in surface materials research at STC laboratories is available to several students each year. A Center spin-off, the Summer Program in Education and Research is open to non-UT Austin students during a rigorous nine-week summer course. Last summer students in the project grew thin layers of film that are used in integrated circuits and the microelectronics industry. They also worked on devices to deposit the film onto silicone surfaces.

High school students also can get an early introduction to UT research experiences through the Summer Young Scholars Program, an intense introduction to laboratory science. Jessica Hernandez, now a fifth-year chemistry major at the University, started the program between her junior and senior years in high school. "I enjoyed it so much that I decided to attend UT as an undergraduate and continue my research in the lab of Dr. Brent Iverson (associate professor of chemistry and biochemistry). Between that experience and the Summer Undergraduate Research Program in molecular biology, I have acquired precious research techniques and experience which are invaluable."

Working closely with graduate students and faculty also has provided Hernandez with insights into life after graduation. "I have developed an understanding of what awaits me in graduate school," says Hernandez. "Dr. Iverson has discussed my options with me, allowing me to shape my educational objectives and my career goals."

The Summer Undergraduate Research Program in Molecular Biology is offered to about thirty college students. Half the participants attend UT Austin; the rest visit from prestigious universities like Duke, MIT, and Princeton. About seventy-five faculty mentors from seven departments are involved in the program directed by Dr. Ruth Buskirk. Funding for the program comes from the National Science Foundation's Research Experience for Undergraduates program and the Howard Hughes Medical Institute's Undergraduate Initiative in Molecular Biology.

Undergraduate researchers work with faculty in molecular genetics, cell biology, biochemistry, immunology, neurobiology, and microbiology projects. They also attend seminars and classes to enhance their understanding in one of the newest areas of scientific inquiry. At the conclusion of the project, students must write a research abstract and prepare a poster showing research results and a discussion of the summer's work. Then, in a combined reception and poster session, the students share their work with UT molecular biologists and the public.

COLLEGE OF LIBERAL ARTS

Karen González is cataloging, analyzing, and preparing for the exhibition of UT's newly acquired collection of the works of Jean Cocteau while Lindsey Goodman spent three weeks over the Christmas holidays at the Freud Archives in London in her pursuit of understanding Anna Freud and the founding of the Hampstead War Nurseries. Heidi Saleh is writing up the results of her summer archeological dig three miles southeast of the Great Pyramids, and three afternoons a week, Carrie Press works in Professor Tim Shallert's psy-

chology laboratory, researching the behavioral and physiological effects that nerve growth factor has on brain lesions in rats.

These students, and hundreds of their peers, are taking advantage of opportunities to experience what their faculty mentors experience—the excitement and satisfaction that come from the work, worry, and wonder of conducting primary research. The opportunities to work with a faculty member, to explore, to write up and to present the findings of one's exploration come in many forms. Many of those engaged in honors work (about 10 percent of the College's 10,000 students) will complete a senior thesis. Some of these theses are creative in nature—a novel or a series of short stories. Most, however, are fifty- to one hundred-page reports on a student's inquiry into a particular question, problem, or issue, an inquiry guided by a faculty mentor. The topics have ranged from "President Johnson's Role in the Panama Canal Crisis of 1964" to "Depression Among the Elderly," to an analysis of "Thackery's Vanity Fair" and an account, "Goedel's Theorem and Its Aftermath."

Liberal Arts students also have available to them a range of courses designed to prepare them to pursue intelligently a line of inquiry. All sociology majors, for example, must take SOC 317M, an "Introduction to Social Research," just as all psychology majors must enroll in PSY 418, "Statistics and Research Design." In both departments, students may progress to upper-division courses that acquaint them with the range of research possibilities in the social sciences and equip them to turn these possibilities into realities.

History majors may take HIS 347L, a course designed to familiarize students with the majors issues in historiography and in historical interpretation. Both the Departments of Government and Sociology have research internships, whereby students may earn academic credit for research conducted in the fields. In any given semester, some 160 students, under the auspices of PSY 357, "Undergraduate Research," explore such questions as when children develop an imagination, why children think some faces are beautiful and others not, and how the mind remembers.

Thanks to the efforts of individual professors and staff of the Harry Ransom Humanities Research Center, hundreds of students each year learn about the incredible riches of one of the world's great libraries. Many return to mine the letters of Edith Wharton, investigate the attitudes toward women in eighteenth-century French medical practice, and to learn more about the nature of satire by reading the letters and diaries of Evelyn Waugh.

Students in the College of Liberal Arts have available to them two keys to good research: a gifted faculty and resources—libraries, computer facilities, and laboratories. They also have a third key to innovative and successful inquiry: financial support. Each year the College awards six Rapoport-King Scholarships to students completing departmental honors theses. The scholarship provides $2,000 to the student and $1,000 to the faculty mentor. Last year the Junior Fellows Program, administered by the College, gave some $12,000 toward the support of undergraduate research, and the College, through its scholarship program, provided an additional $12,000. This year the Dedman Distinguished Scholars Program gave extra funding so students could pursue their research interests in Moscow, Prague, and Norwich, England. The Humanities Honors Program and Plan II regularly award stipends so that students may venture to archives, buy essential materials, and travel to national conferences to present the fruits of their research.

Research is integral to the mission of the College of Liberal Arts, creating new knowledge and preserving old, keeping alive how we have thought about ourselves, and nurturing the debate about who we are now and should be tomorrow. Undergraduates engaged in research come to a better understanding of their fields through the hard work and discipline, the imagination, and the energy required of good research. They also deepen their understanding of the human condition, its limitations and its horizons. Such disciplined, sustained inquiry prepares some students to enter the workforce. For others, it has been essential training for the pursuit of professional degrees in medicine, law, or business.

For still others, research becomes a way of life. Jessica Bradbury, a history honors student interested in the emergence of modern science in the eighteenth century, focused her investigation on one Enlightenment scientist, Abraham Trembley. Trembley's discovery of the asexual reproduction of hydra fueled the debate over whether human beings have souls or are purely physical beings. Bradbury received support from Junior Fellows to spend three weeks reading the Trembley papers housed in Geneva, Switzerland. Kittiya Lee, a humanities major whose research took her to Rio de Janeiro under the auspices of the Fulbright Program, captures the feelings of many of her peers engaged in undergraduate research when she writes that "my most valuable undergraduate experience was the process of research and analysis that culminated in my senior thesis."

COLLEGE OF ENGINEERING

Applying classroom concepts to research brings theory to life for College of Engineering undergraduate students conducting a host of research projects. About fifty-five undergraduate engineering students are involved in research projects through two programs created to enhance the undergraduate learning experience, particularly for minority students.

The result is a student like Aaron Valdez, a graduating senior in aerospace engineering, who says research has been an invaluable part of his engineering education. "I have learned to do projects by myself, interact with professors, and apply the concepts learned to real-life projects." By exposing students to research activities and methodology, students learn what graduate school and research careers entail. This broadens students' perspectives about their engineering education and improves their communication skills.

Participation in Texas Research Experience (TREX) and the Excellence Through Research (EXCELL), programs developed by the Equal Opportunity in Engineering Program and funded by National Science Foundation grants for Research Careers for Minority Students,

enhances students' undergraduate learning experience. In TREX twenty-five minority undergraduate engineering students are matched with faculty mentors to perform research and gain hands-on laboratory experience during the fall and spring semesters. About thirty students participate in EXCELL in the summer. These programs bolster the Equal Opportunity in Engineering support network and incorporate minority students into the community.

Participants in TREX and EXCELL are enrolled in aerospace, chemical, civil, mechanical, electrical, and computer engineering. Both research programs are conducted in conjunction with the College of Engineering's Environmental Solutions Program, the Science and Technology Center, and the Center for Energy Studies. Faculty from these and other research centers serve as mentors for participants. Students in the TREX program, which requires ten to twelve hours a week of research, earn three hours of course credit and a letter grade in the spring semester for their work. In the summer EXCELL program, students work forty hours a week, receive a monthly stipend and room and board.

It is the long-term benefits of such programs that make them rewarding. Melissa McGehee, a mechanical engineering senior, won the best undergraduate paper award at the 1996 UT Austin Student Research Conference for her project testing the use of infrared cameras in heating silicon wafers. The research project, McGehee says, helped her understand heat transfer principles before she had to take the class. And she got a good sense of what research projects in graduate schools include, such as red tape and delays, as well as establishing contacts in the business community.

McGehee, who has worked non-engineering jobs to support herself while in college, adds that the research project also helped secure a handful of job offers that she's considering. "I had no engineering experience at all. My research definitely got my foot in the door as far as companies looking at me seriously." Though none of the companies she's considered have anything to do with silicon wafer production, representatives from all the companies asked her in-depth questions about the EXCELL and TREX programs. McGehee says her involvement "definitely was beneficial. I would never have been looked at otherwise."

For Bunmi Esho, a senior in chemical engineering, her first research project has led to another investigating the properties and characteristics of photoresisters, materials used in production in the microelectronics industry. The findings in both projects will provide important information for use in the microelectronics production. "It enhanced my educational experience," Esho says. "I was able to see the practical role of polymers in the microelectronics industry. I could see exactly what I would be doing when I go into the workforce. It also gave me an idea of what I would do in graduate school."

For Yvette Mirabal, a junior in chemical engineering, her research under Dr. Rebecca Richards-Kortum looking at the differences between normal and abnormal or cancerous cervical cells has whetted her appetite for a career in medical research. Though her two projects focused on cervical cancer cells, Mirabel says the research "can apply to any tissue and thus there are greater applications."

Mirabel started with the EOE program the summer after her freshman year. She completed a second tour through EXCELL and TREX and is now working as a paid undergraduate research assistant. Working with physicians and patients at UT's M.D. Anderson Cancer Center in Houston also put her research into sharper focus and helped her better understand the connections between work in a laboratory and those people affected by that work. "I've really come to know what it means to do research at a higher level. It may look wonderful in the lab but you have to understand the consumer when you develop a product," she says.

Research projects have enabled several engineering students to present at national conferences and competitions and win top awards for their work. In 1995 and 1996, two UT Austin students were selected to present their research at the National Conferences for Undergraduate Research. Annaluisa Molinar, a chemical engineering graduate, won the 1994 Society of Hispanic Professional Engineers (SHPE) National Technical Paper Competition, and Andrea Perez, civil engineer graduate, won the 1995 SHPE National Competition. Chadwin Young, a TREX participant, won the National Society of Black Engineers National Member of Year Award for 1996, and is pursuing a doctorate at North Carolina State University.

From 1992 to 1996, more than 130 undergraduate minority engineering students have participated in the TREX and EXCELL research programs. Of those, eighty have graduated with bachelor of science degrees from the UT Austin College of Engineering or other undergraduate colleges. Sixty-six work for major corporations and eighteen are attending graduate schools at institutions such as University of California at Berkeley, Georgia Tech, University of Illinois at Urbana-Champaign, North Carolina A&T, and MIT.

Faculty members enjoy mentoring students because they have the opportunity to share their research skills and to nurture future researchers and educators. Phil deBlanc, a graduate student under Dr. Deane McKinney in civil engineering, comments that "the program is a real win-win situation for faculty and the TREX students. The students get exposure to research and we get help with our research work." "TREX is an excellent program, and I feel it has worked well both for the students and the professors," adds Dr. Phil Schmidt, professor in mechanical engineering.

Such accolades for the undergraduate research programs has prompted the College of Engineering to continue to invest its resources to provide hands-on laboratory experiences to excite more undergraduate students about careers in research in industry and academia.

COLLEGE OF BUSINESS ADMINISTRATION

A mini-refrigerator manufacturer, a grocery story chain, and UT's marketing administration department have one thing in common: all were the subject of undergraduate research projects in the College of Business Administration. These projects tested students' ability to work together as a team to define and research a problem, identify solutions, and develop recommendations. The long-term result is that students came away from their projects with a clearer understanding of how the material they learn in the classroom relates to real-world situations.

Dr. Mark Alpert's marketing class puts real-life experience—and pressure—on students. In the first week of class students were given a list of companies that had marketing needs from which to choose for a research project. Senior Scott Morgan was in a group that selected a company needing help creating a marketing strategy for a new mini-refrigerator aimed at the college market. In other classes Morgan had taken, he said information was provided and students came up with a solution—all in the classroom. Professor Alpert had other ideas.

"He explained to us that not only were we responsible for outlining the problem and finding the relevant information, but we also

would be working with the actual company," says Morgan. The marketing students developed a "plan of attack" for their project that included surveys of students, focus groups, interviews with dorm managers, and an analysis of competitors.

"We were able to use some of the theories and processes we learned in earlier classes in this authentic problem situation. The most important thing we have learned from this project is that real-world problems do not always have textbook answers. In all my other classes it was always a case study and you were just trying to get a grade out of it. This was a real-life scenario. People were depending on us."

When students met with the company's product manager at the end of the project and reported their findings and recommendations, she told them the information would be incorporated in her presentation to the company. The company won't be the only beneficiary of the project; Morgan expects the experience to improve his job prospects when he starts interviewing.

Another group of undergraduates turned the research spotlight on the marketing discipline in the College to improve the educational experience for undergraduate students. From a bench-marking study of top college marketing programs, to written surveys of faculty, staff, alumni, and undergraduate students, to a phone survey of recruiters of marketing students, the group employed a range of research methods for the project.

The students determined that the marketing curriculum needs to be refined and that a gap exists between faculty concerns and recruiters' needs. Their findings, as well as goals and recommendations for the department, were presented to a panel of administrators, faculty, and industry representatives. Reallocating space for health care products in a major grocery chain was the research challenge for another group of marketing students. They took measuring tapes to grocery stores to measure the height, length, and width of grocery store shelves for various health and beauty products and entered data into a spreadsheet program. They then used the information to develop their recommendations.

"I believe the experience gained through a group project cannot be duplicated by any homework assignment or test in the classroom," says Alissa M. Himmel, a senior honors business and accounting major. "Businesses today involve a tremendous amount of teamwork. This type of project may be the single most valuable experience I have gained at UT."

COLLEGE OF COMMUNICATION

From making documentaries to conducting surveys on political involvement, communication undergraduates explore a range of topics in research projects. Regardless of the topic, the underlying purpose of the projects remains the same: to provide undergraduate students with the opportunity to take information they acquire in the classroom and transform it into knowledge and skills they can use in graduate school or the workforce.

Carrie Craver, a radio-television-film senior, learned an important lesson while in Venezuela over the semester break filming indigenous peoples. She discovered that flexibility is critical to successful documentary production. Once in Venezuela, Craver found that the Indians were frightened of the camera equipment and did not want to be filmed in their natural environment. As a result, she had to settle for filming a dance that one tribe agreed to perform and interview a few Indians who consented to be photographed.

The experience also helped crystallize her career aspirations. "Before I wanted a high-paying corporate job," she says. "Now I want to study different people." The contentment that the Indians had with their situations has caused her to rethink her priorities. "Their lives are much more fulfilling and they didn't have a lot." The footage she shot is to be used as part of a larger documentary to be sold to the Public Broadcasting System or the Discovery Channel.

Meredith Stern, a senior in radio-television-film, looked behind the statistics on breast cancer to probe the impact on people who have lost a wife, friend, mother, or sister to the disease. The information she gathers will be used in a documentary which takes a new approach to the subject. Stern also hopes the end result is more money dedicated to breast cancer research. Although Stern includes some statistical information on breast cancer, most of her research involves interviews with survivors of breast cancer victims.

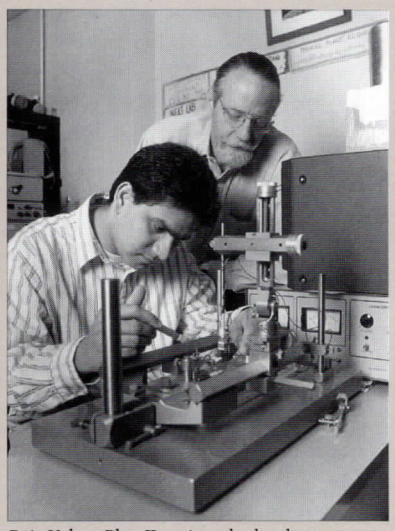
The result was that two theories held by Stern were contradicted by her interview subjects. She was surprised to learn that men are just as affected by the deaths of their mothers as women and that men are equally concerned that they could be passing on genes that may put their offspring at risk for breast cancer.

Another aspiring documentary maker, radio-television-film senior Andrea Goodson produced a documentary on the impact lignite coal mining has had on Titus County in East Texas. Relying primarily on the stories by residents who have battled Texas utilities for years, Goodson learned to shoot footage quickly and honed her technical and interpersonal skills. The project is good for students going into film directing or producing, she comments, because "you've got to think while you're there."

In the "Introduction to Research Methods" class, students surveyed 250 Texas residents on their attitudes toward the political process during the 1996 Presidential campaign. With funding from a special UT research grant, students used computer-assisted interviewing facilities through the Office of Survey Research in the College of Communication to question residents about which media are their sources of information, their involvement in the political process, and their thoughts toward the political process.

Brigitte Vittrup, a recent radio-television-film graduate, says her research project focusing on digital technology provided her with information not yet taught in classes. The project allowed her to learn about digital technology as it was evolving, giving her special insight into the future of digitization and its replacement of analog broadcasting. Undergraduate research projects such as hers are worthwhile, she explains, because they allow students to "target what you want to learn. You can really dig into something you want to learn about."

—Katherine Kerr



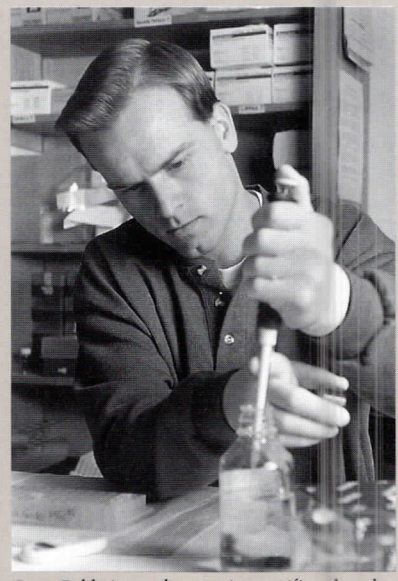
Rais Vohra, Plan II senior who has been accepted into the MD/PhD program at the University of Texas at Galveston, discusses his research with Dr. Crews.

While teaching at Harvard University in the 1970s, Zoology Professor David Crews was struck by the fact that today's physicians are forced to evaluate a tremendous amount of information about new drugs, treatments, and procedures. He recognized, however, that physicians do not acquire an understanding of basic research techniques while in medical school because they are so focused on becoming physicians that the research aspect of their education is neglected. Though some medical schools do have some programs that encourage laboratory work, time and study pressures make the experience less than optimum. As a result, much of the information physicians rely on comes from drug and manufacturers' representatives promoting their particular products.

"It's absolutely critical that physicians have some sense of how hypothesis-driven experiments are conducted so they can evaluate the information," Dr. Crews says. He believes the way to address the problem is to provide undergraduate students with an opportunity learn basic research techniques so they are equipped for the future demands. There is one, large obstacle. "It's a fact of life in the natural sciences that, because of the expense and time-consuming nature of the work, professors are very reluctant to work with undergraduates."

Dr. Crews is willing to provide undergraduates the opportunity to conduct research under strict parameters. "I don't allow students in for one semester. A student has to give me two full years. The first year is spent getting to the point of doing the work. They're learning their way around, doing things wrong, finding out what is a question they can handle." Part of the educational process requires that he work with the students "who come with big, big questions," such as how to cure cancer. "They learn they need to keep that goal burning, but they have to tackle it in small pieces."

While some researchers are reluctant to deal with undergraduates' youthful inexperience and enthusiasm, he explains those are attributes as far as he is concerned. "That's why I continue to work with undergraduates and high school students. Young students are unfettered by knowledge. They have the enthusiasm, the dream that everything is possible. That's why I got into science. That's the whole reason I like to continue that atmosphere in the lab."

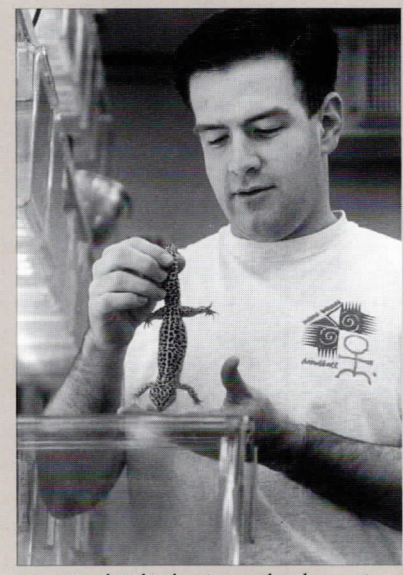


Ryan Baldwin, zoology senior, purifies cloned pieces of DNA from the leopard gecko.

Dr. Crews earned the President's Award of Innovative Teaching at Harvard for the Undergraduate Biomedical Training Program. He brought the program with him when he joined The University of Texas at Austin in 1982. Funded in part with a grant from the Abell-Hanger Foundation in Midland and the Denton Cooley Foundation in Houston, the program prepares undergraduates for the strong research competition they will face in the biomedical sciences.

Two types of students are drawn to laboratory research.

"First, the pre-medical/dental/veterinary student believes it to be critical to gain entrance to top professional schools. And the best of these students often envision themselves conducting research as well as maintaining a clinical practice," he points out. "Second, there is the student driven by curiosity who gives serious consideration to graduate school in the biological or psychological sciences. In both instances, the student usually has no idea of what scientists really do, but has formed an impression based on a patchwork of images arising from television dramatizations, popular publications and perhaps observations of particular individuals."



Henri Woods II, biochemistry and zoology senior, holding a leopard gecko. This lizard is being studied because the temperature of the incubating egg, rather than sex chromosomes, determines sex.

Dr. Crews helps trainees prepare for the rigors of postgraduate education through intensive training in laboratory techniques and procedures, development of hypotheses and experiments designed to test them. In addition to providing an opportunitiy to participate in reserach, he also assists them in making informed decisions about their furture. Trainees are selected based on recommendations, grade point, and evidence that they view research rather than a credential. During the first six months, the undergraduate works with an advanced graduate student or a postdoctoral fellow while developing skills, reviewing pertinent literature, learning to distinguish important from trivial problems, and deciding the research problem to address. With close supervision the student formulates a research project and develops an experimental research protocol. Special emphasis is placed on the scientific rational for the study, experimental design, control groups, hypothesis testing, and statistical analysis.

Each trainee is required to prepare a grant application using National Institutes of Health forms that must be approved by Dr. Crews before their research can start. Each trainee is responsible for all phases of the project. If warranted, the results are prepared for publication. In this manner, the undergraduate is exposed at the hands-on level to every phase of the scientific process.

The bottom line: Dr. Crews' trainees have been accepted at the top-rated medical and graduate schools in the United States.

MARGARET C. BERRY

Professors Who Made a Difference

Two professors "who made a difference," Walter P. Webb and J. Frank Dobie, talk with each other on a campus bench.

An acclaimed longitudinal study of the impact of college on students, undertaken from the mid-1920s to the mid-1960s, was published in 1969 by psychologists Theodore M. Newcomb at the University of Michigan and Kenneth A. Feldman at Stony Brook-New York. When Dr. Newcomb was asked, "From all that research and personal experience, what does college do for a person?" his reply startled the academic world: "There isn't, I'm afraid, much evidence that they [professors] do have any effect on students. The fact is that students neither expect faculty contact nor get it. In most colleges, the faculty goes one way and the students go another."

Dr. Newcomb's reply was accurate when it was stated. In the major U.S. universities faculty research was emphasized more than teaching. Yet by the end of the 1960s all of our values, including those relating to education, started being questioned. Since then University of Texas administrators and faculty have worked to improve the undergraduate experience, to improve the relationships between faculty and students, to improve teaching, and to encourage senior professors to leave their research and writing long enough to teach undergraduates.

Serious efforts are being made to further the "teaching-learning connection." Student-faculty contacts that go beyond the classroom to include informal settings are important in facilitating acculturation, as are discussions that are not just limited to academic work, but extend to social and intellectual issues as well as advice concerning career issues. Even if a student is unable to create a niche in his or her peer group, frequent student-faculty contact can promote persistence by helping to "mitigate feelings of social isolation."

Although the culture has changed, certain fundamental needs of students have not. Their needs to be noticed, to be listened to, to be respected, to be praised, and to have self-esteem are still as fundamental as they were during the early years of The University of Texas. Professors who recognized those needs and adapted their teaching methods accordingly were the ones their students remember as professors who made a difference.

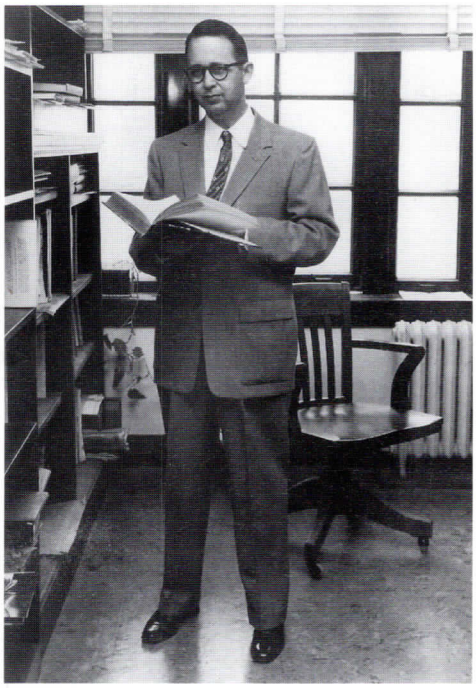
We know about the exceptions—professors who made an impact on the lives of their students. A few "favorite professors" are identified here. Those who attended the University might include others or omit some of these. My short list contains only those no longer living who taught undergraduates; I'd like to think of it as simply a partial list. Few women are listed because few women were faculty members. One might say that every professor in some way makes a difference in the lives of some students. Even so, here are a few whose teaching of undergraduates did make a difference.

Robert Adger Law (1879-1961) came to UT in 1906 and retired in 1957. He taught English with a zeal that caused his students to revere him as a living personification of Mr. Chips in *Good-bye, Mr. Chips*. A world famous Shakespearean scholar, he talked to students of Shakespeare as though he were an old friend. "He was so courtly," one former student remarked. He had a keen sense of the dignity of the human being, and his kindly regard and courteous manner conferred the status of friend on those who were his students. His personal interest in his students placed him among "those professors I'll never forget" in the minds of many Texas exes.

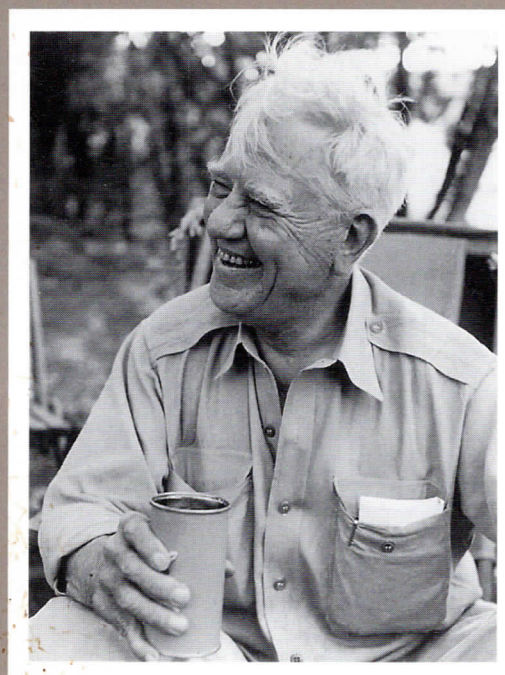
Eugene Paul Schoch (1871-1961) taught chemistry and later chemical engineering from 1894 until 1953. He was another who cared for students and even played with them. He organized and became the first director of the University Orchestra and then later organized the Longhorn Band and served as its director for nineteen years. Throughout his entire professional career, Dr. Schoch had the capability of inspiring young men and women to do better things. "Dr. E.P.'s boys," as they fondly called themselves, became leaders in their chosen areas. They initiated the E.P. Schoch lectures in chemical engineering in his honor. As a teacher, he was both vigorous and effective. He took particular delight in teaching freshman classes.

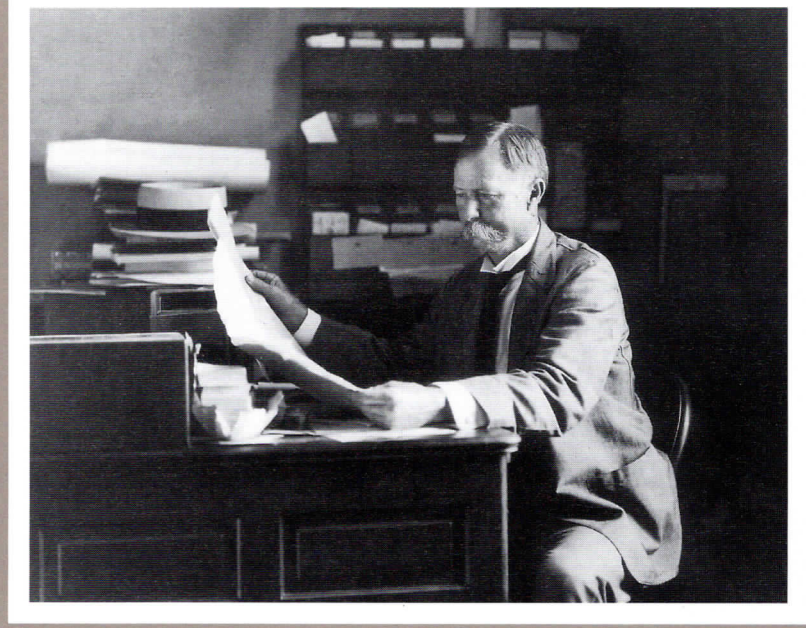
DeWitt Reddick (1904-1980) was a journalism professor from 1927 until his retirement in 1975. Acclaimed as a journalist and a communicator, he was also a personable, caring professor who always had time for undergraduates. Reddick said, "Classroom teaching is important, but the follow-up with individual students helps them absorb what they get in class. It also provides opportunities for guidance." He received the Lemuel Scarbrough Award for excellence in teaching.

J. Frank Dobie (1888-1964) taught Southwestern literature at UT in 1914-1917; 1918-1919; 1921-23; 1925-47. Dobie belongs in a different class of professors who made an impact on students. He was a rebel, and a large following of students loved him for his rebellious ways. He received the rank of professor in 1933, the first Texas non-Ph.D. to be so honored at the University. His love of literature, his ability to tell stories, his numerous publications of Texas folklore, and his independent spirit endeared him to his students, who made him a Texas icon.

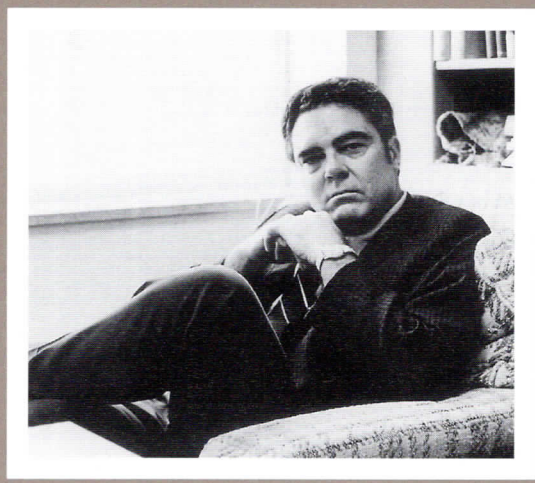


Joe Bertram Frantz (1917-1993) taught history from 1949 until 1986 to large undergraduate classes. Frantz believed that history should not be all "sober-sided and solemn" but "fun rather than funereal." In his early years at the University, he established his reputation as an excellent teacher and a speaker. Known as a historian of the American West, his impact as a teacher (his classes were highly popular) came heavily through his writings and his relationships with people outside the University. He worked as director of the Lyndon B. Johnson Oral History Project (1967-74), which produced some 1,000 oral history interviews.





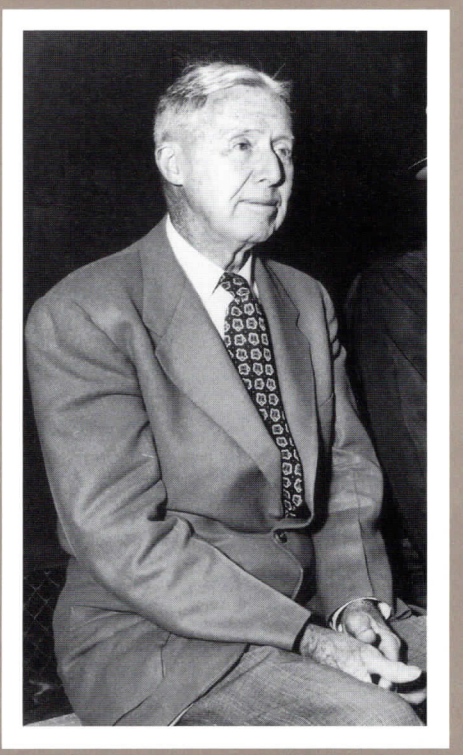
Thomas Ulvan Taylor (1858-1941) was on the UT faculty from 1888 until his retirement in 1937. One student commented, "As an engineering teacher and administrator, he possessed an extraordinary interest in the welfare of young men and young women preparing themselves for engineering careers. He was an inspiring and enthusiastic leader. He taught students by example as well as by precept. He aroused the intellectual interests of his students in a superb manner."



Clifton M. Grubbs (1925-1995) taught economics from 1965 until his retirement in 1988. He was the recipient of the first Jean Holloway Award for Teaching Excellence. He also won numerous other teaching awards: the E. Harris Harbison Award for Gifted Teaching presented by the Danforth Foundation; the Phi Eta Sigma Award, twice; the Student Body/Cactus award for Excellence in Teaching; and the 1988 Harry Ransom Award. He taught "standing room only" large classes. Students liked him because he was fair, interesting, always available for assistance, and showed a deep respect for students. "Treat the student the way you hope he might become," Grubbs advised colleagues. "Every student question is important."

Annie Webb Blanton (1870-1945) taught in the department of educational administration from 1923 to 1926 and from 1927 until her death in 1945. Blanton Dormitory is named for her, and public schools carry her name in Austin, Dallas, and Odessa. She cared so much for students that she took the initiative to form an honor society (International Delta Kappa Gamma) for teachers to promote the characteristics exemplifying excellence in teaching. She taught by example and encouraged her students to do the same when they became teachers.

Harry Huntt Ransom (1908-1976) taught English or was an administrator at the University from 1935 until he retired in 1971. He was dearly revered as a classroom teacher because of his interest in students and his desire to help those who needed him. Students always came first. Ransom never assumed an air of superiority. He recognized individual differences and gave all a fair chance to succeed. He was a believer in the effort to help students learn how to learn so that they may continue to do so throughout life.



Daniel Allen Penick (1869-1954) was a faculty member from 1899 until 1954. He taught Latin and Greek in the classroom and tennis on the courts. Students in his courses or being counseled by Dr. Penick reported that their lives were highly enriched by exposure to his adherence to high ideals. He started coaching tennis as a hobby in 1908 and continued for more than thirty years without pay. He also served as an assistant dean, was a choir director, and was on the YMCA board of directors for more than a half century. His warmth as a person, his interest in people and his concern for the welfare of others endeared him to all touched by his life both inside and outside the classroom.

William A. Cunningham (1904-1987) was in the chemical engineering department from 1935 until 1971. He was known and applauded for his interest and involvement in student activities. He started a departmental newsletter to keep in touch with former students and friends. As a tribute to his excellent teaching, more than half of his former students contributed to a professorship in his name in 1974. He also received a student-bestowed Distinguished Adviser Award in the department for two years in succession (1970 and 1971). Cunningham was one who actively showed his interest in individuals; he sought to help them and make them feel at home while at UT and be proud of their profession.

Anna Hiss (1893-1972) was a part of the University from 1918 until she retired in 1957. She developed model programs for physical training for the general college student, intramural activities, sports clubs, co-recreation activities, in-service training programs for her staff members, and was also instrumental in establishing the professional degree program for the preparation of teachers of physical education. Hiss also planned the construction of the women's gymnasium, which is now named for her. Her activities at the University made a tremendous impact on the lives of undergraduate women. Her disposition and deep-seated friendliness endeared her to both students and faculty. She was co-founder of Orange Jackets, a women's service organization, and of the campus League of Women Voters. Her care for students was obvious, and she had a remarkable memory of those she met.

Milton Rietow Gutsch (1885-1967) came to the history department in 1912 and stayed until he retired in 1951. His freshman English history course was immensely popular with students. They were charmed by his annual lecture on Henry VIII, and just before Christmas, he would sing for the class Medieval student drinking songs in his ample baritone voice.

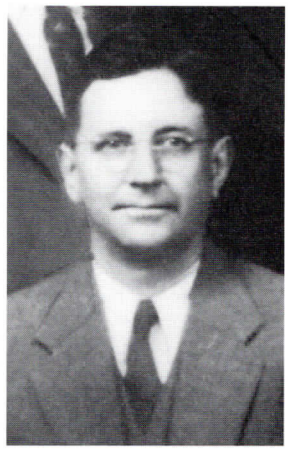
A former student said of him: "He had the gift and the determination to boom a knowledge and an appreciation of English history into the noggins of restless youngsters more immediately concerned with bulling, coking, catching dates and slapping through their texts than they were with Egbert's ascension to the West Saxon throne or the benefits of the barons wrested at Runnymede for posterity. Somehow what he said, staccato sharp and jet-propelled out of the abundance of his vocabulary, did sink in so that a decade after, or even later whenever it really mattered, you found that you did know what the barons had accomplished."

Aaron Schaffer (1894-1957) came to the University in 1920 and remained in the department of romantic languages until his death in 1957. Students liked him because he made his subject matter come alive and because he always had time for them. Honored with Knighthood in the French Legion of Honor, students and colleagues described him as an extraordinary man—"a human being whose gentleness, whose wisdom, whose love of knowledge, of beauty and of truth made a lasting impression."

Walter Prescott Webb (1888-1963) was a member of the history department from 1918 until his death. As a classroom teacher for undergraduates, Webb probably should not be included in this list. One former student, who took his freshman lecture course on European history, said that he was dull as a lecturer, but the same student also had him for the weekly quiz section for the same course and found him delightfully stimulating.

Webb's impact on students is immeasurable. Internationally famous for his theories and his writing, students who knew him and worked with him in small groups or one-on-one put him at the top of their list. He was a scholar, a man of character and integrity, and his accomplishments were an inspiration to his numerous students. His gruff exterior concealed a gentle sentimental spirit. He loved a good story, but he was not given to joking in the classroom. He liked folk sayings, but he did not use them in his lectures. An innovative thinker with unlimited vision, his best known books are *The Great Plains, The Texas Rangers, Divided We Stand,* and *The Great Frontier.*

Yes, Walter Webb was a professor who made a difference in the lives of many of his students. I was a frightened freshman in his History 9 course and went on to major in history.



Rudolph Leopold Biesele (1886-1960) taught history from 1925-28, again in 1929-30, and from 1931 until his retirement in 1957. He is remembered by many students because he was an exceptionally warm-hearted and outgoing person. His own personal research was never as important to him as assisting his students. Especially important to them was his remarkable way of remembering individuals—their names, where they were from, their majors and their needs. He took time to mark papers carefully so that students knew he had read them.

Robert H. Montgomery (1893-1978) taught economics from 1922 until 1963, even though he was on leave several times. A mathematics major, he developed an interest in the study of massive cultural and economic changes occurring in the world as it evolved from the frontier society he had known and experienced as a child and young man. One said of his teaching: "Whatever the course title, whatever the material covered, a class with Dr. Montgomery was always one that stirred, enlightened, and agitated the listeners."

"People who take notes in class make me nervous," he told his students on the first day. Then he would settle on top of his desk and for the rest of the semester would teach amused students economics through Aesop-type stories. He was a master story-teller. When he stood at the lectern, exaggeration, hyperbole and reminiscences were among the tools he used.

His classes seldom ended without many of the students crowding around the desk or lectern, anxious to continue and extend the discussion, raise questions and challenge the provocative professor. Many would even follow him to his office to continue talking with this man who had a knack for opening vistas hitherto unthought of and in questioning ideas long held but never actually examined.

The former University of Texas professors I have listed were all creative and were leaders in their academic fields, but their undergraduate students were especially impressed by their human and social qualities of personality and favored them usually for these nonacademic reasons. There are some exceptions. Some readers will wonder why I have not included Nettie Lee Benson or Lerena Friend. These two scholars were primarily librarians, even though they held academic rank and spent some time in the classroom. The impact they made was usually one-on-one as they helped students locate source materials. Dr. Benson devoted some thirty-five years of her life to building the University's Latin American Collection into one of the finest of its kind. Dr. Friend was the first librarian of the Eugene C. Barker Texas History Center (now a part of the Center for American History) and assisted hundreds of students in research and provided encouragement and advice. Such assistance also makes an impact on students, often, as Newcomb found in his study, more significant than classroom teaching.

Centers for teaching effectiveness on most large university campuses, including The University of Texas at Austin, are working with deans and department heads to improve the undergraduate experience. Even now, however, the professor who recognizes the needs of the students—those same fundamental needs students have had through the years—and meets them in innovative ways is the professor who will eventually make a difference. D

Longitudinal study of undergraduates referenced in article: K. A. Feldman and T. M. Newcomb, *The Impact of College on Students*, Jossey-Bass, 1969.

Acknowledgments: Photographs in this article are from the Prints and Photographs Collection or from UT Texas Student Publications Photographs located in the Center for American Studies at The University of Texas at Austin.

Dr. Margaret C. Berry, author, historian, and student affairs administrator, has served The University of Texas at Austin in several positions, including assistant dean of students, associate dean of students, and director of developmental programs in the office of vice president for student affairs. She retired in 1980, but for the past two years, she has taught a Freshman Seminar on "Highlights in the History of UT." Dr. Berry is the author of four books and numerous articles about the University. Her graduate degrees are from Columbia University. She is a recipient of the Pro Bene Meritis award from the College of Liberal Arts, has two scholarships named for her, and was a 1996 recipient of a Distinguished Alumna Award from The University of Texas. Dr. Berry may be reached at 512-345-3726.

Ronda's Montessori Garden, Jeena Jacob

ROBERT D. KING

Teacher in Texas

I love to teach. I love teaching now more than ever. I like teaching freshmen and sophomores best of all, and these days I prefer to do most of my teaching for them—the first two years of the undergraduate curriculum. Though I have spent my entire adult life in higher education and have said a lot about teaching, especially when I was a dean, this is the first time ever that I have tried to *write* about teaching. It is not easy to do.

I am not a great teacher—"greatness" in teaching is an unbought gift which a miserly providence bestows sparingly—but on most days I think I am a pretty good teacher, and when I have an "off" class I know it and it hurts, even now. Above all I *like* to teach. Ultimately, I find, it is teaching (along with writing) that gives me my most sustained satisfaction. But it is one thing to think you know something about teaching, quite another to write about it.

Remember that Supreme Court justice who said that while he could not define pornography he knew it when he saw it. I cannot define good teaching; but I know it when I see it. I have known teachers who were galvanic in a small class of ten students but merely ordinary in front of thirty students. I have known professors whose best teaching came one-on-one during office hours, sedulously going over every word of a composition or every missed answer on a test. (Full disclosure requires me to say that I am no good at the latter—it makes me twitchy.) I have known teachers who underwent an almost spiritual transformation entering a lecture hall of hundreds of students, giving performances—

It is impossible to define good teaching; no two people agree on what it is. It is one of those human qualities like love that is beyond calculus.

no other word will do—year after year that were sublime, moving, magnificent. My friend Clif Grubbs of Economics was like that—the "Volcanic Professor" Bill Moyers called him. If there had been a lecture hall seating 1,000 students, we would still have had to turn away students from his classes.

It is impossible to define good teaching; no two people agree on what it is. It is one of those human qualities like love that is beyond calculus. A UT campus magazine used to run an annual "Ten Best and Ten Worst Professors." One liberal arts professor made both lists one year. Since I knew him and what he was like—he had an equal number of what politicians call "high negatives" and "high positives"—the only surprise for me was that he didn't win in both categories *every* year. I know when I teach a class which students my ways appeal to and which students are beyond my reach. Some students laugh at your jokes, others do not. Some students can learn without worrying about their grade, others cannot; some think you are too hard, others too easy; some students like to talk, others to listen.

Teaching is hard, and on your worst days you cannot help wondering why you never found an easier way to make a living. When I left high school I had not the least idea what I wanted to do—"clueless" was the exact word for me (if it had been in use then). And so I went to Georgia Tech in the fall of 1954, vaguely intending to become a chemical engineer. That epic mismatch between person and profession lasted not even a year, mathematics took its place; and a mathematician is what I thought I would be. The idea of becoming a teacher, a college teacher—any kind of teacher—could not have been further from my thoughts.

But I remember as clearly as the details of a happy childhood Christmas when that changed. A book did it: *Teacher in America* by Jacques Barzun. Published a half century ago, I first ran across it in 1959 when I was finishing up my schooling at Georgia Tech. It had been a modest best-seller, which was unexpected because, as Barzun put it in the first sentence of his book, "Education is … the dullest of subjects and I intend to say as little about it as I can."

Teacher in America remains a timely book today, especially today. Barzun wrote wisely and well of faculty tenure, of the Great Books, of the sin of using the classroom to promote ideology, of the miracle of Western Civilization, of academic freedom, of the danger of narrow academic overspecialization, of what great teaching is and is not. Jacques

Barzun—American to the core despite the French name—was a first-rate mind, a famous teacher, a gifted writer, and provost at Columbia University in its glory years. While my pantheon of intellectual heroes would come to include other great educators such as Robert Maynard Hutchins, president of the University of Chicago, and John Silber, forever locked for me in a Sixties time warp as Dean of Arts and Sciences at UT, it was always Jacques Barzun whom I wished most to resemble (and Robert Oppenheimer too—but that is a story for a different day).

However, none of those names were anywhere on my personal radar screen when I picked up *Teacher in America* in the Atlanta library. This was no "conversion experience." If I had known the word "epiphany" it is not the word I would have used to describe what happened to me when I read Barzun's book. In fact, nothing very great or deep happened beyond the tiniest realignment of a few molecules of brain cell—a slight rearrangement of the underside of my thinking, not memorable, hardly remembered. But it planted a seed.

Much lay ahead. There would be Army basic training at Fort Jackson, South Carolina, where I found myself—happily out of the Ivory Tower—the only private in a company of a hundred men who had ever been to college, let alone could lay claim to the letters B.S. and M.S. There would be computers (this was before just *anybody* could use computers), and there would be a job with IBM at Cape Canaveral in the early fly-by-the-seat-of-your-pants days of rocketry. IBM gave me a fancy job title "Applied Science Representative," meaning "do what the branch manager tells you to." There would be a modest foray into "machine translation"—the use of computers to translate languages—but never did it occur to me that language would govern the rest of my life.

I liked what I was doing for IBM in the madcap days of the early Cape; but it gradually became clear that the part of the job I liked best was teaching people how to program the computers they bought and leased from us. So I went to graduate school at the University of Wisconsin, did some graduate teaching there, and got my Ph.D. (which the philosopher and psychologist William James called "The Octopus" because he felt it was strangling the life out of the American university).

The University of Texas at Austin is almost twice the size it was when I came here as a fresh Ph.D. in 1965 to join the faculty of Germanic Languages, later Linguistics and Asian Studies. The first years I taught up and down the scale: lower-division, upper-division, graduate. I remember with particular affection the Plan II Honors course in freshman German I taught the first semester I was here. So it is from this generation-long perspective that I see teaching at UT, and one thing I know: on the whole, overall, in most departments, schools, and other units, both the quality and variety of undergraduate teaching at UT Austin are better now than when I arrived in 1965.

Both the quality and variety of undergraduate teaching at UT Austin are better now than when I arrived in 1965.

Consider the opportunities for our smartest students. In 1965 there was in the College of Arts and Sciences one college-wide honors program: Plan II. When in 1979 the College of Liberal Arts was created, there was still only one honors program for Liberal Arts students: Plan II.

Plan II must remain small if it is to remain good, meaning that we had an honors domicile for something around 650 students in the entire College of Liberal Arts (and no more than 650 as long as I had a say in things). Can anyone in their right mind believe that there were only 650 super-bright students in a college as big as Liberal Arts? Nonsense. So my associates and I in Liberal Arts set out to do right by all those tremendous students we knew the College had who were not in an honors program. The result was the Plan I Honors program in Liberal Arts, its godfather Associate Dean Joseph Horn. Plan I Honors was a triumph at birth; it thrives today.

The Humanities Program was the creation of humanities dean Stanley Werbow. It was an across-the-disciplines program for students whose interests matched poorly the usual degree plans. I did not want Humanities to become an honors program—its mission was different—but I wanted very much to see it prosper as a place for the student who was talented in more directions than established disciplines could accommodate. Prosper it has.

Fine, so Plan II Honors is alive and well, it has been joined by Plan I Honors, and there is Humanities for the vertical student who inhabits a horizontal world. What about the others, the "ordinary" students, the "regular" students? Well, I have been observer and participant for over thirty years, and it is my considered opinion that there are about as many *good* professors in undergraduate classrooms as there were when I came here in the mid 1960s.

Teaching is not a lost art but the regard for it a lost tradition, Jacques Barzun wrote in 1945. That has not improved in the era of "Generation X." But that is our culture's problem, and there isn't much I can do about it. What I *can* do is to continue to teach as well as I am able. I know from experience that today's students are not as fickle to fashion as they are often made out to be.

Robert Graves tells us in "To Juan at the Winter Solstice" that:

There is one story and one story only
That will prove worth your telling,
Whether as learned bard
or gifted child;

For me that story is never any but the personal one. You. Me. What do *you* do? Why do I do what *I* do?

Here are the courses I have taught during the academic years 1995-1997: Introductory Linguistics, Introductory Linguistics (Plan I Honors), South Asian Civilization (history, culture, and religion of India), a Freshman Seminar on "Espionage, Spies, and Traitors," and a Plan II Honors freshman tutorial class on "India." Apart from Honors Linguistics, the Freshman Seminar on spies, and the Plan II Tutorial which were limited to enrollments of fifteen because they were "Substantial Writing

Component" courses with papers to correct, class size in the other courses was determined only by demand and room capacity. Introductory Linguistics had about 130 students each fall, South Asian Civilization about 50.

Wise men recognize early on what they do well and what they do badly, and I cannot ignore the fact that I am better at lecturing than I am in the other thing—the "Socratic method" class, the "discussion" class. Gertrude Stein said of the poet and critic Ezra Pound that "he was a Village Explainer—nice if you're a village, not if you're not." Well, no use denying it, I'm a Village Explainer: a pontificator, shamefully garrulous, overbearing, slightly insufferable. (Full disclosure, remember.) So, while I try my best in the small classes and sometimes even manage to get almost a B if Socrates were grading my efforts to grapple with my students towards the truth via his method, I am more comfortable standing in front of a class *revealing* the truth. But because I crave variety always and because doing the thing hard for you is said to build character, I am happiest with a mixture of classes big, very big, and small; of honors students and "regular" students.

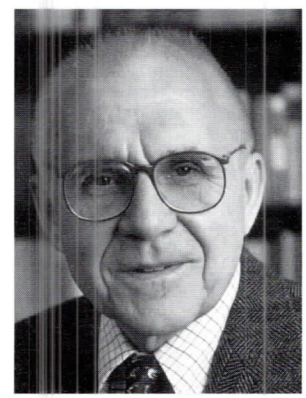
I like teaching graduate students, let's have no nonsense about that. I direct dissertations and theses. These things too I delight in, and I have no intention of giving them up—and certainly not my scholarship and writing. But it is the student new to UT whom I love teaching the most, the bright-faced smiling freshmen. Teaching them has become for me a sacral obligation, though you are not supposed to enjoy sacral obligations as much as I enjoy teaching these students. These freshmen, the best of them, are so touchingly eager and open to learn about all the arcane things I know something of—phonemes, linguistics, the Yiddish language and Jewish history, *karma*, *maya*, and *dharma*; why Kim Philby and Anthony Blunt were despicable traitors and Count von Stauffenberg a glorious traitor who preserves our faith in moral renewal. Most freshmen are not weighed down by the affliction of getting a job, and time has not turned them cynical. They want to learn because learning is fun and exciting, and I like to teach them because teaching them is fun and exciting.

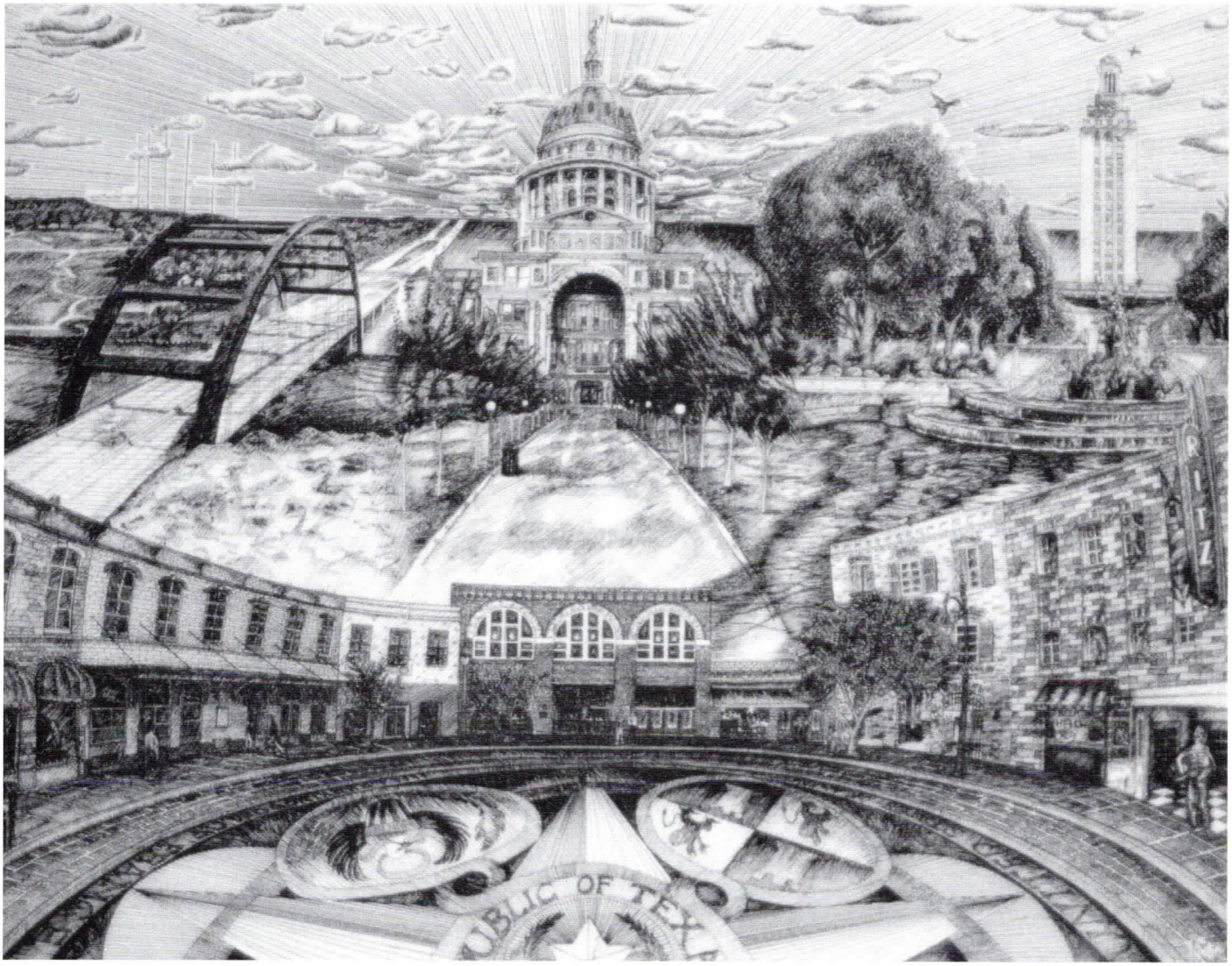
> Teaching undergraduates is the most essentially fundamental obligation of a university. It is from that sacred mission that public trust in higher education derives—and makes of a university a noble institution rather than only a useful one. We can have it all. Good teaching and good research. We can have it all!

When I was dean of The College of Liberal Arts I never passed up an opportunity to shout from the rooftops what I believe now even more passionately: that teaching undergraduates is the most essentially fundamental obligation of a university. It is from that sacred mission that public trust in higher education derives—and makes of a university a noble institution rather than only a useful one. *Of course* a great university must have great graduate schools and great professional schools; *of course* a great university must promote research; *of course* scholarship is vital. But we can have all of that *and* good undergraduate teaching. That was my defining credo as Liberal Arts Dean, and I preached it anywhere I had an audience and sometimes even where I did not. I repeat it like a mantra today. *We can have it all. Good teaching and good research. We can have it all!*

The university must remain in Barzun's words, "a planet within the universe of the mind, creating and shedding light upon a darker world which looks for it there, and would look for it elsewhere in vain." But neglect our undergraduates, and someday there will be a terrible price to pay; a fearful retribution will be visited on our universities by those whom we have cheated in our pursuit of gods other than the one who deifies the ancient, honorable, and noble vocation of teacher. D

Dr. Robert D. King holds the Audre and Bernard Rapoport Chair of Jewish Studies at The University of Texas at Austin. He was dean of the College of Liberal Arts from 1979 to 1989 and again from 1991 to 1993. Dr. King has published widely on linguistics, on the Yiddish language and Jewish history, on the German language, on treason, and on India. His book, *Historical Linguistics and Generative Grammar,* is considered a classic in its field, and his latest book, *Nehru and the Language Politics of India,* was published by Oxford University Press. His article, "Should English Be The Law?", was recently published in *Atlantic Monthly.* Dr. King earned bachelor's and master's degrees from Georgia Tech and his Ph.D. from the University of Wisconsin. Dr. King may be reached at king@mail.utexas.edu or 512-471-6932.





Austin, Texas, Ron Grimes

CARL S. BLYTH

French in Cyberspace

The opening of Le Café Orbital in 1994 was front page news in France. It may seem surprising that such an event would be newsworthy in a country where cafés are as ubiquitous as fast food restaurants are in America. But Le Café Orbital was no ordinary French cafe. It was France's first *cyber* cafe, a place where customers could enjoy their croissants and café au lait while surfing the Internet. While Le Café Orbital was making headlines in Paris, at The University of Texas at Austin several French professors and a software designer were designing a computer program that would exploit the potential of the Internet and interactive multimedia.

The result was an educational multimedia CD-ROM called *Parallèles Interactive*. Based on an introductory French textbook *Parallèles: Communication et culture*, my colleagues and I designed the CD by using the textbook's own digitized audio, text, and image files. Our major goal for the program was to integrate the printed text's presentation of grammar, vocabulary, and culture in an interactive format in order to facilitate a student's self-paced study and review.

Today UT students use the multimedia CD and its Internet links to experience first hand the latest details of modern French life—from sporting events to national elections to stock exchange reports. From their computer classroom, our students tour Parisian art museums, search for books at the Bibliothèque Nationale, peruse course offerings at the Sorbonne, access data on francophone Africa from the Ministry of Foreign Affairs, or check the current weather conditions in Montreal. They can even chat with customers at Le Café Orbital.

The use of computer technology is part of a larger plan to redefine the study of the French language and culture in freshman and sophomore courses.

American college students do not typically associate France with computer technology. But they should. A decade before Americans had even heard of the World Wide Web, the French were already connected to a national on-line information service called "le minitel" which they could access through a modem. Although Internet access in France is generally more limited than in the United States, French cyberspace is growing rapidly as more companies and organizations come on-line. And given the French penchant for intellectual debate, the media is full of opinion pieces about the social and linguistic impact of the new technology. Does the information superhighway, known to the French as *les autoroutes de l'information*, hold promise or peril for the French language and culture? Whatever the French intelligentsia may ultimately decide, the computer has already revolutionized the teaching of French at UT Austin by serving as an electronic bridge between the undergraduate classroom and the French-speaking world.

The use of computer technology is part of a larger plan to redefine the study of the French language and culture in freshman and sophomore courses. Since 1994 the beginning French curriculum has been reconceived in terms of an intellectual project: a critical examination of the parallels and divergences of French and American cultures. With the assistance of Eric Eubank, software designer and technical advisor from the Liberal Arts Multimedia Center, and Karen Kelton and Yvonne Munn, course supervisors of first and second semester French, I have combined scholarship in sociolinguistics, cross-cultural communication, and multimedia technology into a coherent curriculum.

The interactive multimedia CD is an integral part in the creation of a new learner-centered model of language instruction. Once a week beginning French students use the interactive program under the supervision of their instructor. Students choose to work alone or in pairs, and they choose what part of the program to explore. The multimedia program is linked to various Internet-based activities that encourage students to practice their newly acquired French language skills in an authentic communicative context.

As a sociolinguist interested in how the French language reflects and

maintains a socially constructed reality, I have always been troubled that French courses tend to focus on the language with little reference to the social context of language use. The multimedia program is an attempt to bring American students in closer contact with French speakers. This, of course, allows language study to be more relevant and less artificial.

We have also sought to make the study of French grammar more meaningful by giving students opportunities to practice the grammar in real communication with native speakers. When language is taught for communicative purposes, students suddenly view grammar in a very different light—as a tool to be employed in the creation of meaningful messages. Such a pedagogy allows students to experience the excitement of language learning. Whenever students make themselves understood to a foreigner either on-line or in a face-to-face conversation, they experience the not so small miracle of cross-cultural communication.

Parallèles Interactive is essentially a multimedia first-year French textbook. The program includes 170 interactive computer screens linked to over 150 French language web sites. In Figure 1, the table-of-contents screen for Chapter 3 is illustrated. Students click on a thumbnail photo to access the corresponding screen. For example, if a student clicks on the first photo (3.1 Chenonceau), the program would access the screen as shown in Figure 2.

This screen represents the basic layout of *Parallèles Interactive*: a written text field with accompanying photos, a note field and various function buttons or icons. Students click on the arrow to the left of the sound bar (just below the photo) to listen to the text, here a short dialogue. The script of the dialogue appears in the field on the lower left. The student may click on the repeat button on the sound bar to repeat a line, or may click to the left of each specific line to hear it pronounced. Students are encouraged to record themselves to compare their pronunciation to that of the native speaker. Students may also hide the script fields to test their listening comprehension (the "window" function on the menu). By clicking on any underlined word or group of words within the text, a student has access to lexi-

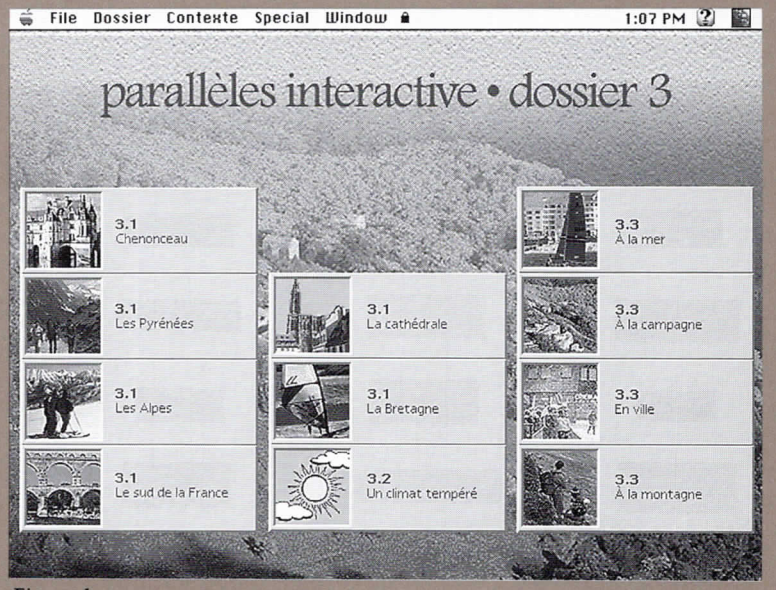


Figure 1.

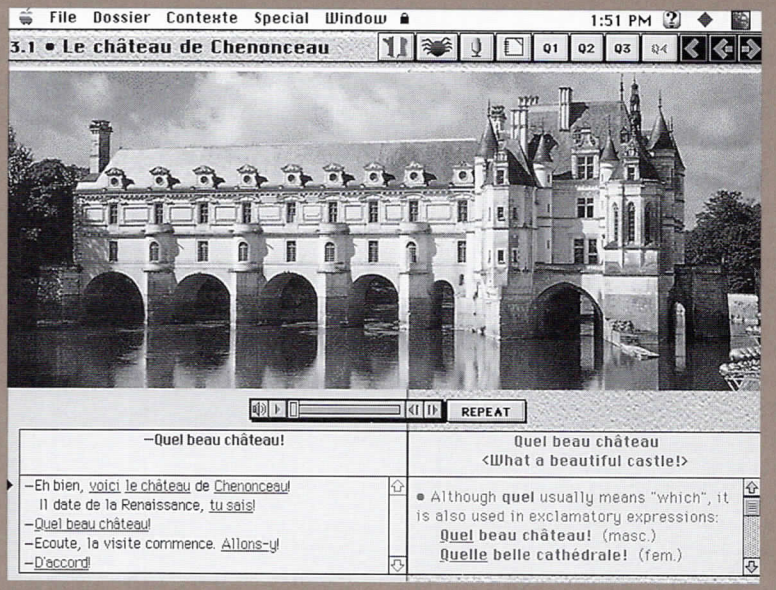


Figure 2.

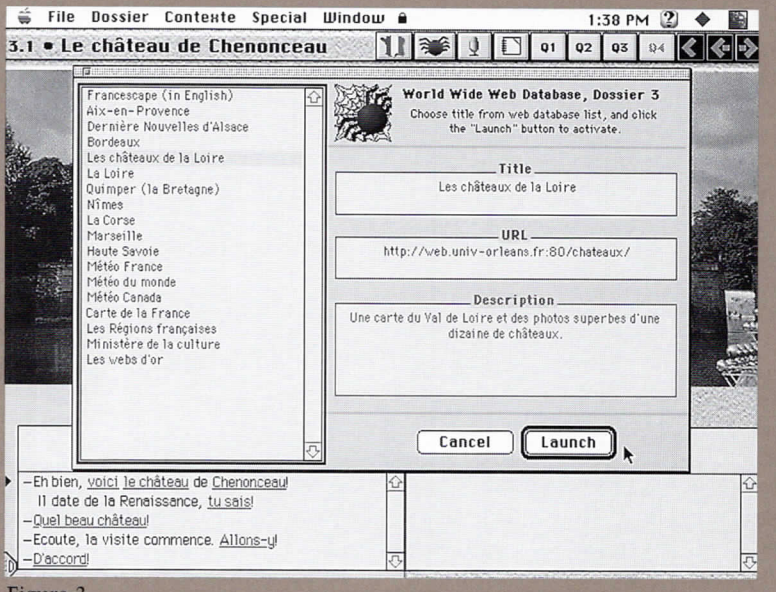


Figure 3.

cal, cultural, or grammatical notes which appear in the two boxes on the lower right of the screen.

In Figure 2, by clicking on the underlined words in the text "Quel beau château!" the student has accessed grammatical information that appears in the note screen in the bottom right. Buttons at the top of every screen in the program give access to various functions. From left to right these functions include: 1) an image or diagram specific to each chapter (here a map of French historical monuments); 2) a data base of World Wide Web sites thematically correlated with each chapter; 3) the recording function; 4) the dictionary function; 5) comprehension questions (Q1-Q4); and 6) navigation buttons to go forward or backward or to the Table of Contents screen of the chapter.

Over-reliance on word-for-word translation is diminished by not allowing students easy access to a translation for every word. Thus only preselected key words are "clickable," meaning that when a student clicks on an underlined word, further information (lexical, grammatical, and cultural) immediately appears in the note screen to the right. During the testing of the program, we determined which words required glossing in order for students to comprehend the text without having to resort to time-consuming dictionary searches. Nevertheless, should a student wish to look up the meaning of a word that is not glossed, the student may search for the word in the dictionary. We discovered that many students who do not use the dictionary function while reading through the text initially may use it days or weeks later like a set of electronic flash cards in order to review chapter vocabulary.

Each screen has three or four questions to test student comprehension of the text. Immediate feedback is given to students when they answer the question. An audio cue repeats the pertinent part of the text when students check their answers to reinforce comprehension of the vocabulary item in context. In later chapters, increasingly complex questions require students to type in their answers. The computer checks the answers for correct spelling and even indicates if an accent mark is missing or misplaced.

We designed the program to facilitate a research goal: to understand how students make use of multimedia as a tool to learn foreign language.

Parallèles Interactive includes the option of linking directly to the World Wide Web via the browser Netscape Navigator. From within the program, students can choose to visit a web link from the database which corresponds to each chapter as shown in Figure 3. When students choose a link and then click on the Launch button in the web linking dialogue box, the browser automatically opens the selected web site. In this manner, students may easily navigate between the multimedia program and various French language web sites.

While we conceived of the program in terms of curricular and pedagogical goals, we designed it to facilitate a research goal: to understand how students make use of multimedia as a tool to learn foreign language. Research has shown that different students prefer different language learning strategies. Given these different orientations to language learning, one would expect to find individual preferences reflected in the way students use a multimedia program. To explore student use of our program, we included as part of the program itself a tracking device which records how a student "navigates" the program. Combining student tracking reports with recorded think-aloud protocols, we pieced together a relatively complete picture of student on-line decision making.

The think-aloud protocol, well-known in psychological research, requires a subject to describe all thoughts and behaviors during the performance of a given task, in this case, the use of multimedia software to learn French vocabulary and grammar. From the recorded think-aloud protocols, we discovered that many students were using the program in ways that made little pedagogical sense. We found out why some students selected certain types of activities and why some students chose to perform those activities in a given sequence. This research helped us understand how our students' interpretation of the computer interface as well as the pedagogical task influenced their on-line behavior.

Thanks to the insights that we gleaned from the student data, we made many improvements to the program. We greatly increased the amount of textual support—vocabulary words, grammatical explanations, example sentences, and so forth. We reworded ambiguous or overly difficult questions or explanations. And, finally, we made certain that the students were given several preliminary training sessions that included a discussion of the goals of the program as well as more effective ways to use multimedia as a learning tool.

The cycle of research and development is on-going. We continue to conduct research that will improve our use of technology in teaching French and are currently administering surveys to both students and instructors. Preliminary survey results show that students are overwhelmingly enthusiastic about the new French curriculum, even if they are not always convinced of the effectiveness of technology. Another encouraging sign is how quickly students pick up the computer program. Some students who reported high levels of computer anxiety in the beginning of the course became comfortable and proficient users after only a few class sessions.

Important questions remain, however. Are our students better at speaking or listening comprehension? Are they more sophisticated readers? Does the combination of written text, sound, and image aid vocabulary retention? How to test accurately the effectiveness of this technology is a stumbling block that many universities face, including UT Austin.

The tests themselves are one of the biggest obstacles. Because the technology is so new, foreign language tests do not adequately reflect the new computer-enhanced methods of learning. As an example, if

computers allow students to individualize their learning, how does the instructor know what to test? How can the instructor measure the incidental learning that results from the unlimited access to authentic cultural data on the Internet?

It will take time for educators to develop valid tests that effectively measure what is learned in a computer-enhanced curriculum. Nevertheless, we are attempting to find answers by comparing the performance of students enrolled in computer-enhanced French courses with students enrolled in traditional courses. Our initial studies indicate that students in computer-enhanced French courses outperform students in traditional French courses on standardized tests. The difference in performance does not appear to be the result of some technological magic, but is due to a more obvious reason—motivation. Our surveys and interviews indicate that students in computer-enhanced courses are significantly more enthusiastic about learning French than their peers enrolled in equivalent courses that do not use computers.

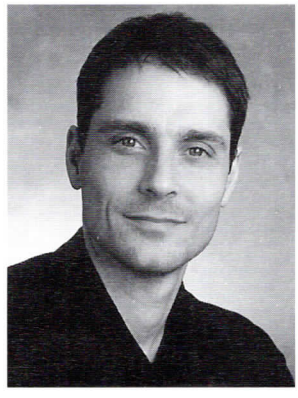
What lessons have we learned from this project? The first concerns the nature of multimedia and the process of designing educational software. The development of multimedia programs is inherently collaborative and interdisciplinary. Most academics, myself included, are socialized to work within their own disciplines and may be unaccustomed to working with experts in other fields. Technology development, however, requires a team of individuals with various expertise: content-area expertise, technical expertise, and pedagogical expertise. Developing a foreign language curriculum based on authentic multimedia documents presents multiple challenges, not the least of which is the unprecedented amount of information on the Internet. At times I imagined our team of developers as a group of amateur archeologists digging through the dross of material on the Internet in search of a few pedagogical nuggets. Like the archeologist who unearths an object but is uncertain of its significance, my colleagues and I frequently discovered interesting bits of information with our computers but did not always know how to integrate them into a coherent curriculum. And implementation of technology requires just as much teamwork as does product development. Technology in education raises very real financial, logistical, and technical concerns that can only be addressed by a team of administrators, instructional staff, and technical experts working together.

The second lesson from this project concerns the nature of learning in a multimedia environment. Anyone who has reservations about the educational potential of computer-assisted instruction (such as putting old wine in new bottles) should observe our students as they work independently and in small groups. One immediately notices how actively engaged every student is during the class period. Students come in, sit down, and get to work. They set their own agenda and they stay on task.

The level of engrossment that our students exhibit while using computers is evidence of a new kind of literacy that many educators continue to misunderstand and devalue. Today's undergraduate grew up in an electronic age and has an understanding and an appreciation for various forms of media that many older people (including their professors) find perplexing. We professors naturally prefer the kind of literacy that was part of our childhood, and yet we must face the educational and social consequences of the electronic age. The pleasure I derive from being "lost in a good book" is somewhat analogous to the pleasure that some of my students report from being "lost in cyberspace." We may not share that psychological experience with our students, but we must acknowledge its reality, and more important, its validity.

Language educators willing to explore the pedagogical applications of the emerging technologies discover that their students are literate, but in ways they often overlook. Today's students have a high degree of critical awareness of how meaning is produced, transmitted, and controlled by various media. Our students still read, but they no longer read written texts exclusively. They now read multimedia texts that combine written language, sound, and image in ways unknown to more traditional forms of literacy. Many foreign language educators wonder if the computer is replacing the traditional teacher. Nothing could be farther from the truth. Computer technology is changing our roles as learners and teachers. Computers are not replacing teachers. Rather, teachers who use computers are replacing those who don't.

At UT Austin we began this project with the hope that we could make the undergraduate experience in French a more exciting one. Our major goal was to develop innovative uses for advanced technology in teaching beginning French. Now our focus has shifted from teaching to learning. We discovered that, with the aid of new computer technology, our students are learning much more than just French—they are learning how to manage their own learning. They are learning how to learn the French language and culture by using technology. Now that is exciting. D



Dr. Carl S. Blyth is assistant professor of French and coordinator of the Lower Division French program at The University of Texas at Austin. His recent articles have focused on sociocultural approaches to language acquisition as well as the dynamics of face-to-face interaction in French-speaking societies. His current research concentrates on the social and psychological factors involved in computer-mediated language learning. Before joining the UT Austin faculty, he was an assistant professor at Louisiana State University-Baton Rouge. Dr. Blyth received his Ph.D. in French linguistics from Cornell University. Dr. Blyth may be reached at cblyth@mail.utexas.edu or 512-471-5531. For more information on the new French curriculum, see our web site: http://www.lamc.utexas.edu/fr/

Carmen, Jerome Redor

ORLANDO R. KELM

Spanish by Computer

As part of their university education nearly all undergraduates are required to take four semesters of a foreign language, and enrolling in Spanish is the logical choice for most students at The University of Texas at Austin. Although we want to teach Spanish to as many people as possible, the practical problem of providing instruction for more than 4,800 students every semester, not to mention 400 Spanish majors and graduate students, is tremendous. We know that if we opened more sections of beginning Spanish, more students would enroll. How many courses must we offer before supply exceeded demand? It is almost the proverbial "bottomless pit," and the challenge is how many students can we accept and still deliver a quality program.

Another challenge is to provide and train instructors for our Spanish courses. Nearly all graduate students in Spanish have the opportunity to serve as teaching assistants or assistant instructors, and graduate students are hired from Comparative Literature, Foreign Language Education, Latin American Studies, and other programs just to have enough instructors. In all, we hire more than 100 graduate students every semester to cover these courses. Imagine the task of hiring new instructors every semester, training them to teach more than forty sections of first-semester Spanish, and guaranteeing that all sections cover the same materials so that the more than 1,000 students regrouped in second-semester Spanish are all at the same level!

Given this situation, the College of Liberal Arts asked the Department of Spanish and Portuguese to investigate whether computer technology might alleviate some of the financial drain and enrollment strain. At that time IBM invited Dr. Madeline Sutherland-Meier, department chair, Dr. Sharon Foerster, and myself to observe the Institute for Academic Technology in Chapel Hill, North Carolina. The Institute and IBM provide workshops for improving the quality, content, and cost of instruction. Based on observations from this workshop, we recommended modifying the design of the first semester course in beginning Spanish. *¡ Ojalá que funcione!*

In the past we taught first-semester Spanish as a class of twenty-six students who met with an assistant instructor five hours per week. Under the new computer lab format, rather than hire one graduate student to teach one course five days a week, we hire one graduate student to teach two courses three days a week. During the remaining two hours per week, the students work in a computer lab. This new arrangement is especially inviting. While some student activities work best under the direction of an instructor, other activities can just as easily be conducted in a computer lab without the instructor. Certain grammar drill and practice exercises in reading, writing, and listening comprehension, for example, can be done by students on an individual basis in the computer lab. Students can also take tests and quizzes using computers. Our challenge, as we created materials for the computer lab, was to determine the activities best suited for two hours of computer lab and the activities best conducted by a classroom instructor.

Although some expressed the concern that "computers would replace people," the real objective of the new course was to make our student enrollment (which was almost out of control) more manageable. In the traditional way of teaching we could instruct 260 students by hiring ten instructors (10 instructors x 26 students per class = 260 students). With the computer lab method we can instruct 460 students with the same number of instructors (10 instructors x 23 students per class x 2 sections = 460 students). The traditional method required 17 instructors to teach 460 students. Furthermore, our objective was to use computer technology to take care of tasks better suited to computers, opening up time for instructors to conduct activities better suited to instructors.

Other benefits have come from the new first-semester format. All our assistant instructors assigned to second-year Spanish teach two sections, each for three hours per week. The new computer classes put instructors teaching first-semester courses of two sections for three hours each week in line with those teaching the second-year courses. We also reduced the number of undergraduates (26 or 27 students) in each class as the new computer section is limited to 23 students. It is easier for us to incorporate more speaking activities into our three hours of class time because we are working with smaller groups.

The reduction in the number of assistant instructors does not directly affect the teaching opportunities of our own graduate students in Spanish because in the past we always had to hire additional students from other

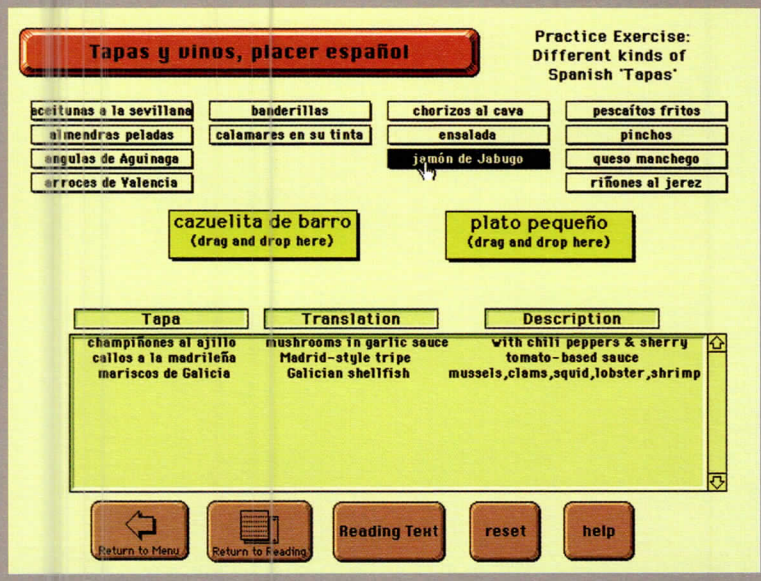
programs. Furthermore, by diverting the funds to other departments, new employment opportunities exist for graduate students in other programs, such as research assistants in Latin American Studies.

Our local area network connects thirty Power Macintosh computers located in Batts Hall 115. (Batts 115 used to have several rows of chairs bolted to the floor. The demolition crew ceremoniously allowed me to remove the first bolts from the floor. Anyone who taught a class or sat in one of those chairs will understand how exciting it was to rip them out!)

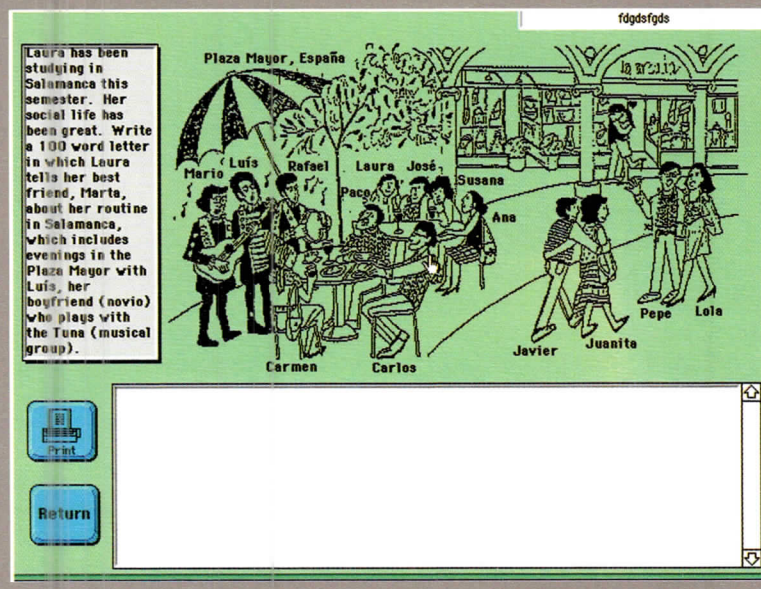
The lab is open Tuesday through Friday from 8 a.m. until 7 p.m., and every hour it is filled to near capacity. Some students come to the lab at designated hours on Wednesday and Friday, while others are assigned to come on Tuesday and Thursday. Every hour additional students, "floaters," fill some extra seats. On Monday the lab is not used by the first-semester Spanish students as it is reserved for network discussion groups taking the intensive first-year Spanish course. The lab is managed by a computer technician, and every hour a teaching assistant helps monitor any language concerns. Students are assigned to twenty-eight sessions in the lab each semester, and during these sessions the activities are as follows:

Practice in Oral Questions. To prepare for oral examinations and help on the oral questions, students can practice the questions on the computer. Students click on buttons to hear sample questions and sample answers, all recorded by native Spanish speakers. Students also have the option to see the written text and translation of the questions and answers. We prepared sample oral questions from each chapter in the textbook. During the semester students can listen to more than 300 sample phrases and questions. Each oral question exercise provides samples from native Spanish speakers. This way students hear samples from different dialects, talking speeds, and styles of speech. We could never provide this experience in the traditional first-semester Spanish format.

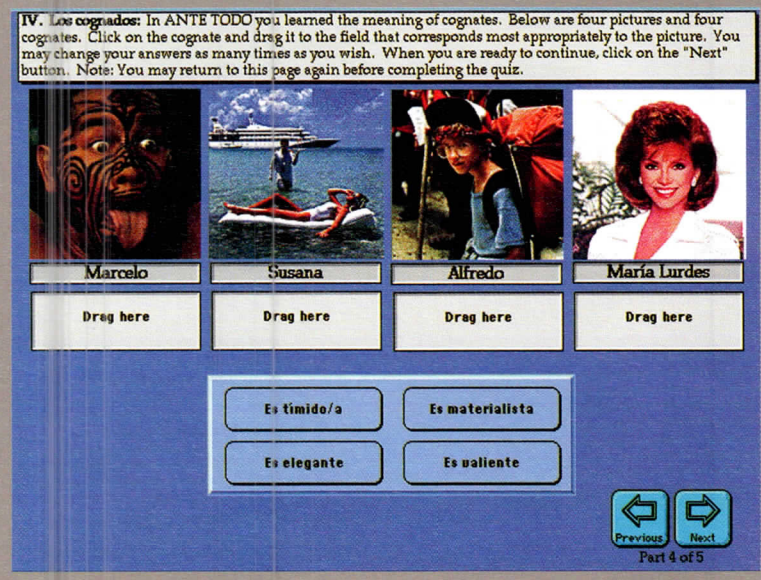
Practice with Reading Exercises. During the semester students review eight reading exercises in the computer lab. Students listen to a native Spanish speaker who recites the reading, and then a series of activities help them understand the



Example: Practice in Oral Questions



Example: Practice with Reading Exercises



Example: Chapter Quizzes

reading and maximize the grammatical and cultural elements of the passage. For example, one reading exercise deals with chocolate. Besides listening to a native speaker from Uruguay, activities help students understand the vocabulary in the passage, and a grammar follow-up prompts them to review how to make comparisons in Spanish (for example, John is taller than Mary). Comparison examples also come from the reading and coincide with topics from their textbook.

Chapter Quizzes. After each chapter a brief quiz is given in the lab. Most of the test items are multiple choice, true/false, short answer, drag and drop, and so forth. The advantage of the computerized version is that it allows us to incorporate sound and pictures into the quizzes. After students complete their quizzes, an automatic review begins with all the right and wrong answers. During the semester students take eight of these short quizzes. Quiz results are automatically sent to each instructor, who receives a file that combines the scores of all students from each section. These chapter quizzes illustrate again the advantages that technology bring to our curricula. These simple quizzes use sound, pictures, automatic correction, scoring, and grading that was not available in the traditional format.

Practice with Writing Exercises. Our class activities and computer lab activities are not designed to be exclusive. Instructors prepare students for computer activities and follow up on other activities, as is the case with writing exercises. Generally in class, the instructor primes the students for the writing assignment by showing a picture, writing sentences about the picture, providing background information, and helping out with vocabulary. Students take the notes that they made in class and, upon arriving in the computer lab, a computer writing activity displays the same picture. They are presented with a new scenario and are required to write a 100-word essay. Students can incorporate their notes from class and use them to help them write the new essay. Students then take a hard copy of the essay and turn it in to their instructor. During the semester there are four writing assignments that are completed in the computer lab.

Chapter Tests and Final Exams. Four major tests and the oral portion of the final exam are conducted in the computer lab. Each test includes listening portions (oral questions, dictation, multiple choice, true/false) and writing portions (fill in the blank, short answer, essay). When the student submits the test, a file is made combining the test questions, a key, the corrected portion of the test, and the student's written answers. The test results are sent to the instructor who can open up the file and grade the exam. A back-up of the test is saved at each individual computer station just in case of some mishap or problem.

Commercial Software. Two commercial products are currently being used for extra practice in the computer lab. "Spanish Partners" is a simple drill exercise program to help students review grammar patterns. The "Destinos" video-based course has a CD-ROM program still in the testing stage, and some students have been trying it out. We have also led students to various Internet locations on the Web as they relate to topics in class. Additionally students have completed homework assignments over the Internet.

Our experience with the computer lab is encouraging. We conducted a pilot implementation of seven sections during Spring 1996, and twenty-six sections were conducted in the lab during Fall 1996. Considering our need to provide instruction for a large number of students without having to hire as many instructors, our objective has been met. This past semester we were able to hire ten fewer instructors for first-semester Spanish. Funds that would have been used for these positions have been reallocated to other areas in the college. Furthermore, despite some modifications, most of the technological aspects of the new format function well.

Our focus has turned to an emphasis on training instructors to work within the new format (such as lab maintenance, integration of lab and course activities, communication between lab supervisors, teaching assistants, and instructors). In many ways, the logistics involved with the training and coordination of the new lab activities have presented a greater challenge than the actual technological modifications. Technology provides us with a new type of curriculum, and we cannot deny a learning curve is involved. The new modifications in first-semester Spanish assist us with incorporating technology into the overall curriculum. A student in our pilot class told me that "It was better for me in the computer lab when I could work on things individually." His comment touches on one of the greatest advantages of this new format. In a traditional course, one instructor spends one hour trying to work with twenty-six students. In the computer lab, twenty-six individual students can work for an hour. I believe that we have increased the actual practice time for each first-semester Spanish student, and with time we hope to do the same in the more advanced courses. That can be our next challenge. D

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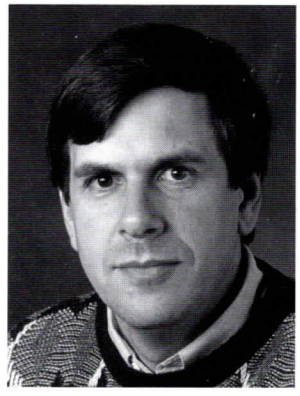

Unconsciousness I, Lin Dahl

KERMIT E. CAMPBELL

"Writing Teacher"

Seventeen years ago when I entered The University of Texas as a freshman, I never dreamed that I would one day I would teach writing to undergraduate students. After all, "writing teacher" wasn't one of those careers high school counselors rattled off when advising me about college. And even though I had a fondness for writing as far back as junior high school, it didn't strike me as a subject worthy of serious pursuit, and certainly not one worth teaching. Most professors I knew anyway taught literature, and whatever writing they taught merely supplemented their teaching of British or American literature. They taught, you might say, the reading and writing of literature. Consequently, my first impulse was to imitate these professors, that is, to be a connoisseur of English literature and to sport a tweed jacket in true professorial style.

But in the course of my pursuit of literary scholarship, I also discovered how stimulating, how personally gratifying writing and writing instruction can be. Yet I probably wouldn't have discovered this had it not been for the professors who taught me my first literature courses in Plan II. Though we read an enormous amount of literature in the two classes—from world literature like the Old Testament and the poetry of Li Po to American literature such as Cotton Mather's accounts of the Salem witchcraft paranoia and the short stories of Nathaniel Hawthorne—these professors gave our writing exceptionally close attention and scrutiny. I still remember, in fact, the first papers we got back in our TC 301 course. They

"Writing teacher" wasn't one of those careers high school counselors rattled off when advising me about college.

were teeming with the professor's commentary and various editorial marks. He had spent more than two hours marking each paper, he told us, the better part of his Saturday and Sunday. At the time, many of us thought that he had done us the gravest injustice in his evaluation of our work, that he had called into question our very intelligence or, at least, what we thought we had already learned about writing in high school. Beleaguered as many of us were initially, we came to appreciate the professor's serious treatment of our writing—a kind of writing instruction many of us, if fact, never had in high school. Call it baptism by fire, perhaps, but it surely gave us a definite sense about the nature of academic writing, especially the highly nuanced version of it practiced by academics of literature.

In addition to this rather fiery immersion in literary discourse, my writing also benefited that freshman year from another professor's emphasis on revision in English 603A & B. This professor gave us the opportunity to revise our essays as often as we liked to improve our grade. Probably no other person in the class took advantage of this policy more than I. My writing especially needed the extra time and effort of a second or third attempt. Indeed, for some essays, I wrote as many as three separate drafts. I was ashamed to admit this at the time, however, for it seemed like an admission of sin or, at least, incompetence and ineptitude to have not gotten it "right" the first time. But through the years I've learned that writing well has less to do with personal, creative genius and more to do with conscientious—and often collaborative—revision. I mention these early experiences with writing because without them (and many others) I would have never acquired the confidence and motivation to become a teacher of writing.

Actually, it wasn't until I traveled to China to teach English that I began to think seriously about a career teaching writing. On the advice of a colleague—a writing teacher from New York—I used writing to teach spoken English to my students at the South China Institute of Technology in Guangzhou, Canton. I asked my students to write about some personal childhood experiences they would like to share with the class. I then had each student read his or her short narrative so that we could discuss them, raising questions to the author where it seemed appropriate. These days, it seems, we seldom ask students to write these kinds of personal accounts, yet I was riveted by these simple but eloquent tales written by students of modern communist China.

My first experience teaching writing came the year after I taught English in China. As a graduate

teaching assistant in the English department at the University of Houston, I taught two freshman composition courses. I wasn't studying to become a teacher of writing then, but teaching freshman composition courses was (and still is) one of the more common ways for English graduate students to pay for graduate school. I was working on a master's degree in applied linguistics, that is, in teaching English as a second or foreign language (ESL/EFL), which is what I had done in China but without much training. Though I still clung to the idea of doing graduate work in literature some time later, the applied linguistics degree would, I thought, assure me the chance to repeat the China experience elsewhere if I so chose.

For the moment, however, I was teaching composition to American freshmen and sophomores and occasionally to students from nations as diverse as Vietnam, Ethiopia, and Mexico. In the two years that I spent at the University of Houston, in fact, I taught as many as seven composition courses, four to native English speakers and three to non-native speakers. This experience obviously got my feet more than wet in the writing teacher business, but I can't say that I felt as though I had, as it were, found my calling. I was fascinated not so much by the teaching of English composition or essay writing per se but by the language and cultural diversity of my students and what this diversity meant for teaching and learning English academic prose.

Quite possibly, then, I didn't sense any special calling to teach writing until I enrolled in the rhetoric and composition program at Ohio State University, where I took a course on teaching basic writing and taught (as well as tutored) in the basic writing program. Teaching basic or "remedial" writers somehow struck a chord with me. Perhaps, my lower-class background had something to do with it—a vague but definite sense of kinship that I shared with many basic writers. Or, more likely, I saw in the basic writer someone grappling not so much with literacy or writing in any fundamental sense, but with ways of using language that at times differ from and conflict with his or her own. Not that the language of all or most basic writers is the same, but I couldn't help but find meaningful the linguistic and cultural backgrounds of students who posed so formidable a challenge to the university community's accustomed elitism and exclusiveness.

As for my teaching at UT Austin, I don't consider it especially unique or innovative. I teach writing the way most trained and experienced writing teachers do—that is, I provide students opportunities to practice writing and rewriting, and I offer them various strategies to help them do so like brainstorming, freewriting, peer-responding, and teacher-student conferencing. Like most writing teachers these days, I teach writing as a process—as a series of recursive stages that writers engage in to move from some inchoate idea in their head to a coherent text on paper or computer screen.

Undergraduate students don't often think of writing as a process, let alone take into account the context and audience factors associated with writing. But students are, to some extent, aware of how they write and whether they write well.

Yet I try to avoid teaching this process in isolation from social situations that give rise to particular writing and reading acts. That is, it's not enough to tell students that writing operates as a process that they alone participate in whenever they sit down to compose. Students need to know that the nature of the process varies depending on the kind of writing, the context in which the writing takes place, and the specific audience that it is directed to. I became keenly aware of this when as a graduate student I made the transition from writing critical essays for literature classes to writing empirically-based research papers for courses in applied linguistics. The style between the two types of papers differs, and, more importantly, they tend to differ ideologically, as pertains to things like what counts as evidence in support of a claim.

Undergraduate students don't often think of writing as a process, let alone take into account the context and audience factors associated with writing. But students are, to some extent, aware of how they write and whether they write well. My objective, then, is to raise their level of consciousness about the processes of writing and to disabuse them of the idea that writing—academically acceptable writing—is some random, indeterminate matter over which they can exercise little control. While, admittedly, I struggle to give students the absolute and concrete definitiveness they seek to figure out how to earn, say, an "A" on a paper, I try to assure them that writing isn't entirely subjective and is as systematic as any other discipline they'll encounter on campus.

Perhaps the most effective teaching that I've done so far at UT Austin has been a course on academic writing for publication that I offer to graduate students. The course is effective, I believe, because we spend an entire semester revising a single essay, one that students have written prior to taking the course. This approach allows the class the time to look in depth at a piece of writing. And since the goal is for students to submit their essay to a professional journal for publication, we devote a great deal of attention to both content—students' ideas, arguments, and logical reasoning—and style—their organization, sentence structure, and mechanics.

One way in which I do this is to have the students write a paragraph from their essay on the blackboard and then have the class suggest ways of revising it for better readability and effectiveness. Following the guidelines set forth in Richard Lanham's *Revising Prose*, we attempt to rid the paragraphs of excessive nominalizations, *to be* verbs, and passive-voice verb constructions. Students marvel at the difference these seemingly small changes make

in their prose. I've used the approach with undergraduates as well, and they too have been impressed with how much their writing improves.

Ideally, every writing class, graduate or undergraduate, should devote a full semester to revising an essay; however, the size and dynamics of most undergraduate classes often tend to discourage it. The Rhetoric and Composition Division does, of course, offer undergraduate courses that allow ample time for students to revise and edit their papers, but very few general writing courses can afford to limit students to writing or revising a single essay for an entire semester. Most of our freshman and sophomore courses require students to write at least three essays with possibly one or two revisions in a single semester. The difficulty is even greater if a fair amount of reading is required, as is the case in many of my undergraduate courses.

Still, in spite of these constraints, I've had some success with a "writing topics" course that students typically take in their sophomore year. The Division offers several of these courses (English 309K) every term, all with their own unique theme or topic. Students explore a topic of their interest through focused writing and reading assignments, and class discussion. For the past three years, I've offered a 309K course on rap music, and, quite frankly, the course has received widespread acclaim among students. I learned some time ago that if you offer a course that appeals to students' interest like pop culture you're apt to draw their attention and get them enrolled, eager to learn.

Yet I imagine that some readers hearing about this course for the first time are probably reeling in their chairs about now. Without launching into some grandiose apologetics, though, I must assure you that I'm not turning young, impressionable undergraduates into gangster (i.e., hip-hop slang, gangst*as*), thug, or hustler wannabes. I demand that students look at rap critically, not coolly condoning or casually censoring it without grappling with the complex issues it raises such as poverty, racism, crime, drugs, violence, and sexism. Besides, I'm interested in rap not so much because of its entertainment value but because of the demonstrated verbal artistry of young African American men (and increasingly women) from America's economically destitute inner cities. African American vernacular language and verbal art were the subjects of my doctoral dissertation, and I've relished the opportunity to share with students what I know on the subject and what they often have little chance to study elsewhere in the University. Yet my aim for the course, as I make clear to students on the first day of class, is not the music, but student writing to enhance students' critical reading and writing abilities.

It's important that students know that good writing doesn't come easy for anyone. It's laborious, time-intensive, and even agonizing, but it can be done in effective and meaningful ways if one understands how to make it work.

Thus I think that I've been successful teaching undergraduates writing because, first, I respect students' interests and experiences and am willing to explore them to engage students academically, and, second, I try to get students to believe in themselves as writers and to extend the boundaries of their experience as writers. Having taught writing for about ten years now, I find that most undergraduates (particularly freshmen and sophomores) think that insofar as writing ability is concerned, you either have it or you don't. And the majority think that they don't, that writing ability is somehow missing from their gene pool or natural upbringing.

One can't deny, of course, that some individuals are quite talented when it comes to writing prose or poetry, but whatever raw talent they possess must be refined through practice and countless revisions. Students don't often realize that an author can write as many as thirteen drafts of a single ten to twenty-page essay before it's published. Students will rarely get that many opportunities to revise an essay for a class, but it's important that they know that good writing doesn't come easy for anyone. It's laborious, time-intensive, and even agonizing, but it can be done in effective and meaningful ways if one understands how to make it work. I see my classes as social spaces where such understanding of language can be engendered and encouraged. D

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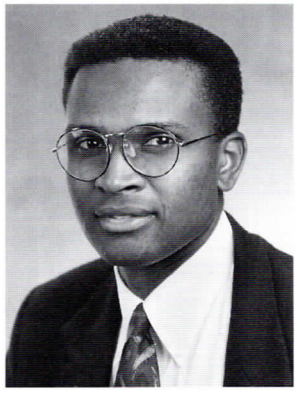

Unconsciousness II, Lin Dahl

CLEMENT M. HENRY

International Studies and the Internet

Imagine a course syllabus that lists reading assignments and pops them up on the student's computer and offers further resources at the click of a mouse for purposes of research or class discussion. Imagine discussions with students in classes in other parts of the world that are listed in the formal syllabus. These classrooms may never substitute for the personal teacher-student interaction, but online communications break up the anonymity of large undergraduate courses by stimulating students to work with one another and with others around the world.

It is obvious that the Internet is transforming undergraduate education at The University of Texas at Austin. Most students already have been exposed to the World Wide Web, surfing it with a Netscape or Mosaic browser, readily available in the Undergraduate Library and in other computer labs spread across campus. And growing numbers of them have personal computers at home connected with the UT Austin system.

During lab sessions early each semester my undergraduate students receive new computer accounts with address lists of everyone in the class, and they learn to communicate by electronic mail with each other and to enter into class discussions on the Internet. Issues that cannot be thoroughly discussed in class, either for lack of time or because some students may be too shy to air their views in public, can be addressed in notes to the class "chat" file. The other students may view these comments in their electronic mail inboxes or on the Web. They are protected by a class password so that outside "lurkers" cannot read them. The classroom is not considered a public forum, for students must feel free to discuss controversial ideas whether in class or online.

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The "chat" file tends to accumulate a body of well reasoned as well as controversial observations. A class of sixty or seventy students usually generates over 400 messages, and it is easy, sorting the file by author, to determine the relative value of their contributions. Students probably learn as much from each other as from formal class lectures, and they also enjoy more ready access to their professor and teaching assistant than traditional office hours allow. (We still hold office hours, primarily to encourage the electronic interactions).

The new medium also facilitates student research. In addition to the traditional mimeographed syllabus, students may access the same document online and find pointers to other resources. All my online courses point to UT-MENIC, the home page set up by UT Austin's Center for Middle Eastern Studies. This home page occupies the registered site for Middle East Studies on the Web and is well known internationally.

The home page of my course on "Arab-Israeli Politics" has direct links to both Israel and Palestine. From Israel's Foreign Ministry, an excellent source of documentation, students may readily access the full texts of all of the agreements concluded with the Palestinians since 1993. They also may find the unofficial views of the Golan Heights settlers, who present their own Web page. My online syllabus connects readers both to the settlers' version of history and to the article on the Golan Heights situation in *Encyclopedia Britannica.*

Palestinian resources included commentaries from Bir Zeit University, located on the West Bank near Ramallah, about the September 1996 events. The Jerusalem Media and Communication Center publishes a weekly *Palestine Report.* Students are able to read back issues distributed on the Center's Web site, but for them to obtain the current issue, I share my electronic subscription in a password-protected file, thereby respecting the copyright for virtual classroom use only. Tom Friedman's op-ed commentaries in *The New York Times* are passed on electronically, like sharing newspaper clippings in class.

Some social science scholarship is becoming available on the Internet. In addition to online political science materials collected by the Government Department, I established a home page, "Social Science Resources: the Middle East and North Africa" to serve all my undergraduate courses. At the top of the

list is "Arab Social Science—under construction" highlighting a page established in October 1996 for the Center for Palestine Research and Studies in Nablus. Containing summaries of Palestinian public opinion polls conducted in 1994, 1995, and 1996, my home page is updated regularly with new publications from the Center. Other social science research centers in the region are encouraged to put their reports and publications online to share among themselves and with the international community, including my undergraduate students. The American Institute of Maghrib Studies established a home page linked to "Social Science Resources" offering useful information to students and researchers about Algeria, Morocco, and Tunisia.

At the University I also teach courses on "Politics of International Oil," "United States and the Middle East," and a Plan II honors seminar on "Civil Society: Comparing Western and Middle Eastern Experiences." The Social Sciences Resources page helps students in all these courses, but each course requires further specialized links, depending on the subject matter. In "Politics of International Oil," for instance, students receive a password to tap into British Petroleum's extensive data set. They download the spreadsheets and analyze them on their personal computers. Their syllabus also links them to the annual reports of many major oil companies as well as to standard bibliographies, country sources, and U.S. government agencies and pressure groups. "United States and the Middle East," a course on U.S. foreign policy, links students to various lobbies and advocacy groups as well as government sources. The course on "Civil Society" connects students to a number of experimental virtual communities as well as to standard political theory classics and Middle Eastern sources.

No matter how much information is available to students, however, the challenge is to get them to enjoy using it. In my foreign policy course, taught during a five-week summer school session, time is not available for elaborate research papers, much less diplomatic simulations. Since learning must be intensive, students are surfing the Web within the first three days as an integral part of the course. The director of the Undergraduate Library gives additional training sessions on Internet resources during the first week of class. Then, supplementing the general "chat," students are expected to choose one of eight possible research topics and post a series of messages to a file shared with other students who have selected the same topic. They are expected to discuss the topic among themselves and then find electronic sources relevant to the topic which they then summarize to the others in their group. In this way the seventy or eighty students taking the summer course are encouraged to interact in small sections committed to joint research. Although they do not have time to write up the results, a final take-home essay offers them the opportunity to document a general theme with some specifics from their research.

Engaging students in diplomatic simulation games has consistently been useful for teaching controversial Arab-Israeli issues.

During the fall and spring semesters we experiment with other uses of the Internet. Engaging students in diplomatic simulation games has consistently been useful for teaching controversial Arab-Israeli issues. In addition to obliging students to research their roles, simulation encourages them to balance out their biases by identifying with various parties involved in the situation. Twenty years ago, while at the University of Michigan with its then-primitive facilities, we locked the students in adjacent classrooms for most of a long weekend and relied on my infant children and other volunteers to carry messages back and forth after inspection by Control (myself and a teaching assistant). When I first arrived at UT Austin in 1987, after borrowing the offices of some of my "wired" colleagues to get on the electronic mail system, I found a less disruptive way to conduct diplomatic simulations. Students were given e-mail accounts and interacted with each other outside class during a two-week period. The time period was extended in response to student demand, and by 1990 we conducted our first games with students in Australia.

Since 1995—with the advent of Mosaic, Netscape, and a greater public awareness of the Internet—we have added new interfaces to the simulations. In addition to private electronic mail messages, students now project themselves on the Web. They take their work seriously because it is in full public view. They write their role profile to an e-mail file which is immediately transferred in hypertext markup language to a file on the Web. Student news teams gather interviews from other players and project them to another file open to the public. They are writing real news, but it is prefaced with the announcement: "WARNING! This is NOT the real world. You have joined a simulation of Middle Eastern diplomacy being conducted by students from The University of Texas at Austin and other universities in the USA and abroad. Welcome to our game!"

The College of Liberal Arts is pioneering uses of the Internet and inexpensive videoconferencing for undergraduate instruction, and we are experimenting with cameras hooked to our computers for a simulation game already underway between UT Austin and the American University in Cairo. Each university has both Israeli and Palestinian players. While they are already in contact by e-mail, they need the additional proximity of videoconferencing to coordinate their activities more effectively.

Each university has the necessary hardware and software, and my Cairo colleague and I rely on student demand to make the teleconferencing a success. Arafat and Netanyahu, both physically located in Cairo, will be able to see and confer with their respective ministers located in Austin. UT Austin was allocated most of the players for both teams because the

Government Department, which provides the computer support, can easily set up any number of accounts for undergraduates. Each student taking the course gets two accounts, a personal one for class participation and one for his or her role in the game. It seemed only fair to give Cairo the two leaders.

Once the Israelis and Palestinians reach their respective agreements about negotiating positions, we may move to more ambitious videoconferencing. President Bill Clinton is a UT player who, according to our game scenario, hosts a series of meetings between Netanyahu and Arafat and their respective delegations. Our sessions, open-ended like Jimmy Carter's Camp David discussions, are more focused on substantive issues than the real Washington meetings conducted in October 1996. Other players participate in regional conferences and discuss various issues such as water and disarmament, as projected in the actual 1991 Madrid Conference.

The new multimedia technologies offer much greater flexibility than the traditional teleconferencing attempted in previous years between Austin, Georgetown, Cairo, and Australia and financed by the United States Information Agency to defray exorbitant telephone expenses. A benefit of the cameras will be to enhance the students' role profiles with personal pictures and allow them to make their own home pages to promote their academic or professional careers.

Diplomatic simulation also is practiced in the "Politics of International Oil" course. Students representing oil companies negotiate with countries in the Middle East and elsewhere—from Mexico to Russia—over contracts for crude oil supplies, exploration, and development while other students in the State Department worry about the latest crisis in the Persian Gulf. This course gets attention from the real world. Oil contractors in Texas and elsewhere see it on the Web and send me impossible questions, such as how to arrange for subcontracting in Nigeria. Prospective students from other continents request to enroll in the course, and I have to respond that we have not yet developed the administrative procedures for a virtual university. An academic from Tomsk State University, Russia's top academic institution east of the Urals, wants to develop distance learning between our respective institutions. Tomsk, a beautiful 400-year-old city closed from the outside world until recently, is the seat of the East Siberian Oil Company. It joins our simulation game in 1997.

My students in the Plan II honors seminar on "Civil Society: Comparing Western and Middle Eastern Experiences" are already motivated to use online information, and some are capable of writing publishable papers. The Internet adds a new dimension, however, to the study of civil society. While many mainstream scholars bemoan the loss of community and the decline of civil society in contemporary America, the latest information technologies are generating new components in virtual public spaces. Some students are encouraged to explore the Web's virtual communities, such as the Well in San Francisco, as well as to read books about them. Everyone taking the seminar absorbs the classic theorists of civil society, and some like John Stuart Mill are available online at no expense.

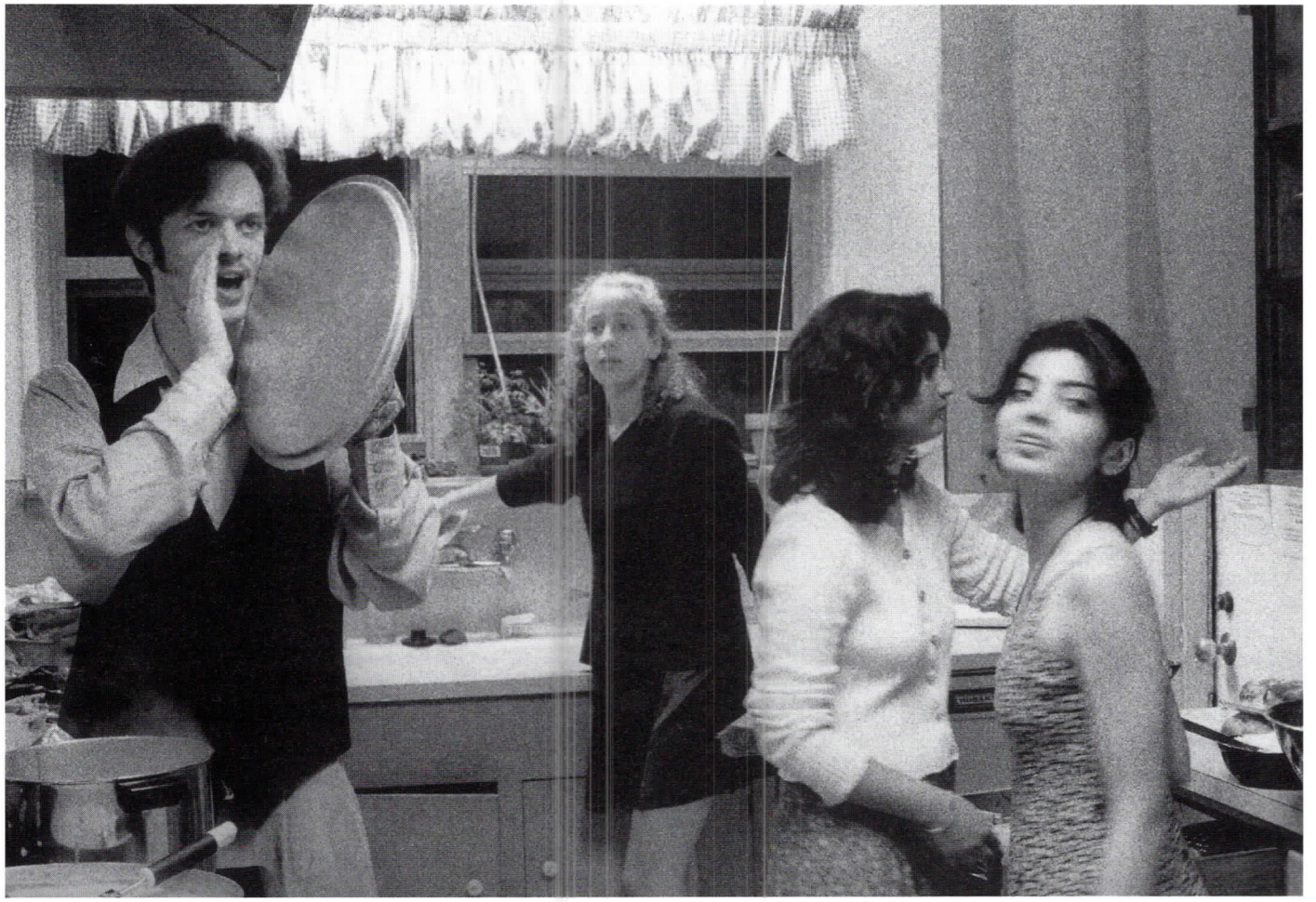
The central problem of the seminar is whether "civil society," a western concept, has relevance to Middle Eastern societies and, by extension, to other parts of the non-Western world. The students read various Arab authors in translation as well as commentaries, past and present, about these societies; however, the students learn more from other students. In the seminar they are placed in a virtual classroom with students, mostly Egyptian, from the American University in Cairo. The first attempt in the fall of 1995 was not as successful as our diplomatic simulation games. However, videoconferencing is being attempted between the UT Austin class and students at the American University in Cairo. Through trial and error in coming years discourses may evolve between our students and those in other universities not only in the Middle East, but wherever else students are searching for civil society.

The new multimedia technologies are bringing the world into virtual classrooms because of The University of Texas' important investment in electronic infrastructures. It is immensely gratifying for me, as a teacher of undergraduates, to be able to convey so many impressions and documents so expeditiously yet precisely to so many students at once and to receive the immediate satisfaction of instant feedback. D

Web sites referenced in this article:

UT Austin "Virtual Lecture Hall." (http://www.utexas.edu/lecture/)
UT Austin Government Department home page (http://bertie.la.utexas.edu/depts/gov/polinet.html)
Clement Henry home page "Social Science Resources: the Middle East and North Africa" (http://bertie.la.utexas.edu/course-materials/government/mena/psmeir.html)
"Arab-Israeli Politics" (http://bertie.la.utexas.edu/course-materials/government/mena/AIC/AIC_main.html)
"Politics of International Oil" (http://bertie.la.utexas.edu/course-materials/government/mena/oil/oil_main.html)
"United States and the Middle East" (http://bertie.la.utexas.edu/course-materials/government/mena/USME/main.html)
"Civil Society: Comparing Western and Middle Eastern Experiences" (http://menic.utexas.edu/meclass/civil95/)

Dr. Clement M. Henry is professor of government and Middle East Studies at The University of Texas at Austin. Dr. Henry and his wife, Dr. Elizabeth N. Bouri, pioneered the use of the Internet for teaching the politics of the Middle East and North Africa to undergraduate students. A specialist in Middle Eastern affairs, he is the author of numerous books including *The Mediterranean Debt Crescent* (1996) about the politics of financial adjustment in the region; *Oil in the New World Order* (1995); and *Images of Development* (1994) about Islamism. Dr. Henry earned both his B.A. and Ph.D. degrees at Harvard University and an MBA degree from the University of Michigan. Dr. Henry may be reached at chenry@gov.utexas.edu or 512-471-5121.



ABOVE: *Dinner is Ready,* Jennifer Foster
RIGHT: *Two Girls Awaiting Their Turn,* Lisa Hagen

FRANK D. BEAN

The Undergraduate Experience

This is a time of reflection and renewal for American undergraduate education. Colleges and universities throughout the United States are reassessing their missions, their curricula, and the ways in which they organize themselves to foster undergraduate education and learning. This reappraisal is born of many forces. The increasing complexity of the modern world and the explosive growth of knowledge require the constant renovation of the process and structure of undergraduate learning. As the cost of college tuition has risen more rapidly than family resources, parents have become more sensitive to the quality of the undergraduate education received by their children. Trends toward credentialism and specialization have heightened tensions between basic or general education requirements and expanded professional and technical programs. As educators and students grew more interested in the study of non-Western as well as Western societies and cultures, efforts to emphasize not only commonality but also diversity in the curriculum have increased on campus. These forces, combined with the importance of education for national technological competitiveness in an increasingly global economy, have led American universities to reassess the nature of the undergraduate experience.

The University of Texas at Austin is no exception. It has devoted considerable attention to undergraduate programs in recent years and has achieved notable progress in a number of areas. These achievements include the development and implementation of a broad and deep

The University of Texas at Austin has devoted considerable attention to undergraduate programs in recent years.

set of basic education requirements; the successful implementation of efforts to solve course-availability problems; the reduction of student/faculty ratios through the addition of faculty; the appointment of a Vice Provost for Undergraduate Education to give greater emphasis to undergraduate programs; the creation of a campus-wide advising center in the Flawn Academic Center; the development and implementation of the TEX- telephone-registration system; the provision of staff through the Office of the Dean of Students to support student academic counseling and retention; the appointment of staff to foster closer ties and better working relationships with student organizations; and the construction of a new Recreational Sports Center.

In 1991 the Committee on the Undergraduate Experience was asked to conduct "a thorough examination of all aspects of The University's undergraduate program" and to make "comprehensive recommendations to the faculty and administration to ensure that the undergraduate experience serves the needs of students who will live most of their lives in the twenty-first century." During its year-long study, committee members examined undergraduate education broadly and conceptually and extended its inquiry to include the non-academic features of undergraduate life that nonetheless hold implications for the quality of the undergraduate experience and for how students evaluate that experience. The committee saw itself as an "idea" rather than an "engineering" committee. It defined its task as one involving conceptualization and the generation of ideas more than the development of designs for their implementation.

The committee took a hard but balanced look at undergraduate life and education at UT Austin, the institution with the largest enrollment in the state of Texas. UT offers excellent opportunities for students to obtain an undergraduate education characterized by both breadth and depth of intellectual experience. The University has a first-rate faculty, outstanding students whose Scholastic Aptitude Test (SAT) scores and other academic achievements continue to climb, and a generally excellent physical plant. It also provides undergraduates numerous opportunities outside the classroom for non-academic enrichment and personal fulfillment. In short, the undergraduate educational experience at UT Austin is rich and rewarding in both its academic and non-academic dimensions.

Nevertheless, increases in the size and complexity of the institution over the past decade, as well as a growing trend toward autonomy on the part of the colleges and schools, have created a special need to reemphasize undergraduate edu-

cation, particularly those parts of the undergraduate experience that foster a sense of intellectual and institutional community. Large academic institutions like UT Austin necessarily possess a high degree of organizational complexity and professional specialization. These properties themselves can be sources of quality and enrichment because they are accompanied by internationally renowned faculty and programs unavailable at smaller non-research universities and colleges.

Although excellent faculty and outstanding programs in specialized areas may bring overall prestige to UT, and thus may increase the value of an individual's undergraduate degree, they do not necessarily provide that undergraduate with a good general education. Confronted with a multiplicity of degree programs within increasingly autonomous colleges and schools, undergraduate students may benefit individually from separate components of specialized excellence without comprehending the relevance of these to their own experience or to education of the "whole" person. Broadly speaking, the challenge facing undergraduate education is finding ways to foster greater intellectual community and institutional integration without diminishing the benefits that accompany size, complexity, and increasing specialization.

Undergraduate education in America has traditionally derived its unique mission from the conviction that it will lead to a more competent, more concerned, more complete human being. This conviction has stemmed from the belief that liberal arts education—that is, the education of the "whole" person—is essential preparation for good citizenship and the responsible practice personally and socially of the professions and business. Historically, the undergraduate college has been the institution most responsible for achieving this social mission, so much so that distinguished graduate and research institutions like Harvard University and the University of Chicago have embedded undergraduate *colleges* within their larger structures. At the same time, American undergraduate education has also accommodated more utilitarian goals. Students seek to develop skills that will help them earn a living, while also learning how to live a full and meaningful life. They engage in specialized study in their major, while taking courses that will broaden their perspective and sharpen their judgment.

The mission of undergraduate education in America is thus both social and pragmatic. Each of these emphases can help to foster the development of both *individuality* and *community*. Individuality is the chance to choose one's own major, follow one's own aptitude, and enhance one's own likelihood of career success. Community is the an undergraduate experience that helps students go beyond their own private interests, develop a sense of civic and social responsibility, and discover how they, as individuals, can contribute to the larger society of which they are a part. The ideal undergraduate educational experience combines the best of both these traditions.

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Evidence shows that strong general education curricula foster the development of higher level mental performance. Daniel J. Singal, in a November 1991 article in *The Atlantic*, pointed out that a large part of the decline in verbal Scholastic Aptitude Test (SAT) scores during the 1970s and 1980s resulted from a drop in the marks of top-quartile scorers (in other words, from a decline among the nation's best students). He wrote that we can learn something about the reasons for this drop by studying the attributes of high schools whose students have *not* suffered a decline in SAT scores. He noted these schools share three characteristics: (1) they place priority on academics over other activities, (2) they maintain a "dogged reliance on a traditional liberal-arts curriculum," (3) and they group students by ability.

These attributes have implications for the college experience. Top universities probably vary more across and within institutions in regard to the second characteristic. The failure to emphasize a traditional liberal arts curriculum and to foster premature specialization may thus have adverse effects on the continuing development of higher level cognitive skills among college students. General education is not only good preparation for a responsible and rewarding life, but also good for developing and sustaining abstract thinking and problem solving.

At UT Austin all colleges put into practice a set of General or Basic Education Requirements in 1983. These requirements do not specify the content of courses to be taken by all students, but rather stipulate that courses be selected from certain areas, on the assumption that courses in these areas will ensure at least minimal exposure to certain content. Requirements are set forth in the areas of English/writing, foreign language, natural sciences, social science/history, mathematics, and fine arts/humanities.

The General Education Requirements at UT Austin constitute a broad and solid foundation on which to build an excellent undergraduate education. When compared with those at several other large public universities, the UT requirements are at least as comprehensive and involve at least as much depth of exposure as those at other institutions. In short, the structure for obtaining a thorough and wide-ranging general education is solidly in place at The University of Texas.

The report set forth specific recommendations to meet the challenges facing undergraduate education. Some of the recommendations entailed new programs or facilities; others simply suggested the potential that can be realized through existing programs if they were given greater emphasis and campus-wide

coordination. While considering recommendations, the committee kept in mind UT's current budget constraints. While it did not avoid important recommendations because they entailed cost, it tried to develop recommendations that offered the prospect of both meaningful improvement and successful adoption and implementation. The committee recommended university-wide changes such as the review and strengthening of general education requirements such as systematic and periodic faculty review and oversight of their content, the development of a first-year orientation course, the formation of a University Honors Program, and improvements in student services and academic programs.

Stated in terms of the kinds of the general education knowledge and skills that students should acquire while at UT Austin, committee members thought that undergraduates should improve their mastery of the English language in both its written and spoken forms; learn to use competently at least one other language besides their own; gain greater comprehension of their own as well as other societies and cultures; increase their understanding of their own history and that of at least one other culture or country; increase their appreciation of the scientific method and their knowledge of at least one of the major branches of scientific inquiry; increase their understanding of mathematical principles and basic computer science, as well as their understanding of the effects of technological change on individuals and society; gain further appreciation of ideas of form and beauty through the study of the fine arts and literature, and increase their appreciation of ideas in general through the study of philosophy; come to know the principles and methodologies of a discipline through the study of a single subject in depth.

The quality of the undergraduate experience is influenced by other factors that structure the context within which formal education occurs. The committee thought five of these are particularly deserving of comment: (1) the overall level of enrollment; (2) the circumstances and conditions that foster respect for diversity; (3) the research environment on the campus; (4) the accessibility and quality of intramural and intercollegiate athletics; and (5) the physical attractiveness of the campus.

Enrollment. The committee believed that adopting and implementing recommendations to give greater emphasis and strength to undergraduate programs would have maximum effect if further increases in undergraduate enrollment did not occur. UT Austin has achieved a measure of progress in enrollment management in recent years as a result of the high priority the central administration gave this issue. New faculty positions were added and enrollment management procedures were implemented in an effort to reduce the student and faculty ratio. Despite the progress made, UT ranks fiftieth out of the top fifty-one national universities in this important indicator. Given that applications for undergraduate study are not likely to decline in the foreseeable future, the committee stated in strong terms that improving the quality of undergraduate education depended heavily on keeping undergraduate enrollment at about 34,000 students or below, with an overall enrollment of about 48,000 students.

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Diversity. The committee devoted a considerable amount of attention to the issue of the interrelationship between respect for diversity and the development of a sense of institutional community. The committee was impressed by efforts on campus to increase sensitivity among students, faculty, staff, and administrators to issues pertaining to racial, ethnic, and religious diversity and commended the attention these issues received in the larger university community. Because the committee thought that fostering sensitivity to and respect for individuals of various racial, ethnic, and religious backgrounds are integral parts of developing a sense of institutional community, it suggested recommendations that offered the prospect of still further improvements.

Teaching and Research. Teaching and research are complementary missions. As one of the state's most vital research institutions, UT Austin has a responsibility to impart not only general education, but also the awareness that knowledge is constantly changing. If we fail to show our students that knowledge is a dynamic enterprise, then indeed we have been remiss in our educational mission. One of the strengths of UT undergraduate education is that many of the faculty are particularly well suited to integrate teaching and research. Faculty in every department are simultaneously pursuing cutting-edge research and teaching the techniques and approaches involved in exploring new problems. Active research faculty provide students with a better education than they would receive at an institution with capabilities limited to teaching. One of the challenges facing UT is to find ways to involve these faculty even more in undergraduate instruction, particularly in general education courses.

Athletics. The committee wished to emphasize the importance of intramural and intercollegiate athletics for undergraduate students. One of the strongest messages heard from students was their positive evaluation of the intramural sports program and the recreational sports facilities, particularly the Recreational Sports Center. The committee also heard student comments about the value of intercollegiate athletics and the relationship between academics and athletics. It commended the national leadership record of UT Austin in advocating the principles of integrity and strong academics in athletic programs and in applying those principles to its own programs.

The committee believed the primary challenge to undergraduate education at UT Austin was to find ways to build a sense of community, both intellectually and institutionally. Intellectual community can best be enhanced through strengthening general education. Institutional community—a sense of belonging as a whole and participating in the achievement of its educational mission—can be

enhanced if both the academic and the non-academic aspects of campus life and environment are organized to build awareness of and respect for UT's mission, to provide commonality of educational experience, to encourage a high degree of interaction among students and faculty from different schools and colleges, and to foster respect for uniqueness and difference. An environment that is conducive to the development of trust and security, that provides accessible and well-publicized student services, and that supplies well-coordinated institutional support services also builds a strong sense of institutional community.

Students identify with The University of Texas as a whole to the degree that they are actively involved in both its intellectual and institutional life. Because this identification will be most meaningful for the student and most productive for the society when it grows out of an arts and sciences educational experience that clarifies the intellectual antecedents and bases of the larger context in which students live their lives, intellectual community is an important part of institutional identification. Students are more likely to identify strongly with UT Austin when all components subscribe to and actively promote common goals instead of each going its separate way. Thus intellectual community and institutional integration are important preconditions for the development of institutional identification.

Based on its assessment of the undergraduate experience, the committee concluded that five kinds of improvements would increase intellectual community and institutional integration and lead to significant enhancement of the undergraduate experience at UT Austin. These are strengthening general education courses and developing university-wide undergraduate programs; paying more attention to the needs of individual students; developing greater respect for diversity; promoting good teaching and active involvement in learning; and improving student services.

General education and university-wide programs. Recommendations included a pilot program to develop integrated core curricula in natural sciences, social sciences, and humanities; a university-wide first-year orientation and introduction to The University course; a campus-wide University Honors Program; the consolidation of undergraduate administrative functions; the insertion of a statement of the General Education Requirements in university publications; and the addition of dormitory space to facilitate the integration of first-year students into The University's intellectual and institutional community.

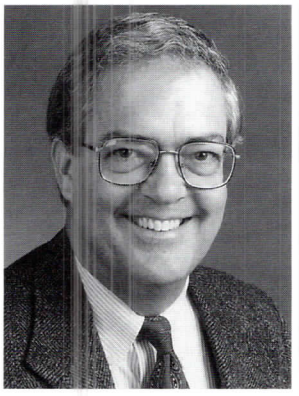
Focusing more on student needs. Recommendations included a periodic survey of students and student services; the establishment of a Volunteer Center; several activities to foster more personal relationships between faculty and students; departmental information and problem/solving offices; and a training program for staff in communication and customer service skills.

Achieving greater respect for diversity. The committee was keenly aware of the extensive studies being conducted and the recommendations being advanced by the Faculty Senate and University Council committees on multicultural education. As a supplement to this work, recommendations included establishing a multicultural dormitory and a Festival Texas week each spring to celebrate racial and ethnic diversity on campus.

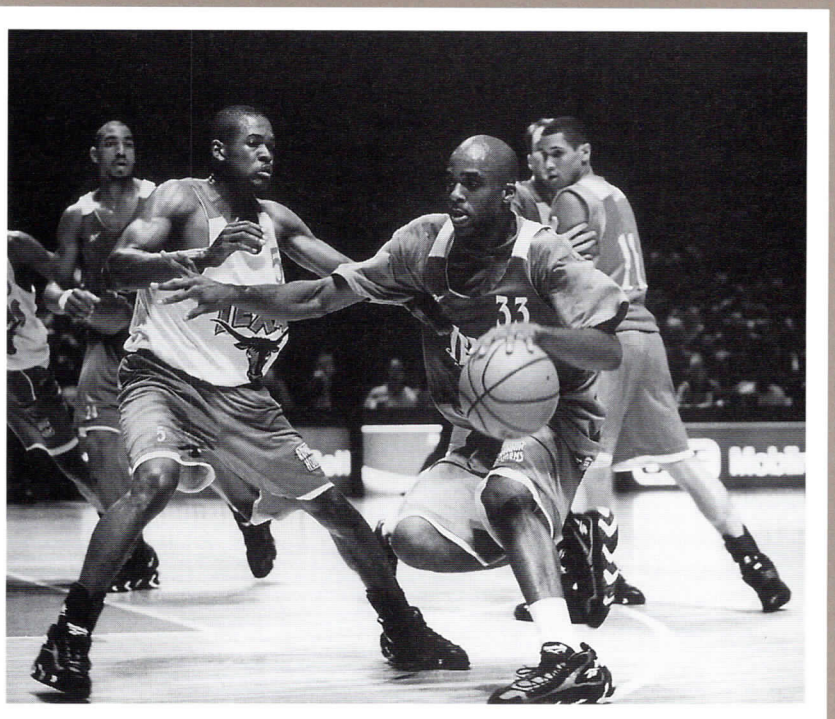
Improving teaching and fostering active learning. Recommendations were that more tenured and distinguished faculty become involved in General Education Requirement courses; that efforts be renewed to reward outstanding teaching and involvement in undergraduate education; that a University Teaching Institute be established; that more writing occur in academic coursework and that a Division of Rhetoric and Composition be established; that the structure and course sequencing of majors be reviewed; that a university-wide review of the curriculum generally take place; that at least one seminar-type experience for each undergraduate be provided; and that cohort registration systems be implemented.

Improving student services. The committee recommended expediting construction of the Student Services Complex; expanding student advising services, including the expansion of the new centralized advising center; implementing automated degree checks; and improving communication with students

This is a propitious time to strengthen undergraduate education at The University of Texas at Austin. The quality of the faculty is excellent, the students are outstanding, the physical plant and educational facilities are generally good, and the past decade has witnessed significant improvements in undergraduate programs. Texas is the second most populous state in the country, the third largest economically, the second largest geographically, and a national force politically. The educational impact of the state's flagship institution is consequently national in scope, not merely regional or local, and its place ought to be among the top ten public institutions in the country. The University of Texas cannot maintain its national stature unless it is allowed to fulfill the mission for which it was created—that of being the pace setter for higher education in the state. D



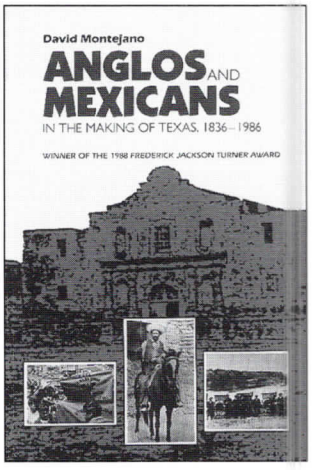
Dr. Frank D. Bean was chair of the Committee on the Undergraduate Experience in 1990-91. He is Ashbel Smith Professor of Sociology and Public Policy and director of the Population Research Center at The University of Texas at Austin. Dr. Bean is demographer with specializations in Mexican migration to the United States, international migration, family and fertility, the demography of racial and ethnic groups, and population policy. He is the author of several books, including *Opening and Closing the Doors: Evaluating Immigration Reform and Control* and *The Hispanic Population of the United States.* Dr. Bean received a bachelor's degree from the University of Kentucky and earned master's and doctoral degrees at Duke University. Dr. Bean may be reached at fdb@prc.utexas.edu or 512-471-8355.



ABOVE: *Stretching,* Jennifer Foster
LEFT: *Orange and White Scrimmage,* Alisa Singleton

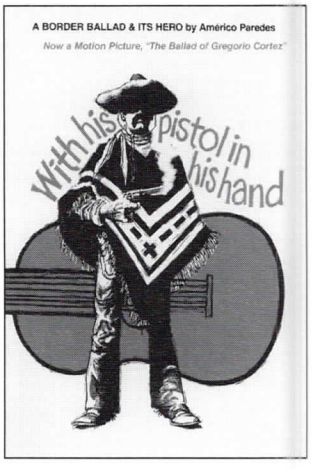
University of Texas Press Books in Undergraduate Classrooms

Think of a college class, and one of the first things that comes to mind is an expensive, ten-pound textbook. If you're the curious type, you might wonder who publishes those weighty tomes and come to the logical conclusion that it must be a university press. Well, you'd probably be wrong. Most general texts come from publishers that specialize in the textbook business. Those publishers invest thousands of dollars in conceiving and commissioning texts and then thousands more in persuading professors to adopt them for their classes. It's a lucrative business.



So, if university presses don't publish textbooks, what do they publish and why are they called university presses? Actually, they publish many different types of books—most with a scholarly bent—and they are usually directly affiliated with their parent universities, although some are separately incorporated and answer to the parent institution only through a faculty board.

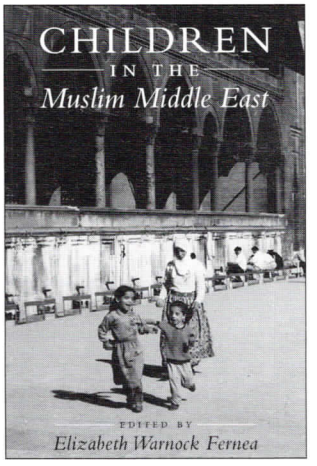
However, one of the most satisfying ways the presses connect with their own universities, as well as others, is through publishing books that are adopted for classroom use. Wait a minute! Didn't I just say university presses don't publish textbooks? Well, they don't for the most part. But they do publish a great many books that are useful as readers supplementary to a formal text or that can be grouped together with other books to form the basis of a course.



The University of Texas Press has been especially successful in publishing books that are adopted for classroom use, and in fact, the percentage of our income from such sales rises steadily each year. Books of this type either present solid new research in a style accessible to undergraduates or upper division students or synthesize a body of existing information in such a way that it is useful for teaching.

Among the notable UT Press books adopted each year for classes are many written by our own UT faculty. David Montejano's award-winning *Anglos and Mexicans in the Making of Texas, 1836-1986* was first published in 1987. It was immediately assigned in classes across several disciplines and is currently in its sixth printing. *"With His Pistol in His Hand": A Border Ballad and Its Hero* by Americo Paredes, has been continuously in print since 1958 and has sold more than 32,000 copies, most for classroom use. Two new books—*Latino High School Graduation: Defying the Odds* by Harriett Romo and Toni Falbo, and *The Mexican Outsiders: A Community History of Marginalization and Discrimination in California* by Martha Menchaca—are already being used in classes throughout the nation.

Ruth Lehmann's classic *Beowulf: An Imitative Translation* has sold more than 15,000 copies since its publication in 1988. Edited volumes by Elizabeth Warnock Fernea (*Children in the Muslim Middle East*) and Richard Graham (*The Idea of Race in Latin America: 1870-1940*) have found receptive audiences in a wide variety of courses, as have numerous other books written by scholars from this campus and others throughout the world and published by the University of Texas Press.



We take great satisfaction in knowing that, though the students who read our books may never even be aware of us as publishers, we have had a real and positive role in their university experience. If part of our mission is to preserve and impart knowledge, then those same students help us complete the loop by taking that knowledge out into the world, passing it on, and making it useful. Maybe one day when they write the checks for their own children's college books, they'll wonder where those books come from—and discover us.

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