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Reaching THROUGH Teaching

The Center For Excellence in Teaching And Learning @ Kennesaw State University

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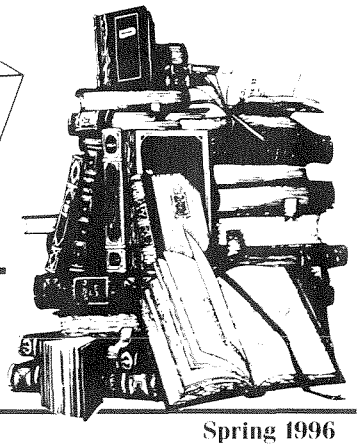

Postcards from Bankers, Doctors and Video Store Operators

Richard Skinner, President, Clayton State College

Excerpts from Keynote Address at the Georgia Conference on College and University Teaching, April 1996

Last December, John Lancaster wrote in the New Yorker of a plethora of books appearing that bore the title "The End of...," as in Peter Ward's ***The End of Evolution****, Jeremy Rifkin's* ***The End of Work****, and Simon Garfield's* ***The End of Innocence****. Lancaster noted that we have a special attachment to millennia—"epochs when people believe that the world (or at least the world with which they are familiar) is coming to an end."*

Many in higher education sense (and some proclaim loudly) that we are nearing the end of one age in higher education and are about to embark upon a new era. For some, this occasions much remorse, if only because the coming age seems so novel and so much more uncertain and threatening than the one we have lived through.

I come to you with a modest suggestion, that we think about the future of college teaching by looking to the experiences of other professions that have undergone, are undergoing and will undergo similar types of transformations as are frequently predicted for ours. The analogies are stretched, but I ask that you indulge me in considering the transitions or, as those who have experienced these changes suggest, the abrupt and radical departures that have come to some sectors of contemporary American life and the roles of the people in those sectors.

Bankers: From "Closed Wednesdays" to "Open 24 Hours a Day"

You all remember the banks of your childhood: the imposing marble and granite monuments that occupied prominent sites in downtowns of every major city and small town. They opened at 9 a.m., closed at noon Monday through Friday, reopened at 2 p.m., except on Wednesdays, when they closed for the rest of the day.

Developments of the last few years have had profound impact on the banking industry. Stand-alone branch banks are closing while grocery stores are rapidly becoming favored locations for branches.

The parallels between the banking industry and higher education may not be readily apparent, but indulge me. Colleges and universities were housed in bucolic settings with lush grounds and structures of architectural significance. They operated mostly in fall, winter and spring, and on a four-and-one-half day schedule. Classes took place at fixed times and in set places. Consider also the centrality of teaching and faculty in higher education. Even in community colleges teaching, not learning, held priority.

This is not to suggest that higher education, any more than banking, has failed to

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CAMPUS CONNECTIONS: *We are A Community of Learners*

Lana Wachniak,
Center for Excellence in Teaching and Learning
Kennesaw State University

Students, classrooms and pedagogies have changed since we began our educational odysseys. The accouterments of higher education are rapidly changing, but the reason we entered this profession remains the same: we want to teach and we want our students to learn. The reality is that teachers must keep learning to keep students learning.

The strong participation of colleagues in the university system at the recent Georgia Conference on College and University Teaching, held at Kennesaw State University, reflected our commitment to both teaching and learning. Participants in the conference represented 27 institutions of higher education. An examination of the session evaluations indicated to me that the information discussed at the conference needed to be shared with a larger audience of teachers who are committed to their profession. This issue of Reaching Through Teaching was written by colleagues who presented their ideas, philosophies and strategies at the teaching conference. •

From Actor to Architect-- OB in the Classroom

Janet S. Adams, Kennesaw State University

Implementing team learning to structure organizational behavior classes changed the focus of my teaching role from actor (lecturer) to architect (learning activity designer). Although the role change has been stressful for my students and for me, I believe the outcomes are worthwhile.

After teaching Organizational Behavior (OB) for more than fifteen years, I reached a certain comfort level that others might call a rut. I still believe OB is the most fascinating subject I've ever met, and I keep learning new things about the field from my students, reading and research. However, students don't necessarily always share my enthusiasm for theories of the relationship between individual characteristics, group dynamics, organizational culture and work performance/organizational effectiveness (description provided in case you haven't had an OB course).

Although many of us might prefer to work alone and be judged solely on the basis of our own efforts and outputs, organizations are places where people work together to accomplish things they can't achieve alone. And today's organizations are increasingly rewarding those who have the group skills necessary for successful team work. Students don't develop these skills by listening to lectures, no matter how much I enjoy being the actor in the spotlight. It was time for me to change roles.

Not wanting to re-invent the wheel, I looked about for what others were already doing that I might adopt. My Kennesaw State University colleague, Deborah Roebuck, had met University of Oklahoma's Larry Michaelsen and enthusiastically tried his recommendations for team learning. I read Michaelsen's articles, examined Debby's syllabus and teaching materials, and boldly went where they had gone before.

What is team learning?

Team learning casts the instructor in the role of class architect: defining course content, identifying learning objectives, establishing performance standards, and designing class activities for mastery application of concepts. The role shifts from the expert disseminating information to the designer setting up a structure that enables students to learn. This shift redefines the student role as well (more about that later). Team learning involves the use of the following instructional activity sequence:

- individual study of assigned reading material
- individual RAT—Readiness Assessment Test (multiple choice, scored during the group test)
- group RAT (same questions as individual test, scored immediately)
- instructor feedback in response to remaining questions or instructor's perception of issues on which additional input is needed
- application-oriented group and individual activities, projects, role plays

Team learning also requires students to negotiate team contracts within work groups and then among all class groups to determine the weighing of individual and group scores in course grades (within parameters set by the course architect). Students are now empowered to use individual and group skills in areas that have immediate consequences—their grades.

Differences in outcomes

Among the many changes team learning creates for students are increases in student accountability, involvement, responsibility for their own learning, class attendance, retention, energy level, feedback immediacy, practice in critical thinking skills, and control over their own learning process. The redundancy of individual study time and class time is decreased, as are difficulties of arranging out-of-class meetings for group projects, a particularly important factor for commuter students. Procrastination, which may not be a problem with your students but has been observed among mine, is also decreased. Six RATs during the quarter rather than two midterms and a final put an automatic limit to the amount of procrastination they can survive. Compare these outcomes to the roles traditionally carried by students in predominately lecture classes. Whether these are advantages or not depends on what the student wants to get out of the class. From my point of view, the great benefit of team learning is that it clearly identifies and reinforces *individual* responsibility for learning.

However, as the instructor I'm not yet entirely comfortable with my role changes. I spend much more time on course design and organization, drafting record-keeping systems and maintaining them, and developing application exercises requiring the use of higher-order levels of learning. I am the class and team facilitator, floating among groups and interacting more with individual students and small groups but much less with the whole class. The first time I tried this approach, I went to see Debby, my team learning mentor, half-way through the quarter and confided that I didn't feel I was doing enough. She assured me that very feeling was a sign I was doing it right. Still, after fifteen years and all those beautiful lectures... Maybe I feel more comfortable as an actor than as an architect.

Michaelsen is right that making this kind of change in teaching methods required "a tremendous leap of faith" for both my students and me. I'm grateful for the students who took the leap with me and continue to suspend their doubts and try new ways. I wish the amount of work this approach requires from me was more apparent to my students; some complain that since I lecture very little I'm not "teaching." I wouldn't recommend that a new instructor try this before becoming very comfortable with course material and having a lot of confidence in his/her ability to think on her feet and adapt. Team learning may be especially appropriate and effective for OB because the method enacts so much of the course material. Whether it would translate wholly to other subjects, I'm not sure. What I have learned using team learning is this: students learn far more from what they do than from what I do. •

Collaborative Models for Teaching Oral and Reading Proficiency

Rosa Bobia and Judy Holzman, Kennesaw State University

Current research on second language acquisition says that one major priority is to address the frustration and anxiety levels that many students experience in the foreign language classroom. Foreign language teachers are aware of the "many learners" who... "come to language classes with raised inhibitions and fears that prevent them taking the necessary risks that learners must take in order to try out language and receive constructive feedback." (Brown, ***Principles of Language Learning****.)*

Incorporating collaborative activities plays an important role in decreasing the negative influence of stress and in helping students to be successful language learners. It has been shown that collaboration decentralizes the role of the teacher, allows students to interact with each other and to become active in an environment and structure of their own creation. At the recent Georgia Conference on University and College Teaching, the two models of collaboration presented featured new approaches proven successful in building self-confidence while increasing the students' oral and reading proficiency.

The oral proficiency model entitled, "Parlez-vous-francais: The Cocktail Party as an Interactive Communicative Activity" was a video presentation of students practicing their oral skills outside of the classroom in a unique situation of collaboration. The oral exercise involves a collaborative team of faculty, staff, and students. Kennesaw State College's willing, diverse French-speaking community makes it possible for students to practice their skills in an authentic atmosphere. Students sip their punch at the cocktail party and circulate among the French-speaking faculty in the Department of Foreign Languages and in other disciplines: in Political Science, Michele Zebich-Knos; in Art, Susan Bakewell; in History, Lovette Elango; in the Library, Dewi Wilson; in Mathematics, Phillipe Laval, native speakers of French in the student population, and French majors.

The cocktail party is the final aural-oral test of the quarter for students at the beginning and intermediate level. Students earn twenty-five points by talking to five people and getting their signatures (students sometimes receive an evaluative comment) on a five by six card. Students in the beginning courses are more inhibited than the intermediates at first, but based on the following evaluation of a 102 student, the sociable nature of the event, amd the freedom it provides in letting the student take risks eradicate to a large degree their uneasiness. "Several of my friends knew of my anxiety going into Thursday and called me later that day to see how it went. They were very surprised to hear me speaking ecstatically about the whole experience. The cocktail party has convinced me to take other French courses."

The emphasis that the cocktail party places on cooperative teaching and learning and practicing oral communication skills should enable students to reach what research shows to be their primary goal. "Many language students consider speaking ability one of their primary goals of study, either because they would derive some personal satisfaction from being able to speak a second language or because they feel it would be useful in pursuing other interests or career goals." (Omaggio, *Language Learning in Context*).

While the primary goal of students is to speak the target language, it is clear that development of other skills in the target language is essential if the level of oral production is to improve. It is with this concern in mind that a collaborative model for reading was developed. The reading proficiency model entitled "You Know More Than You Think You Know: A Collaborative Model for Reading in Spanish," was an activity designed to encourage students to approach reading as an active process between the reader and the text and between students. Hopefully this approach will demonstrate more clearly to students how to be "top-down" readers rather than "bottom-up" readers. "Bottom up" readers tend to look up every word and have high levels of frustration. "Top-down" readers look for clues in the reading to help them discover meaning without relying excessively on dictionaries. Such readers are more likely to want to continue to read.

The reading activity is divided into three stages. The tools necessary for the activity are transparencies, transparency pens, and a reading document that is totally authentic in form and presentation. The first stage of the activity is devoted to a search of cognates in the reading. Students are divided into groups of two or three, given a transparency page and pen, and asked to place the cognates on the page in the exact location that they are found in the reading. The placement of the cognates is important to ensure that students understand the importance of the contextualized meaning of the word. Students who focus only on the cognate, and not on the cognate and its location, are not developing good "top down" reading strategies.

The same process is followed with stage two and three of the activity. In stage two students are encouraged to discuss and then place words that they recognize from their own previous exposure to the language. In stage three students are allowed to use the dictionary to look up the meaning for two or three words in the document. Thus this activity tries to discourage excessive dictionary use and demonstrates to the students that they are able to obtain a significant amount of information from a document without looking up every word.

The two models described are part of an on-going process to provide innovative activities and to contribute to the research on the acquisition of a second language. Student responses to these models affirm the value of collaborative activities for reduction of stress. •

Crossing that line:

Communication and Spanish instructors merge classes for an innovative approach to sensitizing classrooms comprised of Americans to the sounds and rhythms of another language.

Lee Bollinger and Jana Sandarg, Augusta State University

Crossing disciplines and teaming up a Spanish class with a Communication/Speech class in a one-hour exercise boosts confidence levels of Spanish students, sensitizes non-Spanish speakers to the language, and makes all students aware of the difficulty when listening to a language not understood. These presenters share such a project they conduct regularly.

Stanley Fish points out that in interdisciplinary studies, participants "borrow" information and techniques from other disciplines and use them to explain or expand their own discipline (1989). When we combine a beginner or intermediate Spanish class with a freshman Communication/Speech class, we cross borders with clear goals in mind. When students in a Spanish class are forced to perform or speak aloud in front of a class, they gain a new perspective about the sounds of the language, a chance to show off their skills, and the opportunity to understand the usefulness of a second language. Likewise, when students in a Communication/Speech class are visited by the Spanish speakers, they are put into a sensitization position where, hopefully, the foreign sounds give them a new perception and perspective about second language uses, users, and listeners.

Since our classrooms today contain 10% to 20% international enrollment, these cross discipline language exercises expose students to new verbal codes. Our collaborative efforts are then fruitful because these exercises help explain and expand our courses to students with an impact that lecture formats do not provide.

Over the span of four quarters, we tried four different exercises with Spanish speakers visiting Communication/Speech students: a literary panel, a Who's Who Exercise, a Short Skit, and A Proverb Exercise. Of the four exercises, the most successful was the short skit written and performed by Spanish majors. We will explain its methodology here.

A Short Skit

1. Development of the skit: Spanish students developed a short 15 minute skit. During instructions, we explain the basic elements of a plot which includes conflict, rising tension, and resolution.
2. Plot structure and conflict: For the skit, Spanish students decided that a female teacher would have a crush on a male student.
3. Rising tension: When the female students paid too much attention to the object of the teacher's affections, they slowly disappeared (over four scenes). The reason for the disappearances became clear when the audience was given a view of a large machete (paper).
4. Resolution: Resolution came about when it was revealed that the teacher was in love with the male student, who was in love with another student. The teacher had in vain "killed," yes, "killed," the female students. The clincher signifies the end of the play when the audience learns that the paramour of the male student is another of his own gender.

Communication students work in groups

While the skit was in progress, Communication students made notes about the plot structure, characters' names, and events of each scene. At the close of the skit, the Communication students, in groups, wrote short paragraphs about the plot, conflict and resolution. Those groups who were accurate in their assessments were given extra credit points.

Videotaping the Exercise

A video camera was used to record not only the skit but the question and answer session that followed. Then, too, the Spanish students later had a chance to see and hear themselves using Spanish.

Results of the Exercise

Comments from writers and actors: well worth the effort; good to see reactions from our actions; fun diversion from regular classtime; exaggerated body language was extremely fun; felt more comfortable speaking in Spanish.

Comments from communication students: fun hearing words we could recognize (cognates); realize now how important nonverbal communication is; good to listen to Spanish, interested now in taking Spanish; surprised at how much we could understand.

Our Recommendations

Crossing disciplines is not only enjoyable for students; we as faculty enjoy the activity immensely. We would encourage doing this exercise in smaller groups (less than 15) of Spanish speakers to avoid congestion. If there are more than 15 students, divide them into two or more groups with each group writing and performing a skit. Also, it is best to survey the non-Spanish class of students first to determine which students know Spanish. For those students who are already very familiar with Spanish, we suggest putting them into their own group and giving them more goals in the assignment. Lastly, it is important that we reward all students participating with either letter grades or extra credit. We want to remind readers however, what Fish points out: there have to be clear goals or objectives in mind by instructors when crossing the disciplines. •

Fish, Stanley. "Being Interdisciplinary Is So Very Hard to Do." Profession 89 New York: MLA, 1989. 15-22

Some educators consider testing as only a method of evaluating the achievement of outcomes among students rather than as a method of teaching. The Computer Assisted Testing System developed by Kennesaw State University students provides a method of fostering independent learning, as well as, familiarity with testing on a computer to alleviate the problems with test anxiety that may accompany group testing in a classroom.

Self Directed Testing in a College Setting

Jane Brannan,
Kennesaw State University

Testing is a difficult situation for many students to confront. However, this anxiety producing activity is considered an excellent teaching strategy, as well as, an evaluation method by many educators. Some students in the Kennesaw State University School of Nursing found that tests can be a way to develop and display independent, self directed learning; acquire beginning computer skills; learn time management; and learn to master essential information. The computer assisted testing system, developed by students in the computer science department at Kennesaw State, was a method implemented to move toward these ends.

Several problems provided the impetus for development of the new testing system: (1) Test anxiety displayed by students in the classroom testing situation. (2) Classroom testing neither allowed for differences in rates of learning among students, nor did it foster self directed, independent learning that is particularly desirable in the nursing program. (3) The registered nurses licensing examination (NCLEX) is exclusively administered on a computer. Students need to experience taking tests via computer to overcome their fear of technology. Some students, with no experience in the use of computers, were particularly concerned about their ability to cope with taking their licensing examination successfully. (4) A more efficient, time saving method of assessing learning was needed. Group classroom testing takes great amounts of time to prepare, type, administer, grade, review with students, report, and record scores.

The initial step toward computer testing began as a project of computer science students. Computer science students were asked to develop a testing system that would administer, grade and report scores to each student on the computer. Easy access to the test bank for updating or adding test items was also a requirement in the initial phases of development.

The program created generated a ten-item drug calculation test for each student. Questions were randomly generated to avoid students receiving the same exam. Students completed exams as they felt prepared to do so, during the quarter. The campus computer lab, which offers long hours each day and on the weekend, served as a central location for students to complete their exam. Student identifications were checked before they were allowed to take the test in the computer lab. Students were required to leave all books and papers outside the lab and to avoid any conversation during testing. The test results were reported to the student on the computer monitor upon completion. The professor was given the testing disk to download all results to the program grade book.

Students were quite pleased with the independence that was provided through such testing. They were appreciative of being able to determine their own learning and testing times. Students reported feeling more secure with computers and less anxious about testing. The time saved by students and professor was also an advantage.

Future developments include creating such a testing system for all tests in a nursing course. This requires many questions in the test bank in order to assure that each student receives different exam. Installation of the program on the network will also save time and effort.

The successes of self directed testing in the School of Nursing have been evident through the evaluations from students and a high passing rate among students on this test. It has led to the achievement of several outcomes and a method of assessment of learning in students. Moreover, this system of testing has provided the opportunity for students to assess their own learning and understanding of information and to make their own decisions pertaining to their education. •

Cable-Ready Science

Leigh Callan, Floyd College

Students pursuing health science career programs at Floyd College were recently provided the lecture portion of the Anatomy and Physiology biology sequence via live and repeat broadcast television over Floyd College's cable television station. The success rate of the students participating matched that of their counterparts in traditional lecture classes. The television delivery was adapted to more visual presentation, and supported by supplementary materials made available to the students. The course is now being offered as college-by-cassette.

Can a high-content science course be delivered to students via live-broadcast television? "Yes, it CAN!" During fall quarter 1995 and winter quarter 1996, the lecture portion of a two quarter course sequence in Anatomy and Physiology was presented through the Division of Extended Learning to registered students in the broadcast area of FCTV Channel 99 (Floyd College television serving Rome and Floyd County). In preparation for this delivery, extensive syllabi and lecture notes with an interactive study guide were developed and made accessible to the students. Presentation software and training were made available for the instructor. Permissions were obtained to use pictures, graphics, and ancillary aids associated with the chosen textbook. Fair use policies were reviewed and followed appropriately.

The lecture portion of the sequence was on the college schedule in two ways: as a studio course on site at FCTV studio for those students needing the course live at that location (those who live outside the broadcast area) and as a telecourse which could be viewed at home in the broadcast area or at the main campus for students with other courses there, or from library taped copies. Student enrollment totaled 31. The above-listed "attendance" patterns soon "mixed" as students began to tape for each other. The students were required to attend a weekly on-campus laboratory session and specifically scheduled tests. Individual attention was available during laboratory session (as occurs in traditional large-enrollment science courses). A tutorial center was available.

One of the most important aspects in the development of this course was student feedback. In something so new for all of us, the only way to learn was to jump in and try it. The students were tremendously helpful and encouraging as they critiqued the effort on a continual basis. We experimented with several avenues for visual presentation and the students were quick to tell us which ones worked and which ones did not.

This mechanism of course delivery is not necessarily better or worse than the typical on-campus delivery. It is just DIFFERENT. The advantages are numerous. The technology itself brings the possibility of greater visual stimulus for the student. We were able to generate close-up demonstrations with lab materials, produce video-clips from on-site demonstrations, and excerpt "teasers" from existing software in order to encourage the students to see certain supplementary material on reserve in the library. The students were able to benefit from "repeat" viewing as well as the flexibility of scheduling that fits with their busy personal schedules. (Procrastination is a pitfall, however!)

The success of this educational venture is still being evaluated. Two-thirds of the first group finished with a C or better grade. Six students from another teacher's class used videotaped segments of the FCTV class, and an unknown number of others viewed the FCTV class at home in order to supplement their study. Many community members commented upon catching the class by "channel surfing."

Is such a class worth the effort? Yes, yes, yes. The product can be used in several ways to help students have more educational access: as college-by-cassette, repeat broadcast, in the library to cover absences of either student or teacher, or as tutorials. In fact, presently I have 41 students representing 12 counties enrolled in the college-by-cassette format. Does this class design lead to the replacement of teachers? No, no, no. Rather, it can be used to free teachers to other creative efforts, while expanding enrollment.

For more information about FCTV, contact Carla Patterson, Director of Extended Learning, Floyd College Heritage Hall, P.O. Box 1864, Rome GA 30162; (V) 706-802-5300; (F) 706-802-5997; carla_patterson@heritage.fc.peachnet.edu.

For more information about the Anatomy and Physiology telecourse, contact Leigh W. Callan, Division of Science, Math, and PE, Floyd College, P.O. Box 1864, Rome GA 30162-1864, lcallan@floyd.fc.peachnet.edu. •

Teaching Calculus and Pre-Calculus with Graphic Visualization

Joshua Z. Du,
Kennesaw State University

There has been tremendous progress and advancement in computer hardware and software in recent years. The development of 486 and 586 personal computer systems is revolutionary for personal computer users. Many sophisticated software products are available for almost every field of the sciences, engineering and the social sciences. Many projects which used to depend on the mainframe computer systems can now be performed on personal computers or workstations.

Recently Marilyn Geewax's column in the Atlanta Journal-Constitution stated: "A new study by the White House's Council of Economic Advisors shows that over the past two years, more than two-thirds of all the full-time jobs created were high-paying, rewarding workers with more than the current median wage of $480 a week." The article also pointed out that "the study is being touted as evidence the U.S. economy is healthy because it keeps producing high-paying jobs. But unless our educational system is preparing enough people to take those jobs, we're headed for trouble."

As educators, we must give our students every possible advantage to face the demands of the high technology job market. I always remember that one of the national goals of education is the pursuit of world class mathematics in the next century. I feel that this is the historic task of my generation of teachers. This is the commitment and promise we must make for our next generation and future.

The student population at Kennesaw State University can be roughly divided into two groups: recent high school graduates and older students who have been out of high school for a number of years. Students from the first group are young and energetic. They have grown up in this high technology era. They are eager to study new technologies and expect to work in the high technology market. Students from the second group are relatively mature and experienced people. Many of them are professionals. They may come to Kennesaw State to improve their professional level or to seek a second profession. Some of them used to work, or still work, in low skilled jobs. Obviously, they come to our college to get a modern education so that they can turn their job prospects around. After graduation, they expect to work in high-skilled jobs. They ask us to teach them in the most effective way. This is the demand from the community to us.

The technological environment on the campus of Kennesaw State University is better than ever before. There are many computer experts in both software and computer hardware among our faculty members. I also realize that many of our students are professional computer technicians and users. Our computer laboratories provide faculty members and students excellent facilities and services. The Center for Excellence in Teaching and Learning and the Faculty Professional Development Committee and many other administrative offices offer all possible support to faculty members in developing their professions to meet the new challenges and in helping students to use technology in their studies and research.

The mathematics textbooks we use are well established and have been tested for many years. Generally speaking, they are very good, traditional and suitable for our students. On the other hand, I realize that some of them have not reflected the rapid change and development of computer technology. Some of them do include and use new technology in their contents. However, implementing this new technology in the classroom is a big challenge for our teachers. Obviously most of us did not study this new technology when we were students. The facility which we have and which we can afford will never be able to completely catch up to the rapid changes of high technology.

Last year I initiated the idea of using professional software to teach pre-calculus and calculus with graphic visualization. I really appreciate and enjoy The Rule of Three for teaching mathematics: analytically, geometrically and numerically. I believe that, at least

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A Student-directed Class for Teachers Working with Pupils with Learning Disabilities

Harry L. Dangel,
Georgia State University

This paper provides a description of a methods class for teachers of students with learning disabilities in which we tried to "practice what we were preaching." We did this by involving the teachers in the process of connecting their experiences with school and learning to the course in which they were enrolled.

The content and structure of the student-directed methods course flowed from a set of core practices about learners with disabilities which includes: "Learners learn best from experiences about which they are passionately interested and involved" (Poplin, 1988, p. 405) and students learn more effectively when allowed a sense of ownership about what they learn (Adelman & Taylor, 1993; Deci & Chandler, 1986). The course emphasized that current learning is dependent on prior learning experiences, i.e, experiential learning requires that skill and process instruction be integrated with information that matches the desires, interests and experiences of the student. Instruction that incorporates such practices commonly uses thematic units or projects and provides the "...organic connection between education and personal experience." (Dewey, 1963, p.25).

Students in this experimental methods course were typically teachers who were already working in classes for pupils with learning disabilities. Each time the student-directed course was taught, the instructor started by asking the teachers to describe the primary characteristics of students with learning disabilities with whom they worked. For the five sections of the course taught over two years, data indicated that their perceptions of students with learning disabilities remained constant—low motivation, impulsive, dependent, poor self-concept, isolated, frustrated, and immature. Interestingly, these were terms which described social/emotional attributes rather than any academic or learning-related characteristic. The teachers were then asked to describe what they considered to be their own most memorable school experience. After these experiences were recorded for all to read, the students extracted those common threads which were apparent. These were also consistent for students from course to course: A memory of work that was **excellent**, typically a **hands-on, experiential** activity, often an activity which moved **out of the classroom** and for which there was opportunity to **work with others**, and for which there often was **public recognition**. These common elements of memorable experiences were always identified across the multiple sections and each quarter were recorded for future reference.

These "memorable moments" were also tied back to the learner characteristics which the teachers had just described. What impact, for example, does doing work that is seen as excellent have on aspects of appearing to be frustrated or seeming to have a low self-concept or how does working collaboratively impact being isolated? Finally, the teachers were presented with the course objectives and asked what they could do to meet the set of objectives required by the department and the state's Teacher Certification Test in Learning Disabilities, while allowing for those elements common in the memorable experiences. If the course was to be most effective, it was necessary that it reflect those elements of "memorable school moments" which they had already identified, i.e., excellence, experiential, hands-on, and collaborative, with public recognition.

Through brainstorming, negotiation and voting, a set of activities would be established for each class which would allow the teachers to demonstrate meeting each objective as well as addressing elements of memorable experiences. This was described to the teachers as the cornerstone of the course, because if the course was to be effective, it needed to include the hands-on, experiential activities that had been identified as comprising memorable school moments.

The negotiated requirements and activities selected by the teachers were amazingly consistent—whether due to subtle guidance from the instructor or from a unique homogeneity of students. For example, no group of teachers ever selected having a test as a means of documenting having mastered course objectives. Likewise, all groups chose to do a teaching project in which they would demonstrate the application of teaching principles. Although cooperative work was an option for demonstrating meeting objectives, none of the classes opted to do group projects. All opted instead for doing individual teaching projects with their students in which they would document the knowledge and skills required by the course requirements.

The major part of the class sessions during the first two weeks of our ten week quarters were spent brainstorming, discussing, voting, and ultimately deciding on how to handle various aspects of the course. Typi-

cal issues included: What should the criteria be for evaluating projects? What materials and software should be demonstrated to class members? How should we get information about effective teaching strategies? How should we organize to present information about...? Once the course was organized, class sessions were a combination of traditional instructor presentations (e.g., modeling instructional procedures and strategies, and leading discussions) and small group activities organized by teachers. Because having the instructor "tell how to do it" was one of the options for covering the course objectives, it was the option of choice for many topics—especially as the course moved toward its conclusion.

At the end of the course we always discussed the manner in which the course operated and students' reactions to it. Again their reactions were almost identical across quarters. The teachers agreed that they appreciated having input into how they were evaluated. On the other hand, they always expressed a sense of frustration about the amount of time required to make group decisions and anxiety over the lack of clearly defined expectations about requirements and activities presented by the instructor at the beginning of the course. "Just tell us what to do and we'll do it" was the complaint. Teachers noted that the course experience was "helpful" and "interesting" but that given the limited time available for the course, the process was frustrating and inefficient. "We just never got as much done as we want to do" was the observation at the end of each section of the course. In general the course was described as effective, but not always very efficient for self-motivated students.

Follow-up Evaluation

A survey was sent to those teachers who had completed the "student-directed" version of our methods course in learning disabilities in an effort to evaluate the relative impact of the course on their view of teaching. The survey was constructed with two major groups of items: items based on elements of a student-directed emphasis based on concerns about their own pupils with learning disabilities (lack of independence, impulsive, etc.) and items which reflected a teacher-directed focus based on empirically validated principles of instruction (e.g., instruction follows a specific procedure, Christenson, Ysseldyke, Thurlow, 1989).

The former students were asked to indicate the extent to which student-directed and teacher-directed approaches provided for each of the aspects of instruction listed on the survey by giving a rating of 5 through 1 (very effective to not effective). A total of 30 former teachers responded to the survey—about a 40% return rate. As might be expected, respondents rated a student-directed approach somewhat higher for items based in concerns about a student-directed emphasis (e.g., developing student independence, cooperation and motivation) and a teacher-directed emphasis rated higher for items based on research on effective instruction (e.g., providing frequent, active monitoring of students and efficient use of time to complete work). Teachers indicated their intention to use more of a student-directed approach with their own students in the future. •

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Highest Rated Responses

1. **How effective is student-directed instruction in promoting independence? 3.90**
2. **How effective is student-directed instruction in promoting cooperative working relationships among students? 3.86**
3. **How effective is teacher-directed instruction in providing frequent, active monitoring of student responses? 3.83**
4. **How effective is teacher-directed instruction in efficiently using the available time to complete the required work? 3.78**
5. **How effective is teacher-directed instruction in following specific instructional procedures (e.g., review of previous lesson, a demonstration-prompt-practice format, and procedure for correcting errors)? 3.78**
6. **How effective is student-directed instruction in motivating your students? 3.77**

Overall, how effective is student-directed instruction for students with learning disabilities? 3.67
Overall, how effective is teacher-directed instruction for students with learning disabilities? 3.40

Non-Traditional Techniques in Teaching Science for General Students

Ben Golden, Gary Lewis, Gail Schiffer and Diane Willey
Kennesaw State University

This report describes the instructional outcomes of the "Connecting With Science" project at Kennesaw State University. The project is designed to improve science instruction for general students by developing and implementing non-traditional approaches.

The four of us, with the help of many of our colleagues on the science faculty, have been engaged in a project designed to develop and implement non-traditional approaches and techniques in teaching science for general students. The "Connecting With Science" project, partially funded by an NSF curriculum development grant (DUE-#9354758), grew out of attempts to enhance the quality and value of science instruction for the non-science majors at KSU and to better coordinate the core science experience with KSU's general education goals and philosophy. We have focused on two non-traditional approaches — content integration and student-centered instruction. This report concerns our instructional methods. We hope to report later on the content integration.

Our approach to instruction has been to minimize lectures and to use essentially all class time in group work on structured activities. The primary criterion we have used in designing and evaluating an activity is whether it facilitates authentic learning. The activities are designed to help the student construct an operational and accurate understanding of a block of scientific principles. They are also designed to help the student develop and use problem solving and critical thinking skills. Many focus on developing skills in critically making decisions about real-world scientific issues and on developing mathematical and situational problem solving skills.

The activities we developed have four basic formats:

1. Constructing explanations for phenomena from data and observations.

This format requires individuals or randomly assigned groups to complete carefully designed work sheets that facilitate the systematic construction of explanations for observations made during laboratories, demonstrations, or other data collecting exercises. For example, the students are aided in coming to a basic understanding of entropy by constructing an explanation for why an engine turns when two pieces of metal attached to it are placed in beakers of water with different temperatures and stops when the water is mixed. Another example is an exercise where the students gain an understanding of the basics of natural selection by explaining why wingless flies predominate over winged flies in a mixed population exposed to suspended fly paper.

2. Analysis of readings.

For this format, we have developed three standard analysis work sheets.

One, an analysis of a scientific experiment is used for journal articles reporting on a single experiment or review articles on several experiments. The students are required to identify and evaluate the elements of experimental design, evaluate the author's analysis, and to make a decision about whether to accept the conclusions. A second work sheet, an analysis of a reading, is used when the reading is an essay, editorial, or opinion piece designed to convince the reader to accept a given position or interpretation. The students are asked to identify what the author is really saying, analyze the arguments in the article for bias, accuracy, and thoroughness, and to decide whether to accept the author's position. The third work sheet, an analysis of a claim, is used when the reading is an advertisement, a report of an unusual event or observation, or an article making a scientific claim. Students are asked to identify the claim, identify and evaluate the reported evidences, decide whether the claim violates scientific principles, speculate about what other explanations might apply, and decide whether to accept or reject the claim.

3. In-class simulations of complex natural situations.

In this format, complex natural situations are modeled in ways that allow the students to vary parameters and analyze the results. One example is a simulation of the spread of a disease through a population in which the students investigate the effects of varying the numbers of initially infected individuals and/or the probability of become infected after a contact. Another example is a simulation of the impact of competition for food on a population in which students investigate the effects of varying the method of food gathering and/or reproductive rates.

4. Group projects.

Examples of how we have used this format include having students develop and give class presentations, construct World Wide Web presentations, and design instructional displays.

Our assessments of the courses using these activities, Science 115 and Science 116, have been encouraging. We have done pre- and post-evaluation of student attitudes toward science and of science process skills. In both assessments, we have demonstrated significant improvement in these students. We are continuing our assessment efforts by developing performance assessments of the understanding of science principles, problem solving skills, and science process skills. •

Teaching Writing to the Pragmatic Business Student

Marcia M. Harper, DeKalb College

A semester plan for a college Business English course begins with research of a corporation and culminates with the creation of a corporate pamphlet or brochure. The product is similar to one the business student may be asked by a manager to create five years from now.

As teachers, we need to organize the college or university Business English course in such a way as to expose the student pragmatically to the business environment. This approach captures the immediate interest and ensures the ultimate success of our students. To accomplish this, the following quarter/semester plan focuses on the student's in-depth research of a corporation. This research leads the individual through the production of a resume, a stock chart, a business letter, an oral presentation to the class, rehearsal of interviewing techniques, the memo and the proposal, the writing of abstracts and minutes, and eventually to the creation of a 10-page pamphlet or corporate in-house publication.

I first ask my Business majors to imagine themselves perhaps five or ten years from now in an office situation requiring them to produce clear, well-organized, error-free technical writing. They are employees in an office or a corporation of their choice traded on the New York Stock Exchange. The student will chart the market price of the company's stock for three months' time after learning how to read the newspaper stock charts and will begin to do extensive research on that corporation. Various resources are used for this research, including library business department sources such as F and S Predicasts, Moody's Manual, and the Business Periodicals Index. The student will learn the following information about the company: history; size and leadership; product and service lines; financial past, present, and future; in-house publications; organization; plans for the future; and, benefits for employees.

Each student learns how to do research in the business department of a university library and review research procedures involving note and bibliographical cards. Interviewing and public speaking skills are also developed by doing an oral presentation on the corporation.

All the assignments for the semester lead up to the final, large project for the end of the term—the creation of a pamphlet or brochure of at least 2000 words. After thinking carefully about what the particular audience needs to know, the student will integrate a pamphlet with sections including the history of the corporation and/or any of the following sections: financial history, products and services, company organization, company benefits, and future plans.

The assignments that lead to the final product are highlighted below:

- Student's resume
- The company's stock chart
- Business letter to the corporation asking for information: company history, in-house publications, benefits, etc.
- The telephone interview
- Proposal for the Pamphlet
- Article on the history of the corporation, with complete documentation
- Memo concerning the proposed Pamphlet
- Abstract of a business periodical article on the corporation
- Minutes of a departmental meeting on the Pamphlet
- An oral presentation on the corporation
- The Pamphlet

Throughout the term, the student is writing other short supplemental papers concerning progress of the research, all of which will be critiqued by the teacher and revised by the student.

I point out to my students that this kind of research, at least in a truncated form, is really necessary for every student about to interview with a company representative for any kind of job. Each applicant has only twenty interview minutes to impress that rep; his or her obvious extensive knowledge of the corporation would indeed be impressive.

I have taught forms of this curriculum as a required semester course for business majors, as a part of the college freshman English course, and even to Joint Enrollment high school seniors. In my experience, it provides pragmatic insight into the business world of writing for all of these groups. •

Using Journal Writing to Teach

Maudine Jefferson and
Linda Akanbi,
Kennesaw State University

"We can help them develop cognitively by sparking their imaginations, not by drilling books of trivial facts into their heads."

This article describes two ways of using journal writing to enhance teaching and learning. The first method describes the use of journal writing to help students become knowledgeable about the history of curriculum development. Students write in the first person as observers of changes in a particular period of curriculum development. The second method describes how journal writing can be used in teacher education to help graduate students critically examine their teaching practices through reflection after being exposed to content.

Journaling Through the History of Curriculum Change

Stacy Compton and John Scanlan, students in Dr. Maudine Jefferson's curriculum and instruction class at Kennesaw State, have demonstrated that journal writing can be used to become knowledgeable of the historical periods of curriculum development. Students' familiarity with the curriculum changes in historical times and the social and political factors that influenced them enabled the students to better understand the changes that are being made in the curriculum today.

Among the historical periods of the curriculum (Before 1890; The Progressive Transformation Era, 1890-1930; The Period of Professionalization, 1930-1960; and Recent Times, 1960-Present which includes the Post-Sputnik Era), Stacy and John selected The Progressive Transformation, 1890-1930 and Post-Sputnik Eras, respectively. To identify with the events of the periods, the students related slices of their lives to them. For example, Stacy vicariously assumed the role of a school teacher from 1890-1930, and John recaptured his real-life experiences as an elementary and secondary student in the Post-Sputnik Era.

Below are examples of excerpts from Stacy's and John's journals, which demonstrate their knowledge of the curriculum changes in the selected periods.

September 15, 1892- (Stacy)

I am so proud. My roll has increased by two since 1890. I have twelve students now. Earlier this year a group called the Committee of Ten was appointed by the National Education Association. They have decided that all secondary subjects, the classics, science, English, mathematics, and social studies should be given the same attention. I like this idea. Until now, so much emphasis has been placed on the classics because that is what we learned from Europe years ago. Since technology is taking off, we need to redecide what is more useful in today's world. This is 19th century America, not ancient Greece! Also, the Committee of Fifteen on Elementary Education was appointed. I agree with them in that elementary education should be more experiential and not so formal. Goodness, we need more students. These little ones are still babies. We can help them develop cognitively by sparking their imaginations, not by drilling books of trivial facts into their heads. It is no wonder they don't want to come to school.

Continued on Page 26

Bringing Definitions Alive in Chemistry

Richard W. Schmude, Jr.,
Gordon College

The author describes a 35 minute presentation which introduces the student to acids/bases and pH. This presentation includes a lecture which is integrated with demonstrations. The demonstrations allow students to use four out of five of their senses to see acids/bases and pH come to life.

It has been my experience that a lecture becomes more meaningful when students use as many of their five senses as possible. A lecture-demonstration session requires about 35 minutes and is a good way to introduce the acid/bases and pH topic in freshman chemistry.

The presentation starts off with a couple of transparencies listing the characteristics of acids. The students quickly realize that one of the characteristics of an acid is that it tastes sour or tart. Two bags of candy are then distributed to the class. The first bag of candy is Hershey's Kisses which contains no citric acid while the second bag is Gummi Savors which does contain citric acid. A transparency listing the ingredients of each type of candy is shown to the class while the candy is being passed around. The students are encouraged to read the ingredients while they taste both types of candy. The conclusion that the students are expected to reach is that the Gummi Savors taste tart because citric acid has been added; essentially, students taste one of the characteristics of an acid.

After the candy taste test, the characteristics of bases are discussed. At this point, an acid is placed into a test tube and students are asked to touch the bottom of the test tube and afterwards, a base is added to the test tube and once again students touch the test tube. The students will feel that the test tube is getting warm—evidence of a chemical reaction. Once again students witness the characteristics of acids and bases with one of their senses. (One of the characteristics of a base is that it reacts with an acid to produce a salt and water.)

A qualitative diagram of the pH scale is presented to the class which ties in pH with the previous discussion of acids/bases and the candy taste test. The tart or sour taste of acids is once again emphasized and the class is asked to rank the following juices in terms of how sour they are: orange, grapefruit, lime and lemon. Once again students are given the opportunity to use their sense of taste by tasting the orange and grapefruit juice. While students are tasting the juices, the instructor measures the pH of the four juices and lists them on a transparency. Students then realize that the more sour lemon and lime juices have a lower pH than the less sour orange juice.

As a final part of this presentation, buffer solutions are introduced. A transparency showing the main characteristic of a buffer solution (which is that the buffer solution resists changes in pH when an acid or base is added) is shown to the class. Students are then asked to gather around the pH meter with pencil and paper in hand. The instructor then measures the pH of 30.0 mL of distilled water (the pH may be around 4.5 to 5.0) and then one drop of a 3.0 molar hydrochloric acid is added to the water and the pH is remeasured. A drop of 1-2 pH units should occur. The instructor must emphasize that the water is not a buffer solution; therefore it experienced a huge drop in pH when the acid was added. This experiment is then repeated with buffer solution (the pH of the buffer solution should be as close to the pH of the pure water as possible.). A drop of 0.1 pH units should occur. Once again the main characteristic of a chemical definition is brought alive. One bonus to this procedure is that students can learn how to use a pH meter. •

Interdisciplinary Teaming:
A Collaborative Model for Preparing Middle Grades Teachers

Kim Loomis, Marjorie Economopoulos, Anne Smith, and Pam Cole
Kennesaw State University

Professors from language arts, math, social studies, and science collaborate in the planning and teaching of the Teaching of Specific Subject (TOSS) methods courses to middle grades education majors.

Picture this: Four middle grades teacher education professors, each representing a different discipline, are sitting around a table planning the content and instructional strategies for an upcoming methods class. The professors identify a theme to which primary concepts of their respective disciplines apply. They construct a plan to address this theme with the large group of students enrolled in the course. This class will be attended and team-taught by all four professors who will later teach the content of their specific subjects to smaller groups composed of the same students. If you were an observer in the planning session described above, you might identify the activity as interdisciplinary planning or collaborative teaching. You might attest that all of the participants contributed knowledge from their respective areas of expertise and that the selected teaching strategies utilized the various teaching styles and talents of the team members. If asked, you would probably guess that such planning would require a lot of time to work out ideas and compromises regarding the themes that should be addressed and the best ways to provide effective learning opportunities.

Since the middle school concept is grounded in team effort and interdisciplinary planning, such a teaching situation is not unusual to see in the team office of a middle school. Considering the degree of specialty of professors and rigorous demands on the time of college faculty, it might seem unrealistic to think that interdisciplinary efforts could be instigated at the college level. However, professors in the Department of Secondary and Middle Grades Education at Kennesaw State College have brought the interdisciplinary teaming model of the middle school into the college classroom.

Professors from language arts, math, social studies, and science collaborate in the planning and teaching of the Teaching of Specific Subjects (TOSS) methods courses to middle grades education majors. The TOSS experience serves as a precursor to student teaching, allowing students to integrate their content and pedagogical knowledge and apply it to a field-based practice. Students enrolled in the TOSS courses meet as a large group twice a week to learn about the central themes identified by the professors. Examples of themes addressed include professionalism and standards, classroom management, and authentic assessment. In addition to these large group meetings, students meet with the individual professors of their chosen major and minor disciplines for six hours per week and explore those same themes with regard to the specific discipline contexts. An additional twelve hours per week is spent doing field experience in area middle schools.

The large group meetings have been an experience in team teaching in that the planning and teaching of each class requires cooperation and compromise. The very nature of the effort has fostered personal and professional relationships between and among the professors and students and has enabled everyone to see the natural relationships that exist between and among the disciplines. Initially, communication among the professors was a challenge. All had their own discipline jargon and often used the same words which had different meanings or different words that had the same or similar meanings. Their own "sorting out" of language and meaning helped them translate and make connections for their students. Educators often think that students will make the connections among and between the disciplines. The reality is that a good number of educators do not always make these connections. The Kennesaw State professors realized that once educators develop a common language and begin translating discipline jargon, they can more readily facilitate students' abilities to see such relationships and make connections across disciplines.

The professors' diverse teaching styles and personalities matched the variety of learning styles and personalities of the students. However, some of the advantages that are inherent in such a teaching experience may also give rise to some obstacles. Because content and methodology are now under the consideration of more than one professor, that same variety of styles and personalities must be flexible and open to compromise. Sometimes, different ideas of relative importance and emphasis may lead to conflict among team members. Furthermore, cooperation takes time, which is a rare and valuable resource of all college faculty.

Results of student evaluations and feedback from the participating professors indicate that investments in time and compromise are well worth the effort. Indeed, once the process of interdisciplinary planning and teaching is underway, the task is not as difficult as one might initially think, and the process gets easier and more enjoyable with time and experience. Therefore, the idea that the professor of biology might sit down at a table with the professor of English and identify some common themes that can aid students in making connections across disciplines is not so unrealistic. •

Simulating International Relations:
Team-Teaching Introduction to International Relations Courses

Thomas W. Mullen, Dalton College

Over the past three decades, simulations of international processes, events, and international organizations' decision-making processes have become a significant method in both International Relations teaching and practice. By placing students in selected situations as international decision-makers in the class, both new insights and awareness of the international decision-making process of international actors is made much more immediate and relevant. Student responsiveness and enthusiasm have reflected our faith in the method as a valid and vital pedagogical device for learning in both short and long-term areas.

For some time, scholars as well as practitioners of International Relations (in both the government and private sector) have argued that participation in a simulation enables the participant to become actively involved in an interactive process "which emulates selected basic features of international reality (Daugherty and Pfaltzgraff, p. 531)." The principal underlying idea is that "doing something" is a superior learning device to "hearing something." In theory, students can actively test and operationalize knowledge acquired from lectures, readings, discussions, and videos in a simulated possible international setting and environment.

Decision-making then occurs in a specific context(s), an abstraction of what real-life decision-makers do, so that students can grasp more readily the substance of the processes and options available to specific international decision-makers in selected issue-areas. The students pose as Secretaries or Ministers of State and Defense (or delegates to international and regional organizations). These simulated debates are then both for teaching and heuristic purposes They imbue the students with a structured, "let's pretend" type situation; and hopefully, inculcate in them a long-term interest and hunger for learning about the international system as well as, perhaps, their place in it in the future and the possibilities and responsibilities of international citizenship.

For the past six years, my colleague in Speech, Professor John Hebestreet and I have utilized a variation of the simulation approach in our team-taught course, INTRODUCTION TO INTERNATIONAL RELATIONS, at Dalton College. With my background and advanced degrees in International and Comparative Politics, I provide historical and contemporary diplomatic briefings for the major events since World War II as well as a systematic breakdown of the system into the international politics of regions. More specifically, within each region, the major regional organizations are covered (the European Union in western Europe, the Arab League in the Middle East, OAS in Latin American, ASEAN in Asia, COMECON in Eastern Europe, and the OAU in Africa). I also cover the major regional security organizations such as NATO, the Warsaw Pact (now defunct), and SEATO. A major section additionally covers the United Nations' General Assembly and Security Council.

Professor Hebestreet, with his background in Speech, deals more with process—lectures on parliamentary procedure, debate, and the drafting and composing of resolutions.

A selected list of some debate topics relevant to these international organizations, reflecting current issues and controversies is as follows:

1. Should NATO be enlarged? Should new nations be admitted? (NATO)
2. Should the U.S. embargo of Cuba be ended (OAS)?
3. Should the sanctions against Iraq be modified...ended? (Arab League)
4. Should an African Development Bank be established (OAU)?

We also try to impart to the students a sense of the significant changes in international politics since the late eighties and the collapse of the Soviet Union and its' eastern bloc and the new problems attendant with the end of the Cold War and the dawning of a "New World Order."

We impress upon students that much of their grade in these segments of the course shall depend upon the extent to which they remain in character and the degree to which they "fill the shoes" of the various international representatives they are portraying in debate. Independent research, endeavors including the use of the Internet, are all encouraged in order for them to learn the nuances as well as the substance of their nations's positions and policies. Position papers and written resolutions as well as actual performance in debate are graded. There are also two substantive examinations, one in class, and one take-home at the end of the quarter.

Major texts are *The World Since 1945* by McWilliams, a controversies book on current international issues, and the annual editions of the *Great Decisions* series, as published by the Foreign Policy Association in New York.

Often, at the conclusion of the ten-week course, selected outstanding students from the course are invited to participate in a Southeast Regional Model United Nations or Model Arab League simulation. During various competitions, Dalton College has represented Egypt, Morocco, Tunisia, Bahrain, and Kuwait.

For the future, technology (and funds) permitting, we would like to expand the course interactively into a type of system-wide simulation with other International Relations courses being taught simultaneously at other Georgia system colleges and universities. Something like this is now being done in the Maryland state system through the ICON program.

With our Chancellor's evident enthusiasm for internationalizing the curriculum, we feel that this is a significant early step.

References: Robert Daugherty and James Pfaltzgraff, *Contending Theories of International Relations*, New York: Harper and row, 1981. •

Beyond Carnegie:
The Computer-Mediated Distance Learning Environment

John E. Reid, Jr., Shorter College

These are truly exciting times for online distance learning advocates. Internet technology has created an ideal environment favorable for the delivery of college credit courses from remote, world wide sites. The means to serve both local and distant populations is readily available to individuals and institutions of higher learning.

Since it is likely that most readers of this article have limited experience in teaching an online course, the purpose here is to offer a way to distinguish between the traditional Carnegie based model and the computer-mediated learning environment. This brief overview should prove useful to those practitioners interested in online instruction.

In the computer-mediated learning environment "virtual classrooms" are the centerpiece. They operate efficiently, allowing the end user instructional access at anytime from anywhere in the world. Rather than occupy seats in a physical location for a specific period (the Carnegie Model), students come and go as often as they wish. Once logged on they navigate to various areas created previously by the course instructor. At Shorter College we use Netforum. This private newsgroup was arranged through Mindspring, our Internet provider. Homework, assignments, professor probes and virtual time discussions are all listed and hypertext sensitive. This means that students can respond to previously posted messages with new messages of their own. For attendance purposes a Netforum feature keeps track of the user name and date of entry.

In the online classroom students are held responsible for self-learning. Unlike a traditional classroom in the online environment, the instructor plays a more active role in the facilitation of learning. Students are guided to initial points of discovery through introduction to Internet search engines.

Whenever possible, students are given the opportunity to choose areas of Internet study. The instructor provides pathways that guide rather than lead students. The reservoir of Internet materials available to students offers a means of discovery and learning that often goes beyond the immediate resource capabilities of the instructor and the institution's library. It is the instructor's task to create realistic objectives and expected outcomes that can be realized by the student. Instructional home pages play a critical role in this respect. To be truly effective the page must include links to databases and web sites that expand textbook readings and online activities. The course developer's knowledge of Hyper Text Markup Language (HTML), instructional technology design and good research skills are needed if a page is to reflect these attributes.

The online learning environment is one of rigor. Modules are the most common forms of support documentation. They define course objectives, outcomes and activities. These comprehensive learning guides detail in very specific language what is expected of a student. They also communicate the gained benefits of such activities. Additionally, modules include supplemental materials which provide examples and details that cover each aspect of the course. The module for the Communication & Technology (COM 106) course I created and teach with is more than 100 pages in length. Documentation must be written by the instructor so that rigor is achieved. Designed tasks that challenge students' critical thinking skills are as important in the online classroom as they are in the traditional setting.

Facilitating virtual communication in the online environment achieves favorable participation among all members of the class, not just a vocal few. All online classes require that students regularly visit a MOO or "Online Forum." Here they are asked to respond to probe questions placed by the professor. Continual probing in virtual classroom environments gives students the opportunity to respond to the professor and each other regarding a topic. This record exists in real and virtual time and is revisited by class members at any point in time. Secondarily, e-mail participation allows for the regular daily communication between pupil and professor. While effective interpersonal interaction is of some concern, future technology will allow for the viewing and oral communication among online participants.

Technological advancement along with significant growth nationally leads to the following three predictions: (1) online distance education over the Internet will continue to advance, (2) more schools will cooperatively participate in delivery and exchange, (3) traditional resistance to distance education will continue to subside as the new paradigm continues to evolve. Finally, administrative questions regarding the costs of using internet provider services, global registration and the transfer of credits all must be addressed as student populations move across geographical boundaries. •

Spinning Webs:
Integrating the World Wide Web into the Composition Classroom

Nancy Lawson Remler, Armstrong State College

Recognizing the importance of computer literacy, I have always incorporated computers into the content of my composition courses. Before this year, the only experience I gave my students was word processing skills, requiring composition be done on word processors. I have expanded their skills and knowledge by using the World Wide Web as a resource.

Although word processing skills are certainly valuable, there are many other ways that writing students can use computers to their advantage, and this year I have shown them those advantages. I use the World Wide Web as supplementary text by having student access sites corresponding with themes discussed in class. The following themes work particularly well with web assignments.

People at Leisure. This web assignment involves simply looking up information on the web and reading it. After reading a selection in our textbook by Marie Wynn, *The Plug-In Drug,* which discusses the impact television has had on the American family, we talk about the perception of television at its advent. The premise was that a television in the living room would bring a family together watching favorite programs. Of course, the opposite has happened: now a television is in every bedroom, and family members disperse to watch their favorite t.v. shows. Turning the discussion toward home computers, the students' next assignment is to access the National Council of Educational Technology's web page (http://ncet.csv.warwick.ac.uk/WWW/menu/role/par1.html). This site's "Parents' Page" provides advice about buying home computers, involving children in educational technology, and monitoring what children are exposed to on the Internet. After reading this page, students take notes on the information and bring the notes back to class. We discuss what they have found and predict what effect home computers will have on American families. Their writing assignment is to discuss those effects in an essay.

Learning Experiences. This assignment involves doing a little more research. As the class explores learning experiences inside and outside the classroom, we read John Cheever's *Expelled*, which illustrates learning experiences in and out of the school house. Then the students look up *Mark Twain Resources on the World Wide Web* (http://web.syr.edu/~fjzwick/twainwww.html) and read *Pudd'nhead Wilson's Calendar* through the *Scattered Writings* link. After reading the maxims, students are to choose a few that are memorable or significant to them. Back in the classroom, we discuss the maxims students chose and determine how these maxims are relevant in contemporary society. The writing assignment is to discuss how a maxim is significant to the student or to the contemporary world.

Confronting Life and Death. After reading Dylan Thomas' *Do Not Go Gentle Into That Good Night*, and Richard Selzer's *The Discuss Thrower*, the class discussion emphasizes the effects death has on the loved ones left behind as well as the effects a coming death has on a dying person. Since many of my students are unfamiliar with hospice care, I have them access a hospice web site: *Hospice Care: The Common Pathway* (http://www.ilinkgn.net/commercl/author/hospice.htm). This web site defines hospice care, explains its underlying philosophies, describes eligible patients, and notes bereavement counseling available to a patient's family. One great link on this web site is *The Front Lines of Hospice Care,* which takes students to accounts of people who have been affected by hospice care. These stories are written by family members, hospice patients and the care providers, and the narratives vividly illustrate to students hospice's benefits. These narratives foster lots of discussion among students, so when I issue writing assignments, they have generated many wonderful ideas. Their writing assignment is to discuss how they have been affected in some way by death (although I explain that this assignment does not require writing about something especially traumatic). Students write essays on their pets dying, their friends who have had a loved one die, their experiences as candy stripers in hospitals, and, of course, experiences when loved ones died. Usually, the essays are heart felt and well written.

Argumentation. After discussing some selections in the text book about controversial issues such as non-smoking policies in public places and capital punishment, students access "Thomas Web," the web site maintained by Congress (http://thomas.loc.gov/). Students are to look at the "Hot Bills by Topic" page and select a topic that interests them. Once they've chosen a topic, they can read all current Congressional bills on that topic. Students must support or oppose a bill in an argumentative essay.

Finding web sites corresponding with themes in my courses was very easy. I simply used a web directory. My favorite web directory is "Yahoo" (http://www.yahoo.com), but I also like "McKinley" (http://www.mckinley.com) and "Lycos" (http://www.lycos.com). When I use these search engines, I simply type in a few words related to my topic, and in a minute I have a list of relevant web sites. Then I surf through these web sites and find the one that works best for my unit.

Another valuable web site for teachers incorporating computers into their courses is the "World Lecture Hall," maintained by the University of Texas (http://wwwhost.cc.utexas.edu/world/lecture), which provides links to online classes in various disciplines. Linking onto these sites not only shows me what other faculty are doing with their students but also provides the professors' E-mail addresses so that I can contact them and get advice for my own classes.

Integrating the Internet into my courses has been the most exciting change I've made in my teaching in years. The students enjoy it, and they become computer literate in the process. And at the same time, I'm teaching my students not only to write well developed college essays but also to find new ways of communicating with others. I've found that this is certainly one easy way to make computers relevant to the writing classroom. •

Student and Instructor Effects on Student Academic Performance in Selected Classes at East Georgia College

David L. Strickland and John Black, East Georgia College

In spring of 1996, East Georgia College conducted a survey of students who had completed selected classes to identify unique characteristics of the student population and to examine how student background characteristics, student study behavior, student use of instructional resources, student ability, and student motivation affected academic success. The survey proved to be beneficial both as a means of better understanding the unique characteristics of East Georgia College students and as an activity that encouraged student respondents to practice effective study habits.

Like most non-residential two-year colleges, East Georgia College attracts a diverse student population with varied levels of academic preparation. National studies of community colleges have found that the current college population is "more diverse than ever before, with differences apparent in several areas, including ability, academic preparation, age, maturity, social background, ethnicity, language, and psychological preparation for college" (Maxwell, M. 1994). In addition, community colleges are serving increasing numbers of underprepared students (Cohen, A. & Brawer, F. 1989).

The East Georgia College serves a unique group of rural commuting students. A large percentage of these students are non-traditional, married, and have full or part-time jobs. In addition, about 29% are developmental students. EGC faces the challenge of how to guide and teach students who are underprepared for traditional college studies.

The administration and faculty of East Georgia College have been seeking ways to improve the academic performance and graduation completion rates of its students. Since academic success is directly related to retention and degree completion, a Course Experience Survey was designed to examine how student background characteristics, student study behavior, student use of instructional resources, student ability, and student motivation affected academic success in selected courses. Administrators and faculty are using the data from this survey to better understand the unique characteristics of East Georgia College students and how those characteristics affect academic success. Implications for administrative policy and teaching strategies are also being examined.

Course Experience Surveys were sent to a saturated sample of 473 students who took college algebra, English composition, history, and sociology in the Fall of 1995 or the Winter of 1996. Individual questionnaire items were designed to be as closed-ended and objective as possible. In order to collect data on a wide range of student background characteristics, student study behavior, and student use of instructional resources. Open-ended questions were used to identify factors related to student motivation. Student ability was measured using data from student records including SAT scores and grade point average. The dependent variable, academic success, was operationalized as the grade earned for the course.

Demographic information including age, sex, race, marital status, and number of children was collected. Student background information included number of classes taken, number of credit hours taken, distance student must commute to attend EGC, hours per week student works, father's level of education, mother's level of education, number of serious family problems encountered during the quarter, and number of serious personal problems encountered during the quarter. Variables used to examine student study behavior included the completion of assigned reading prior to lectures, the completion of assigned reading prior to tests, request for help from the professor, request for help from peers, study with peers, note-taking during lectures, absence, tardiness, early departure from class, absence for tests, and number of hours of study per week conducted outside of class. Questions used to measure student use of instructional resources included "Did you buy all the textbooks for the course?," "Did you meet with the professor in his/her office for help with the class?," as well as questions addressing requests for help from the professor during class and requests for help from peers.

Variables used to assess student ability included SAT scores, GPA, difficulty of understanding the textbook, difficulty of understanding lectures, and difficulty of understanding the vocabulary used on tests. Information regarding SAT scores and GPA were collected from student files prior to questionnaire distribution. Individual questionnaires were numbered and student names were removed in order to preserve anonymity for the respondents.

The data are in the process of being analyzed. Univariate analysis was conducted for all variables including frequency distributions and measures of central tendency. Correlation and multiple regressions measures are being used to describe the relationship between the dependent and independent variables.

This study enabled administrators and faculty to better understand the unique characteristics of East Georgia College students and how those characteristics affect academic success. The student participants were also directly benefitted by the study. Numerous students explained to researchers that the experience of completing the questionnaire and of hearing the findings discussed encouraged them to adopt positive study attitudes and study habits. Once the data analysis is complete, additional information about the findings may be obtained from Dr. John Black, Vice President for Academic Affairs, East Georgia College. •

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Three in One:
Collaborative Teaching at the College Level

Kim Loomis and Anita VanBrackle, Kennesaw State University
Toni Bellon, North Georgia College

Personal and professional growth for students and professors was fostered through collaborative teaching. The departments and college continue to reap rewards. However, time and faculty load issues remain problematic.

Word gets around. Students pass on their opinions about professors to each other with the intention of providing a service not unlike that of Siskel and Ebert. "Stay away from this one. All he does is lecture." "Sign up for the Dr. Doe's course. She's hysterical." There is no doubt that the personality and teaching style of a professor are among the many factors that contribute to a student's success in a course. A student's receptivity to content can vary in response to how well that student relates to the professor, and the range of this variance can be extreme. What works for one student may not work for another and it is unreasonable for any one professor to assume that his or her teaching methodology will contribute to each student's success equally. But what if the student had more than one professor in a class? Given the different personalities, experiences, and teaching styles that two, or possibly even three professors might bring to any one classroom, it seems likely that each student might have a better chance of finding some characteristic with which to relate.

This type of teaching situation was recently attempted in the Masters of Education program at Kennesaw State University. Three professors representing two departments and a myriad of teaching styles, experiences and personalities were assigned to teach a graduate course in developing portfolios. Students enrolled in the course brought a comparable array of learning styles, experiences, and personalities. There was a great potential for both students and professors to find and connect the commonalities. For example, students in the class were middle grades and early childhood education majors. The combination of professors represented both of these fields. Other characteristics with which students in the course might identify were specialty areas of teaching, learning task structure, experience with and computer type preference, and research interests and preferences.

The primary advantage of attending a class with a trio of professors was the opportunity for students to interact with the wider variety of teaching styles and areas of expertise inherent in a team teaching approach. Engagement with three professors afforded the students an occasion to identify with some attribute of at least one professor. The resulting relationship offered the opportunity for information and experiences provided in the class to be better received and retained by the student.

Advantages of collaborative teaching are not limited to students. The professors have benefited both personally and professionally. The same qualities that students identify as common interests are also available to colleagues. Mutual interests at home or at the workplace served to foster collegiality and friendship among collaborating professors. The traditional sense of isolation that many teachers encounter was lessened through this collaborative teaching effort.

The two departments represented by the professors also derived benefits. The trio format increased communication between the departments concerning a critical need area. Delivery of the new portfolio policy was more consistent because both departments were involved.

Finally, the college continues to benefit from this effort. In effect, the trio was modeling the collaborative approach to teaching espoused by the college. When professors tackle a new learning curve, they reinforce the concept of college instructors as practioners and life-long learners. Additionally, the involvement of the trio has continued beyond that course. Despite the fact that one professor has since moved to another college, the trio continues to work together on a variety of projects. Thus, the initial effort has lead to the level of inter-college collaboration.

Placing three professors in one classroom is not without its challenges. Students who prefer a more obvious structure showed signs of confusion when attempting to "figure out" the pecking order among the three professors. Just as children attempt to play "Mom against Dad," a few students attempted to negotiate a better answer between professors.

There were also challenges for the professors. Planning and teaching together requires a conscious effort to compromise in content and methodology. This planning begins well before the first day of the course and consumes an inordinate amount of time. When planning for the Portfolio class, the three professors proudly expounded on their areas of expertise and radically different perceptions of the importance of various areas of content with the class. Plans were made; specific topics in each class were assigned to the person with that area of expertise; and the class was off and running. Despite the advanced planning, individual enthusiasm resulted in some overlap during presentation of information or during activities. The results of the overlap were not always appreciated by the students whose learning style did not match the environment evoked by team teaching.

Similarly, the departments and college were challenged by questions of time allotment, scheduling and faculty load. The power of team teaching may be overshadowed at the college level by policies designed for the one professor classroom.

In summary, this was an excellent learning experience for all involved. For the students who could see beyond the lecture mode of the typical college class, this proved to be an opportunity to benefit from a variety of personality and presentation techniques. The professors enjoyed a valuable professional development opportunity. The departments and colleges involved moved to new levels of collaboration. Everyone involved agrees that when special talents are utilized to their fullest extent, everyone benefits from the combined strength of the individuals. And the word gets around. •

Applications for the World Wide Web in the College Classroom

Deborah Vess, DeKalb College

The World Wide Web enables instructors to bring the world into the classroom, and creates opportunities for active learning, increases student contact time with material, and enhances critical thinking ability. It is an exciting tool which provides almost unlimited resources for the College professor. (Note: When entering the URL addresses given here, do not type the parentheses, which are included for clarity only.)

The World Wide Web has created a global information network and, consequently, is a powerful educational tool for courses which deal with global issues. Creative use of the World Wide Web can develop critical ability and encourage the active encounter with material necessary for effective learning.

The most effective and practical way to use the Web in the classroom is to create a Home Page, which can be easily accomplished using HTML Assistant, a shareware program which allows even novices to create HTML files, the primary language of the WWW. An on-line HTML tutorial is available at (http://www-pcd.stanford.edu/mogens/intro/tutorial.html). Lecture notes, class outlines, reference materials, and databases related to course content can be made available on a Home Page, such as the author's World Civilization Virtual Library at DeKalb College (http://dekalb.dc.peachnet.edu/~dvess/dvess.htm). This Home Page contains class manuals for selected courses, with hypertext links to a wide array of databases on the WWW. Search engines, such as Magellan, a search engine connected to the McKinley Internet Directory, and Lycos (http://www.lycos.com/), can be used to build a relevant array of databases.

On the most basic level, a Home Page is an easy and practical way to improve the "holdings" at institutions with limited resources. Instructors can create an interactive reference library tailored to their classes with electronic texts from all periods and subjects, such as the texts in The Tech Classics Archive (http://the-tech.mit.edu/Classics/). Such resources allow instructors to more effectively direct student research, from the initial exploration of topics to the creation of a thesis statement, bibliography and outline.

The Home Page can also function as a writing and reference tool. Sample essays can be included which illustrate the proper and improper ways of writing essays, and several on-line style and citation manuals are available. On a deeper level, the databases in a Home Page can be integrated into course assignments, creating a myriad of new possibilities for exploring the world. Virtual field trips through on-line art museums, such as The Australian National University's site (http://rubens.anu.edu.au/), or the Athenian Acropolis (http://www.mechan.gsd.btua.gr/webacropol/) can greatly enhance appreciation for the cultures of the world. Students can explore the world's languages at the Yamada language guide (http://babel.uoregon.edu/yamada/guides.html#f), and connect the symbolism of language to social and historic conditions.

A visual encounter with digitized manuscripts, such as the Diamond Sutra (http://portico.bl.uk/access/treasures/diamondsutra.html), the world's earliest dated printed book, enhances a discussion of the technological superiority of ancient China. Students might compare literacy in China to that of the medieval west, or might reproduce a short section of the manuscript in order to better understand the nature of the copyist's art. The Web makes it possible for undergraduates to do the sort of research once confined to graduate schools with the finest libraries and offers an opportunity for interaction with sources which are often obscure for students. The Web is also a highly effective device for developing critical analyses of material. Many electronic texts have search engines attached, which can be used to develop analytical essays. The University of Pennsylvania has a gopher site (gopher://cat.sas.upenn.edu:3333/11/Religious/Biblical/KJVBible) which contains the full text of the Torah and a search mechanism. A search for key phrases, such as "an eye for an eye; a tooth for a tooth," provides ample material for a comparison of Hebrew social justice and the Code of Hammuarabi. Exam essays can be developed which require the student to critically analyze ten or more citations from the Internet and to compare/contrast their findings to previously studied course material. The search process requires students to actively participate in the gathering of information, which they must physically and mentally manipulate. Contact time is increased as the results of a search are generated a passage at a time, which also presents the texts in a format which students can more easily absorb.

Home Pages are multifaceted resources whose benefits far outweigh any effort involved. The author's students often spend hours exploring links on the Home Page, and generally pursue at least two to three entries in addition to those required. The Web is a highly interactive environment in which students can better master sources and become further acquainted with materials they might not otherwise have encountered. •

Of Time Travel and Faculty Development Grants:
Or What I Did on My Summer Vacation

Kay A. Reeve, Kennesaw State University

The following essay represents my reflections on the way in which a faculty development grant has impacts, sometimes unexpected, in many areas related to teaching and learning. Most importantly, it reflects upon how that influence may be experienced continually over time both in interaction with students and colleagues.

In the summer of 1994 I utilized a CETL Faculty Development Grant to attend a Chautauqua Short Course in Santa Fe, New Mexico entitled "Indians of the Southwestern United States." I spent a fascinating three days learning about the field of historical archaeology. I learned the methods used in "a dig" (at a site reached by driving a rutted road fast enough to outrun the guard dogs at a deserted oil camp), the recent laws affecting museum holdings of Native American sacred objects, and about the prehistoric and present day cultures of the Pueblo Indians. Fellow students came from states stretched from the East Coast to California.

Following that seminar I drove 1100 miles north to attend two ten day seminars on "Women in the West" and "Representations of the West in Wild West Shows and Historical Museums" at the Buffalo Bill Historical Center in Cody, Wyoming. In addition to taking courses from professors who had actually written the texts, "extras" included attending a modern day Indian Pow Wow, visiting the ruins of the largest Japanese internment camp in the U.S., doing after hours research in the Buffalo Bill Letters Collection, and hiking to a 10,000 foot high prehistoric Medicine Wheel in the Big Horn Mountains.

Upon my return to Kennesaw I shared my experiences during the next year through incorporating the historical content in a Special Topics course on the American West and conducting a slide presentation for the History honor society. I presented a paper at the Georgia Association of Historians' Annual Meeting, the annual History newsletter, and cornered any faculty member on campus, including Dr. Siegel, our college president, who seemed interested in knowing anything about anything I had learned. While realizing that I would never again teach Western History as I had before that summer, I did not realize until later that the beauty of a faculty development grant experience such as I had was that it never seems to stop enriching one's professional growth in unexpected ways. How did I learn that lesson?

The saga began in the summer of 1995, when I was asked to give a presentation on Western Women to a group of high school English and history teachers enrolled in a NEH Summer Seminar entitled "Domesticating the Cannon." The class centered on the works of nineteenth century women writers. Preparation for my talk began with reviewing some of the reading done by the class. Suddenly a light went on in my brain. While reading literary criticism of a novel written by Caroline Kirkland about her experiences in a Michigan frontier village in 1836, I was suddenly reading Turner's thesis, a thesis rejected by many of the best known writers of recent western history. I found myself fascinated by the thought of seeking support in the novels written by women in the Trans Mississippi west for the new approach to western history. If that West was truly so different from Turner's frontier, would that difference be seen in those novels? That interest in turn led to acceptance of a paper proposal on the topic, a presentation which will not occur until next September. Time travel had begun.

As it developed, that summer of 1995 experience was just the beginning. In Fall quarter I was asked to give a presentation to the Cobb county social studies teachers on the current state of "the field." That was an opportunity to share the contrasting interpretations of western history in general and the images of western women in particular with high school history teachers using texts which often omitted African American cowboys, single women homesteaders, and successful San Francisco Chinese businessmen. I even was able to suggest that the history teachers consider working with English teachers to contrast literary depictations and historical interpretations.

But the saga did not end there. Winter quarter I taught Current Trends and Issues in Social Studies to a class of practicing teachers pursuing master's degrees in Middle School Education with a concentration in Social Studies. During the portion or the class devoted to utilizing community resources we visited the Atlanta History Center. While touring the exhibit on African Americans in the Cotton States Exhibition of 1905, I found myself first remembering and then explaining to my students Gramsky's theory of hegemonic control through the use of spectacular public events. Where had this approach to Southern history originated? It came from the professor's lecture in the "Representations of the West" on World Fairs and Exhibitions. I figuratively had returned to Cody, Wyoming.

During this quarter I experienced time travel once again. In April I addressed several groups of high school students at North Cobb High about the profession of college teaching during Career Day. I explained the required training and duties of the college professor, but also mentioned my summer course work. One stu-

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Kennesaw State University

FACULTY DEVELOPMENT GRANTS AWARDED 1996-97

Vicky L.H. Bevilacqua, Assistant Professor, Biophysical Chemistry
Use of NMR Spectroscopy in the Study of a Blood Pressure Regulation Compound

Susan Brown, Associate Professor, Elementary & Early Childhood Education and M.L. Anderegg, Associate Professor of Elementary & Early Childhood Education
Improving Teacher Accuracy Using Teacher Rating Scales to Assess Attention Variables in Students with Special Needs

Joshua Z. Du, Assistant Professor, Mathematics
Calculus and Graphic Visualization with MATLAB

John S. Gentile, Associate Professor, Communication
Seminar at Trinity College

A. Lynelle Golden, Assistant Professor, Biological Sciences
Initiation of an Undergraduate Research Program in Physiology

Barbara C. Karcher, Professor, Sociology
Enhancing Learning Through the Use of MicroCase/ShowCase Presentational Software

Jennifer Powers, Assistant Professor, Chemistry
Course Improvements for Chemistry 352 and Chemistry 400

Sarah Robbins, Assistant Professor, English
Domestic Didactics in 19th Century America

R. Keith Tudor, Associate Professor, Marketing & Professional Sales and Susan Carley, Associate Professor, Marketing & Professional Sales
An Exploratory Investigation of Emotional Intelligence as it Relates to the Successful Salesperson

Anita S. VanBrackle, Associate Professor, Elementary & Early Childhood Education
A Longitudinal Investigation of Perceived Stress Patterns in Pre-Service Student Teachers and First Year Teacher Educators

Dale Lynn Vogelien, Assistant Professor, Biology
In Search of a Gene Conferring Tolerance to NaCl: A Practical Experience with Molecular Technique

Carol Wilkerson, Assistant Professor, Spanish
From Students to Teachers: Case Studies of Spanish Education Majors

SUMMER STIPENDS AWARDED 1996-97

Janet S. Adams, Associate Professor, Management & Entrepreneurship
Faculty Development in International Business

A. Lynelle Golden, Assistant Professor, Biological Sciences
Initiation of an Undergraduate Research Program in Physiology

Judy Myers Holzman, Associate Professor, Spanish
A Common Reader for Spanish 101-202

Chien-pin Li, Associate Professor, Political Science & International Affairs
Learning International Politics: The Method of an "Early Warning System for Georgia"

Sarah Robbins, Assistant Professor, English
Domestic Didactics in 19th Century America

Dale Lynn Vogelien, Assistant Professor, Biology
In Search of a Gene Conferring Tolerance to NaCl: A Practical Experience with Molecular Technique

Dede Yow, Associate Professor, English
Southern Culture: Georgia's Legacy in History, Story and Song

Postcards from Bankers, continued from Page 1

change to accommodate "clients." Remember that branch bank? Reflect on the growing number of off-campus sites at which classes are now offered. Consider the ATMs and compare those to the growing number of courses offered via video cassette, cable television, GSAMS, the World Wide Web, and the like.

These efforts notwithstanding, the needs of learners, not teachers, will occupy center stage and colleges and universities will either adapt to that new focus in how they operate or else see truly viable competitors and alternatives emerge.

Instead of assuming, as most institutions do now, that students have relatively abundant time that can be used in a flexible manner to respond to classes and services offered, we will need to recognize that time is a very scare commodity for students and that education should be available at various times and at remote places.

Doctors: Finding vs. Creating a Better Class of Patients

We may look back on the period from the end of the Second World War to the latter part of the 1990s as the "golden age of doctors." After WWII, doctors' status rose, their incomes improved greatly and they became "miracle workers" of contemporary professions.

By the early 1990s, questions of increasing urgency were being asked of health care providers and the medical profession in particular, especially with respect to what was viewed by many as alarming increases in the costs of health care.

Physicians who only recently held tremendous status and more or less dictated the financial terms of most aspects of health care are now employees of HMOs and see that the costs to be paid for services are no longer accepted, but are determined by third parties, primarily insurance companies.

What the medical profession faces now is a rather daunting task: nothing less than the creation of a healthier class of patient to avoid the higher costs of dealing with the effects of everything from smoking to bad diet to stress. The health care system must also intervene earlier in the lives of individuals and be active partners with other public service providers.

There is a parallel between the world of doctors and the task confronting teachers in higher education. Colleges and universities used to be presented with a "better class" of student because most of the people who sought entry were the offspring of families who were themselves educated; hence, students were better prepared for college than are current enrollees. Now we too face the challenge of creating more learners from among an extraordinary diversity of people.

We too are told it is our responsibility to engage students much earlier and well before entry to college. Partnerships with faculty from K-12 are deemed essential. Rather than wait and enroll students not prepared for collegiate learning, we in post secondary education are admonished to get involved with the schools and thereby prevent the problem from arriving on our doorsteps.

"These efforts notwithstanding, the needs of learners, not teachers, will occupy center stage and colleges and universities will either adapt to that new focus in how they operate or else see truly viable competitors and alternatives emerge."

But the cost of higher education does persist as a major public issue, especially as the cost index from college exceeds that of the consumer price index. The response to date has been to add costs of new ways of teaching and learning, especially the cost of information technology, to existing costs. "Efficiency" and "productivity" are terms as alien to higher education as they were to the world of health care.

And although few faculty and staff are insensitive to the prices charged for attending college, few can tell you the actual cost of a course or of a year of study. Moreover, since our costs are not as yet "unbundled," costs of different elements in a college education are often difficult to sort out. A tough truth is that the principal costs in the price of college are salaries and new technology. So when the search begins for ways to lower prices or at least reduce the rate of their growth, special scrutiny has to turn to personnel costs.

Health care in America is undergoing very rapid change and we need only listen in on a few conversations with physicians, nurses and other health care professionals to glean some sense of what we in higher education might expect.

Video Stores: One Generation Industry

Virtually everyone can recall the opening of the first video store in their neighborhoods. Most of us will also witness the closing of the last video store. In less than one generation, an entire industry will have emerged, prospered and disappeared. Consider also that VCRs succeeded in permeating American households despite the fact that their use was anything but "user friendly." People were and are prepared to endure enormous frustration to have the convenience and control of viewing programs on demand. One observer noted that home computers are destined for success since those devices are far easier to use than VCRs.

If I am correct in my forecast for video stores, are there lessons to be learned for those of us in education?

A fairly large number of the nearly 4,000 post secondary institutions that now operate came into existence within the last 30-40 years. I anticipate that fewer than half will exist by the year 2015. Moreover, the various off-campus centers that now serve students in order to solve the problem of geography will also go the way of the small video stores. When so much information in so many forms is available to so many people at so many places on terms and at times that each person an determine, will we still need to congregate for learning to take place or will it suffice that participants to a learning experience interact either directly and personally or synchronously and vicariously?

The Real Messages from the Postcards

If my postcards from bankers, doctors and video store operators have any relevance, I am tempted to inquire of you, "Are

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Postcards from Bankers,
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you pondering what I'm pondering?" Allow me to suggest a few lessons I distill from the experiences of my colleagues.

First, we will not, we cannot, avoid the forces of change that have so altered other professions. College professors enjoy special status in the eyes of most Americans,

"We cannot overcome in a few quarters or semesters the learning deficiencies of twelve or more years of elementary and secondary education."

but so do doctors and bankers, and they are experiencing wrenching changes to everything they do. Will change be as profound for us? I think so. Consider that our current system emphasizes very much the role of the teacher in the instructional process.

If we shift emphasis to the needs and the constraints of the learner, imagine the changes that could occur. By acknowledging that different persons learn in different ways and at different paces, we would create learning experiences that accommodate those differences and seek to expand the diversity of ways by which learners interact, but not necessarily congregate.

I have used the term "bundling" several times. If we accept the needs of students, especially their need to renew education and training on a more or less continuous basis throughout their lives, then we should consider "unbundling" what we now think of as courses and curricula and disaggregating them into smaller, more finite bodies of knowledge and competencies which students could select to acquire instead of an entire course or curriculum.

The "unbundling" of education also implies that we would "unbundle" our pricing. If a student only requires a portion of what I will call a "learning experience," then it will be difficult to defend charging for an entire course.

We cannot overcome in a few quarters or semesters the learning deficiencies of twelve or more years of elementary and secondary education. You will work closely and on a sustained basis with our colleagues from P-12 schools to ensure that students arrive for college ready to learn at higher levels.

Recognizing that those of us in public higher education have an obligation to prepare students for a world beyond our campuses, you will welcome employers and "lay persons" from that world, listen carefully to what they day they need of citizens and employees to be successful as businesses and communities. You will engage these people as more or less permanent sounding boards for assessing the effectiveness of our learning processes.

Whether we like it or not, the period in American history when public education was deemed most effective and therefore worth investment was when our schools and colleges "fit" with the needs of the industrial economy. That economy has gone and we did not change quickly enough and so are seen as not being effective. But if we invite persons from the worlds outside our campuses to become part of us, and we in turn encourage faculty to be part of those "outside" worlds, we can more surely address needs and, I believe, retain our vital role.

There is and will be a place in colleges and universities for lectures and conventional seminars and technology may be only a supplement or support or even be absent. Some students do learn best in those environments and they too can and should be accommodated.

The experiences of our colleges and universities for lectures and conventional seminars and technology may be only a supplement or support or even be absent. Some students do learn best in those environments and they too can and should be accommodated.

But the experiences of our colleagues in other professions suggest to me that we should begin now to move technology to more of a central role in the learning process. Another more practical reason for using information technology as a central element in future learning is that that technology may be the only way of dealing effectively with the dramatic increases in the numbers of learners who might show up at our doors, real and virtual.

"I left this state a quarter century ago after being one of the 48 per cent of all high school graduates in the late 1960s who went onto college. Today, slightly more than half of all high school seniors enroll in post secondary education. Not much progress, it seems."

"And what about college teaching here in Georgia...?"

Those of you who have been part of Georgia post secondary education for a decade or more are very much aware of the current frenzy of activity. Veterans relate to me that everything seems to be in flux, with

heard, for example, that converting from quarters to semesters carried a price tag of $13 million for one institution even though most colleges and universities have operated for many years now on a semester calendar. If that change is difficult and expensive, what will happen when we take on what I consider to be far more challenging changes?

Reflect, if you will, on the fact that Georgia with a population of 7 million operates 115 public and private colleges and universities, while Virginia, with only slightly fewer people, has 86 institutions. Moreover, most observers would likely rate Virginia higher education as stronger than that of Georgia.

Consider also that Virginia public colleges and universities have the dubious honor of charging the highest tuition in the southeastern United States and still our colleagues there relate how painful the past decade has been for them and how desperate many of them view their current state of affairs. How will we respond when the current strong economy weakens or when the remarkable support provided by state leaders to education ebbs?

We have invested millions in GAMS interactive video and only begun to exploit its capabilities and the passage of the Telecommunications Act of 1996 promises to make possible far more advanced video and teleconferencing within a few months. Atlanta's and, to a lesser extent, Georgia's telecommunication system is, as the public relations pronounces, one of the best to be found and may afford us opportunities for its use that surpasses most other parts of the country.

But we are struggling to make some faculty comfortable with computers; how will they respond to providing learning opportunities to remote sites via teleconferencing?

Moreover, catching up to other states and their institutions' practices may only take us down paths that are not only well-trod but which also lead to places I am not sure I wish to be. I applaud, for example, the raising of admission standards and we elected to do so in advance of any mandate.

The change we here in Georgia face is, at once, formidable and timely. I left this state a quarter century ago after being one of the 48 per cent of all high school graduates in the late 1960s who went onto college. Today, slightly more than half of all high school seniors enroll in post secondary education. Not much progress, it seems.

I am very grateful for the undergraduate education I received here in Georgia, but experience and perspective tell me that that education was not as good as those received by my counterparts in many other states. I feel certain that my alma mater is producing far superior graduates today, but I am sure that that university and my college are not good enough.

"Just as important as money is the encouragement of innovation. The urgency with which some leaders and decision makers in Georgia view the state of public education is causing them to consider alternative ways of doing things."

I, for one, continue to hear complaints about the competence of American's college graduates wherever they come from. Being among the best when the best is deemed wanting is not good enough. And catching up to the rest when the rest remains ill-prepared for the world in which they will live and work is difficult but surely not what we should aspire to accomplish.

No, our challenge is far more formidable. We should aspire to do nothing less than to transform teaching, learning, and the ways we administer Georgia colleges and universities. If we want to maintain the pace of economic growth here and improve the quality of life for more Georgians, we should begin by asking ourselves what will be required for students to learn effectively and efficiently 5-10 years from today and then again thereafter for the rest of their lives. Their learning, not our teaching, must be our first and principal concern and we need to start now to bring about the changes needed to make even more productive learning happen.

Take heart, however. The task before is indeed a challenge and a formidable one at that, yes; but the timing could not be better. I discern a real change in the attitudes of public leaders here in Georgia. They know that the future of this state rests with the quality of its citizenry and its workforce and does not depend on ownership of natural resources *per se*. I hear concerns expressed about the quality of education in Georgia, but I also hear expressions of commitment to seeing to improvement.

No clearer indicator of this state's commitment to education and its improvement is available than the H.O.P.E. program. No state in the nation other than Georgia provides pre-kindergarten education for all four year-olds. No other state provides funds for the costs of tuition, fees, and books for any student who earns a B average. No other state is investing the equivalent of an additional 10 percent of its total annual budget in education.

Just as important as money is the encouragement of innovation. The urgency with which some leaders and decision makers in Georgia view the state of public education is causing them to consider alternative ways of doing things. Now, this is not and likely will not be license to experiment whole cloth: Georgia public education at all levels is not noted for *laissez faire* administration. Given a chance to become charter schools and be free of virtually all state rules and regulations, only three schools have done so thus far in Georgia and most observers consider the legislation that authorized charters to be more restrictive than those passed in other states.

Still, the time is ripe for some colleges and universities to break free of old habits and practices and to try and create new ways of teaching, yes, but more importantly, new ways for students to learn. My sense is that faculty are out there in our colleges and universities ready to experiment and to create. I believe that the leadership of this state will sanction and support experimentation and innovation. Students seem to me eager to experience alternative ways of learning. All of the elements are in place, now is the time to begin to change. •

Using Journal Writing to Teach, continued from Page 12

October 1957 (John)
School has been in session for about a month. Sister Mary Doris is a good 6th grade teacher here at St. John's School, in Pensacola, Florida. She told us that the Russians had placed a satellite, called Sputnik, into orbit. Could that mean that the Russians are better than us? That's all I hear on the news; my friends talk about it, and I hear adults talk about it. Sister Mary Doris says that we have to learn our math and science lessons well so that we can beat the Russians in the Space Race. I don't understand how a 6th grader can beat the Russians, but I better do as Sister Mary Doris says, or she'll paddle me for sure!

As illustrated above, becoming familiar with content is a purpose for using journal writing in the classroom. Research findings support this theory as Allen and Farnsworth (1993) showed that critical examination of text on family diversity enabled students to become more knowledgeable of the subject. In the same light, according to Reinertsen and Wells (1993), analyzing text in sociology courses through journal writing facilitated students' understanding of its content.

Using Journal Writing to Enhance Reflective Teaching and Learning

Examples of entries of student's journal writing show that journal writing links concrete and abstracts ideas, which involves critical thinking. Critical thinking includes recalling, analyzing, and evaluating ideas (Garside, 1994). Teacher educators have used journal writing to encourage students to critically examine their teaching styles and methods (Pultarak, 1993). Critically examining one's teaching methods is part of reflective teaching. Reflective teaching is defined in the *International Encyclopedia of Teaching and Teacher Education* (1995) as a construct that emphasizes the need for understanding and resolution of contradictions in order for teachers to develop professionally. It further states that a teacher is prompted to engage in reflective teaching when trying to determine the rationality and justification of ideas and actions in order to develop new understanding and appreciation of phenomena (p.178).

Journal writing is viewed as one way to promote reflection as students may use the data provided in daily records to search for patterns of meaning. In Dr. Linda Akanbi's graduate reading classes, students use journal writing to re-examine their beliefs about literacy instruction in their classrooms in view of new theoretical applications that are revealed in the course. Following are two journal excerpts which illustrate this:

The subjects which were argued in the debates (multiage grouping and ability grouping) are relevant to the teaching of reading. I feel that it is important to know the pros and cons of these subjects in order to form a solid opinion on one of the two sides. I need to be knowledgeable about such issues so that I can be a more effective teacher.

What I felt was most lacking in my knowledge/education was a theoretical base to understand how children read and write and how they learn to read and write. Our work with schema theory and its relation to reading and with the interactional model of the reading process, especially the image of working on many levels at once, does something to fill this gap. While I still don't feel that all the little things I know about teaching reading are tied together in a single system, these ideas seem central to that kind of organization. I trust that the development of such a system will help me both instruct and assess my students in ways that are difficult to measure or describe.

Two ways of using journals to enhance teaching and learning were presented in this article. However, there are many other ways to use journals in teaching. A teacher is only limited by his or her own creativity. Journal writing connects thinking, learning and reflection. •

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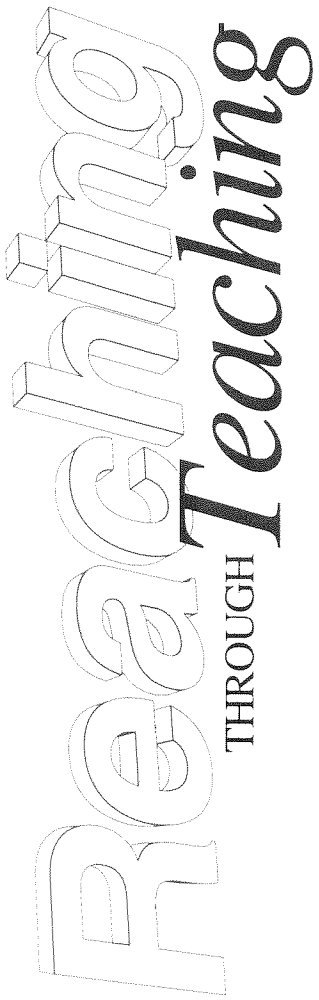

Teaching Calculus and PreCalculus, Continued from Page 7

for now, we should use chalk for teaching mathematics analytically in the classroom. However computers and professional mathematics software can significantly help us to teach mathematics geometrically and numerically. They can cut tedious, time consuming and repetitive steps between mathematical principles and results. Geometric figures, human beings—even well trained artists and mathematicians—have difficulty drawing geometric graphs on the blackboard accurately. Don't even talk about making three dimensional graphs move around on the board. We should take advantage of high technology and use computers extensively in our classrooms to make our teaching more effective. We should teach students to use computers creatively and positively. We must teach students more than just how to punch keys of calculators and computers or follow software menus. Otherwise, the ability of students will never be beyond the ceiling of existing technology. I believe this is one of the reasons that our institutions of higher learning are very different from job training centers.

I chose a powerful mathematics software, Matlab (matrix laboratory), to design my project. Matlab is a technical computing environment for high-performance numerical computation and visualization. Matlab features a family of application-specific solutions.

A software package that utilizes computer notebooks has been developed. The package consists of two major parts:

1. A software package of computer notebooks shows the general view and properties of elementary functions such as polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions. It will illustrate the domains, ranges, asymptotes, periods and other important properties of elementary functions so that students are able to review, compare and visualize them in a more intuitive way.
2. Computer graphics programs are used to show the applications of these elementary functions in the natural sciences and engineering. These computer notebooks demonstrate many examples of application of these functions in mathematics, physics, computer science, optics, wave propagation, electrical engineering and music. They provide good supplemental materials for mathematics teaching at the university and college level. These materials will give undergraduate students motivation and inspiration to study mathematics.

The distinguishing feature of this project is the graphic visualization of some abstract concepts. The presenter can use the package to demonstrate how it can animate mathematics and make teaching intuitive and efficient. The audience will see how computer technology affects our classroom teaching.

If our students learn Matlab here at our campus then they can use its toolboxes in their future professions (almost all science and engineering fields, finance and others.) This will help students to succeed in the job market driven by high technology and to pursue their professional development in graduate schools of the future.

Anybody who is interested in my software package should contact me for details. •

What I Did on My Summer Vacation, Continued from Page 21

dent exclaimed, "You mean you still have to take courses?" "Have to" was answered by "get to" and questions about "Who paid for the trip" and even "How do you use it" ensued. Spring also brought another opportunity to teach a more developed Western history course. Students now produce video clip presentations exploring movie images of Native Americans, the Overland Trail experience, and mining in the West, complete with analysis of whether the images match Turner or the new Western historians and why.

But the saga was not over. Just recently as I listened to a speaker in "The Year of the Olympics" series describe the Nazi orchestration of the 1936 Olympics my mind once again returned to the lecture in "Representations of the West" and Gramsky's theory of hegemonic control through the use of public events. From Wild West Shows to World Fairs, from the Atlanta History exhibit on African Americans at the Cotton States Exhibition to the Olympics, my experiences in New Mexico and Wyoming keep renewing a new and more scholarly interest in western and non-western areas of history alike.

So where did I go on my Faculty Development grant funded vacation, and who has accompanied me? From Santa Fe and Cody I have gone to the KSC classroom, to a NEH Summer Institute, to a Cobb County Faculty Development Day, to the Atlanta History Center, to a Cobb County high school classroom, and via Library 470, to the 1936 Olympics. Who has gone with me? KSC students in and out of the classroom. Cobb County teachers. Cobb County students. And perhaps most enriching of all, my mind and its growth. Thank you CETL for my 1994 "summer vacation." I hope I never stop traveling on the learning experience you provided me. (P.S., next stop Topeka, Kansas—unless I'm surprised again.). •

Reaching THROUGH Teaching

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Contributions from KSU faculty are solicited. Please submit articles to CETL on a 3.5" disk in WordPerfect. Preferred length of articles is 750 words. Deadline for the next issue is October 15, 1996. Giving guidance and vision to CETL is a Faculty Development Committee including the following members:

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