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# SUCCESS
# IN THE CLASSROOM:
# SHARING PRACTICES
# THAT WORK

## The Fourth Annual
## UNM Community
## Conference for Faculty
## by Faculty

**Abstracts listed alphabetically by frst author's last name; not all presenters provided an abstract**

**Office of Support for Effective Teaching (OSET)**

http://oset.unm.edu

**The Paperless Classroom**

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Teaching face-to-face can generate an enormous amount of paper, both coming and going!  Keeping track of that paper can be a challenge not only for the student, but also for the instructor.  After years of using WebCT quizzing (and about a year of using electronically graded homework), we decided to drastically reduce our paper consumption.  We moved to a paperless classroom for all but exams.  We were influenced by our publisher's pitch that its WebCT-compatible electronic resources (including quizzing and homework) helped students improve their understanding of the material, made them better prepared for tests, and helped them get a better grade.

To implement this project, all course materials were made available on WebCT, and all submissions (even for work in teams) went through WebCT.  Thus, students completed quizzes, submitted homework, and other assignments via WebCT.  Our hope was for greater accessibility and convenience (because all resources and evaluations could be accessed on demand), better quality submissions and evaluation, and reduced paper/ink consumption.

Once students fully understood the system, there were very few complaints.  A student survey confirmed that most (80%) students preferred the WebCT quizzes and electronically-graded online homework to alternatives including weekly in-class quizzes and periodic collection of paper homework.  Other data was consistent with the publisher's advertising claims.  At the same time, a survey revealed concern by some students that (1) accounting is better learned with paper and pencil, and (2) online exams would be better suited to a class that requires all other submissions online.

This presentation will discuss the reasoning behind moving to a paperless class, and how it met our objectives to (1) encourage students to become proficient in a paperless environment, (2) make the class more manageable by reducing the paper flow, and (3) improve student satisfaction.  The presentation concludes with discussion of modifications made to address instructor concerns about attendance and student concerns about exams.

# Teaching Students to Perform Biomedical Research Using a One-On-One Laboratory Approach.

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Teaching science to undergraduate students in a laboratory setting is extremely important in order for students to fully comprehend the concept of science and research. Often, things become clear once the students have experienced doing an experiment and truly discover whether they would like to pursue a career in science. However, there are few opportunities outside of the classroom for undergraduate students to experience this setting. Their training may be poor and their experience inadequate if the time spent in the lab is not well organized and planned. Additionally, training an undergraduate student in a laboratory is often time consuming and overwhelming for the scientist(s) involved. This work presents a science laboratory course model developed for students to be introduced to research in a laboratory in biomedical research. Assessment, learning techniques, and development of critical thinking techniques are described. The main goal of this project was to develop practical ways for science students to become self, lifelong-learners and critical thinkers of science as it applies to biomedical sciences research. Additionally, I will describe my experience implementing this course with a student during the summer of 2008. This work could be beneficial for future scientists interested in training undergraduate students and will provide a framework from which to organize their time in a more effective way. All the documents used including syllabus, recommended reading lists, and sample assessment tools will be available in electronic format for any person interested and could be easily modified to fit other fields.

**Keeping Students Engaged, (Awake) and Learning: Learner-Centered Techniques for Your Instructional Toolbox**

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This discussion presents an alternative to traditional lecture-only presentations and focuses on how to engage students (and keep them awake!) through the use of learner-centered activities. These techniques not only afford students opportunities for problem-solving applications (higher-order thinking vs. content thinking), but also provide the instructor with formative assessments of how well they are learning.

To begin filling participants' "instructional toolboxes," some of the techniques and exercises that are covered are:

Write-Pair-Share: students individually reflect on a question, then pair up with another classmate and share their thoughts. Finally, they share with the entire class. It's like sprinkling "magic discussion dust" over your students—everyone has something to say.

Minute Papers: written anonymously, these papers answer questions such as, "What was the muddiest point in class today?" Even when NO ONE asks questions in class, the questions will come tumbling out, like junk from a teenager's overstuffed closet, when put on paper. This is helpful for assessing which topics merit further elaboration.

Situated Cognition: creating assignments where the students "see themselves as" professionals in your academic discipline and solve content-related problems.

Problem-Solving through Collaborative Learning: students work in groups to solve problems that illustrate a concept. As each group works, the instructor listens in, guides and clarifies. When the groups report out to the class, the instructor tweaks where appropriate. This allows the students, too, to see where their understanding was either spot-on or incorrect.

When we engage students in active-learning activities, rather than traditional lecture-only formats, we provide an opportunity for students to apply concepts and construct knowledge, as well as obtain for ourselves valuable classroom assessment on how well the material is being understood.

Some of the above exercises and information taken from:

Angelo, T.A. and Cross, K.P. (1993) *Classroom Assessment Techniques: A Handbook for College Teachers* (2nd ed.): San Francisco, Jossey Bass

"Designing Courses for Effective Student Learning," a two-day institute, created and conducted by Dr. Gary Smith, Special Assistant to the Provost, Faculty Development, Office of Support for Effective Teaching, University of New Mexico.

**Lecture/Discussion as Dialogue**

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My presentation defends the lecture, albeit in modified form, as a viable means of university instruction.  While many criticize traditional lectures as an outmoded vestige of a largely bankrupt "banking system" of education in which students become passive receptacles, using a few simple strategies to promote active learning we can transform the lecture into a form of structured dialogue where students become engaged participants in the class.  These active-learning strategies not only can enhance student participation and enliven discussion, but also provide instructors with immediate feedback about their effectiveness.

Although the figure is disputed, educational researchers pin the average attention span for college-age learners at about fifteen minutes (seven to twenty-five is the range).  Yet, our students often endure lectures of fifty to seventy five minutes—sometimes with little more than a modicum of discussion.  In the interactive lecture, instructors break the lecture into shorter units and intersperse brief individual, paired, or small group activities and exercises throughout the class period.  In addition to in-class activities, pre- and post-class exercises that require students to discuss, analyze, evaluate, or problem solve can also increase students' retention and engagement with class materials and issues.

While drawing upon my own experience as a professor of literature for more than 25 years, much of the research on interactive lectures comes from the STEM fields, such as biology, physics, and medicine.  Using my large, sophomore-level lecture courses in world literature as a basis, I will give some examples of how mini assignments and paired or small group activities before, during and after class can enhance student learning, and I will cite some of the research that is out there on interactive lectures.  In particular, I'll talk about the advantages (and disadvantages) of weekly low-risk writing assignments, giving students study questions and collecting their responses before class, using paired or small group discussion or writing exercises during class, and conducting an ongoing dialogue with students both in class and in formal or informal responses to their written work outside of class.  Some of the strategies I will discuss can be found in the pedagogical literature under the headings of "think-pair-share," "write-pair-share," "Just in Time Teaching," "ConcepTests," and "Question of the Day."

I am particularly interested in having participants bring their own anecdotes and examples of strategies they have used to break up the traditional lecture with active learning exercises that work and/or ideas of how to get students to prepare effectively for, and to participate actively in, in-class discussion and dialogue, problem solving, and evaluation.  Active learning does take up class time, and proponents of interactive lectures argue that when faculty teach less, students learn more.  I hope to have time for participants to weigh in on that claim as well.

**It's All Right to Tell Them Why: Reader-Based Feedback Strategies for Written Projects**

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For almost 40 years I have been teaching writing at universities and colleges in the U.S. and overseas. During that time, my specialty has been professional and technical communication – a highly instrumental use of language. In professional communication, the writer's perception of the reader is central to the success of a message. From time to time, I teach Composition I: Exposition, and I am always struck by the degree to which novice writers are unaware of the nature and needs of their readers. As well, when students visit me seeking help with written assignments for other classes, again, the needs of the reader are often unclear in the assignment and usually unclear from the student's perspective. Throughout my career, I have focused on creating assignments in which students can clearly identify a purpose greater than a simple dialogue between them and their professor. Obviously, in professional communication developing students' perceptions of real readers is relatively easy. However, I submit that teachers in all disciplines can help students envision a broader audience for their writing and, thus, come to understand the concomitant need for elegant and accurate writing.

Objectives for writing assignments can include recall, analysis, synthesis, creative thinking, as well as a demonstration of compositional competence. However, too often the production of writing becomes a hasty task in which students address "answers" to what they perceive as a question from a professor, and the resulting writing is stripped of the framework that would make its message valuable to a broader audience. The feedback students receive often does not address the quality of their writing as if affects a reader. Our students will not always be in dialogue with professors. Indeed, we professors might consider ourselves unnatural audiences for the writing of professionals in a variety of fields. I have observed that students who write in response to "real" or broader audiences can better make the leap to valuing their writing as a means to transmit messages. While this realization comes more quickly in professional writing case studies, it can be reached, as well, in the prompts for other writing assignments. More important than the prompt, though is the feedback students receive.

A significant outcome for teachers is that they can respond to the writing through two sets of eyes. Their professorial eyes can check their students' demonstration of assignment objectives, and their broader reader's eyes can check the effectiveness of the transmission of the message inherent in an assignment. From a reader's point of view, teachers can give feedback about the impact of essay titles, the attraction of lead paragraphs and presentation of thesis statements, the organization and flow of the essay in respect to its rhetorical intent, and the effect of each writer's use of language. When we perceive that a student's linguistic production creates an obstacle to us as a reader, we can tell the student about the affect of that obstacle.

We owe it to our students to help them gain effective mastery of writing as well as mastery of their subject matter. If we comment on how well things work and tell them why things do not work in their writing, our students will come to a more concrete understanding that writing – even essays written as part of their course work – need to communicate ideas clearly and elegantly. Professors do not need to take on the task of writing teachers and offer critical linguistic analysis of writing issues. However, they can tell their students, "This is what this part of your writing means to me." When students receive real feedback on the effectiveness of their messages or the obstacles a reader might encounter, they begin to own their writing.

In this short presentation, participants will have a chance to engage these ideas and share their perspectives about how to increase the value of writing assignments and feedback.

## A Hands-On Approach to Teaching Research Methods (with Web-CT, Listserv, and Students' Laptops in the Classroom)

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All too often, we teach research methods classes as lecture courses covering a huge lexicon of difficult terms and concepts the definitions for which students must memorize and regurgitate on multiple choice exams. Although my methods courses have always included several exercises and weekly lab groups and emphasized application over memorization, students nonetheless struggled with the material and complained that the class involved "too much work."   Some students also found the text book difficult to understand.

Workshop.  After attending the OSET Course Design Institute in May 2007, I transformed my 20- person "Introduction to Social Research Methods" course (Soc. 280) into a workshop rather than a lecture course. (Lectures are now limited to 20-30 minute mini-lectures explaining key concepts. Notes are posted to Web-CT.) After the class selects a topic, I lead students through two class-designed studies of that topic using contrasting methods (observations or ethnographic interviews vs. self administered questionnaires).  I use Web-CT to post: 1) a class-created library of PDF files for journal articles on our topic, 2) assignment guidelines, 3) data entry forms, and 4) grades. We use a listserv for announcements, general communication, and sending attachments. When we are ready to create our survey data set, students bring personal laptops into the classroom and work in groups to code the questionnaires and enter data onto an Excel worksheet.

Live Data Analysis. I then create a SPSS data set from the Excel file and illustrate live in class: data cleaning and frequency distributions as well as bivariate and trivariate crosstabs using our own data. Students are much more interested in learning the results of a study they helped to design and carry out than previous students have been in learning about studies done by others.

Exams and Evaluations. All exams are in essay form, but I do give 4-6 short- answer quizzes on Web-CT just to see if people are doing the reading and mastering central concepts. Although I have not yet received my Fall 08, evaluations, the majority of students reported orally that they much preferred this hands-on approach to learning research methods to a lecture & multiple-choice test based class.  They say that they learn better this way.

Class Size:  Could I teach the course as a workshop if I had 40 rather than 20 students? I don't know, but 40 is the class size limit, so I may find out.

# Knowledge Structure Analysis and Error Analysis of Introductory Algebra Problem-Solving as Sources of Feedback to Students

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Knowledge structure analysis (Polya, 2004) and error pattern analysis (Martinez, 1990, 1986) of introductory algebra problem-solving can become sources of feedback for student improvement. Historically, one approach to helping students find and overcome errors while problem solving in mathematics is a three-step model for teachers: learn and understand the conceptual/structural knowledge of a domain of interest; understanding the nature of student error patterns across that domain; and thirdly, learning how to develop preventative and corrective measures of student errors.

This three-part model is characterized as a knowledge structure since a certain amount of concept knowledge and process knowledge make up knowledge structures. Process knowledge is similar to procedural knowledge developed in *Principles and Standards for School Mathematics* (2000) and applied in recent publications (Stump et al., 2009, p. 262). The second part of the model involves understanding the nature of student errors. Student errors often follow familiar patterns. The third aspect of the model involves learning how to develop preventative and corrective measures for student errors.

Two algebra problems and the performance of three different students on these problems were the focus of this exploratory study. The first problem asked students to factor $y^2 - y - 2$ while the second problem required students to solve for x, $\dfrac{a}{x} = \dfrac{a+b}{c}$ .

In the factoring problem potential hazards exist whenever the problem contains a number of minus signs. Sure enough, all three students had problems multiplying integers and variables with negative signs. With the second problem, be alert anytime the variable you're solving for is in the denominator of a fraction with double terms in another fraction's numerator. Lots of potential pitfalls here; and our three students fell into several of them.

Corrective measures include but are not limited to exposing students to many and varied problems in which they are conceptually and computationally challenged.

Martinez, Joseph G. R. (1990). "Knowledge representation and transfer in introductory algebra." Paper presented at the annual meeting of the New Mexico College Reading and Learning Association, Las Cruces, November.

Martinez, Joseph G. R. (1986). "The structure of algebra: Its forms and functions." Paper presented at the annual meeting of the Rocky Mountain Educational Research Association, Albuquerque.

National Council of Teachers of Mathematics (2000). *Principles and standards for sschool mathematics.* Reston, VA: NCTM.

Polya, G. (2004). *How to solve it: A new aspect of mathematical method.* New Jersey: Princeton University Press.

Stump, S., Clark, S. E., Mitchell, M., & Roebuck (2009). "Supporting mathematics in other subject areas." In *Mathematics Teaching in the Middle School, 14* (5): 260-266.

# Maintaining Standards without Limiting Access: A Model for Success in the Multicultural Writing Classroom

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The University needs students to write and communicate effectively. At the same time, students need writing classes that recognize and respond to diverse educational and cultural backgrounds. Too often these needs are seen as disparate; addressing one, it is assumed, necessitates neglecting the other. What we need is a model for teaching writing that maintains standards without limiting student access. A key element of such a model is flexibility, including multiple approaches to learning goals, multiple means of assessment, and multiple strategies for engaging students and responding to different learning styles.

The principles of Universal Design provide the foundation for an effective instructional model that accommodates students without compromising course objectives or assessment standards. Pioneered by architects in the 1980s, Universal Design emphasizes creating "environments and tools that are usable by as many people as possible? (CAST, 2009, p. 2). Applications to education adapt the basic concepts with Universal Design for Learning (UDL) and Universal Design of Instruction (UDI) (CAST, 2009; Burgstahler, 2004).

Seven key principles form the foundation for these applications: 1. equitable use, 2. flexibility in use, 3. simple and intuitive use, 4. perceptible information, 5. tolerance for error, 6. efficiency, and 7.learning environments matched to approach and use (adapted from Burgstahler, 2009).

In the writing classroom specifically, the Universal Design model brings flexibility to both instruction and student learning. Some effective instructional strategies include high-interest activities that engage students at different levels, "success" activities that minimize risk and maximize student effort, both real-life and imaginative contexts for work, and multiple points of access to learning in general and to individual tasks (Jenner & Culwell, 2008, p. 10). In addition, flexibility can be added to the learning process by adopting a key concept from B. F. Skinner: it is not the length of the process but the quality of the outcome that matters. For example, a mastery-learning approach to writing assignments allows students to revise assignments for an outcome that meets standards and also for a higher grade.

Overall the Universal Design model broadens the "what," "why," and "how" of learning without changing objectives or performance standards. It can assist us as educators to "reduce barriers to learning and provide robust learning supports to meet the needs of *all* learners" (CAST, 2009, p. 2).

References:
Bergstahler, S. (2009). *Equal access: Universal Design of Instruction*. Retrieved January 31, 2009, from http://www.washington.edu/doit/Brochures/Academics?equal_access_udi.html.

_____. (2004). *Universal Design of Instruction.* Retrieved January 31, 2009, from http://www.washington.edu/doit/Faculty/Strategies/Universal.

Center for Applied Special Technology (CAST). (2009). *Universal Design for Learning (UDL) guidelines.* Retrieved January 31, 2009, from http://www.cast.org/publications/UDLguidelines.

Jenner, C. & Culwell, C. (2008). *Universal Design for Learning in community and technical colleges.* Retrieved January 31, 2009, from http://webs.rtc.edu/ii/DSDP%20Grant.

# Introduction of Team-based Learning into a Traditional Lecture/Problem-Based Course in Gross Anatomy, Histology and Embryology for First Year Medical Students

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**Background**: Human Structure, Function and Development (HSF&D), the first 10-week block for medical and physician assistant students at the University of New Mexico School of Medicine, changed its lecture and problem-based learning (PBL) format to include a modified Team-based Learning (TBL) component, the deletion of a significant number of lecture hours, and a modification of PBL sessions.

**Purpose**: To determine if a modified TBL approach could be integrated into a traditional lecture/PBL course and how it would affect student learning.

**Methods**: The success of the HSF&D integrated TBL course was assessed by analyzing student and faculty course evaluation data, comparison of year-to-year exam performance, and analysis of student paired responses to the Approaches to Learning and Studying Inventory (ALSI).

**Results**: Students indicated strong support for the TBL method. Students' mean exam scores were equivalent to those of students in previous years. Student performance on TBL focused topics in exams was significantly better than those learned through lectures. ALSI data suggest that students exposed to TBL demonstrate significantly greater effort and organization in their studying, and do not exhibit increased memorization and reduced integration when compared with earlier cohorts at similar points in time. Feedback from students and faculty regarding the integration of TBL with PBL indicated significant challenges with this approach.

**Conclusions**: TBL appears to be an effective approach to learning in a medical gross anatomy, histology and embryology course, however changes in the traditional PBL format necessary to accommodate TBL were not as successful.

**Making Essay Exams Work for Learning and Assessment**

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The Problem

Instructors at UNM and elsewhere understand that essay exams can be a valuable tool for assessing learning, especially for higher-order thinking. They may also believe (as I do) that essay exams can be a powerful tool for learning itself, for the process of mastering the course goals. However, these professors may feel that their students do not have the skills to perform adequately on essay-based exams, especially when their questions require higher-order think, such as applying the course content and concepts to new situations, analyzing it, synthesizing it, or evaluating it. They may also feel that grading such exams is too subjective, time-consuming, or demoralizing.

Purpose and Main Point

I aim to supply and explore with you some ideas for making essay exams work for your classes, whether they are 100-level or doctorate level. I hope you will leave this workshop with specific strategies that you can use right away and in the future. I hope to show you how making the essay exam more central to the course and involving students along the way can lead to greater engagement and understanding by students. When students are part of the process, they understand how to prepare for and respond to essay-exam questions. In short, they are more engaged and they learn more.

Process

I won't just talk at you. We'll make time for you to consider your own courses and share ideas. To do this, I'll give you a well-constructed handout that you can use as a resource in the future. We will take some time at the beginning for you to consider and write down the goals and outcomes you want to address with your essay exams (so you may want to bring an assignment and/or syllabus with you). We'll also take some time along the way so that you can begin adapting the strategies for your own teaching style. Here's a rundown of some of the strategies we'll examine:

- promoting students' engagement by making the essay exam more central to the life of the course by Involving students in the entire process,
- helping students—and their possible tutors—understand and develop what for your course counts as a good response to your essay-exam prompts,
- partnering with CAPS's writing center and supplemental-instruction programs,
- making your grading faster, more shareable, more "tutor-able," less subjective, and more transparent by using scoring rubrics, models, and other strategies.

# Using Knowledge Surveys to Assess Student Learning Gains and Instruction

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A knowledge survey is an easily used device for indirect assessment of student learning. The survey consists of a series of questions related to course content and desired outcomes that is completed by students at the beginning and the end of the course. The essential element of a knowledge survey is that students are not instructed to answer the questions. Instead, students indicate their level of confidence in answering the question by providing one of three responses:

> Mark "3" as a response ONLY if you feel confident that you can now answer the question sufficiently for graded test purposes.

> Mark "2" as a response to the question if you have significant partial knowledge but would not be completely satisfied with using that knowledge for a final response on a graded test at this time.

> Mark "1" as a response to the question if you have little or no knowledge of this subject and, therefore, are not confident that you could adequately answer the question for graded test purposes at this time.

More complete explanations of knowledge surveys, including reliability and examples of use for outcomes assessment and course revision, are provided in the sources cited below. Knowledge surveys were originally developed by geosciences faculty but are now used widely across disciplines and have been incorporated into institutional outcomes assessment plans.

In Fall 2007 and Fall 2008, I administered a knowledge survey as a pre and post test in Earth History (EPS201L). The survey consists of 39 questions, each representing an important content outcome for a single class session. Measures of reliability include nearly identical pre-test scores in both classes, a split-halves regression coefficient of 0.92, and a Cronbach's alpha of 0.93. In addition, the post-test scores show almost identical variations in learning-gain confidence in both classes, which were taught without any significant change from 2007 to 2008. The collected data provide at-a-glance measures of learning that identify specific topics where more effective instructional strategies are suggested. The data also reveal that student confidence in the pre-test depends strongly on which of two prerequisite tracks were taken to reach EPS 201L. However, these differences are erased by instruction, as indicated by virtually identical post-test results.

This experience is consistent with published results at other institutions and supports the use of knowledge surveys as an easily deployed device for assessing learning and revising instruction. Although not a direct measure of student learning, aggregate course data are consistent with direct assessment and can provide more holistic views of instruction and learning when year-to-year direct assessment of learning may focus on only one or two outcomes. In addition, the pre-test provides an effective introduction to the course for students and the post-test develops student curiosity in gauging their own learning.

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Key sources about knowledge surveys:

Nuhfer, E.B., 1996, The place of formative evaluations in assessment and ways to reap their benefits: *Journal of Geoscience Education*, v. 44, p. 385-394.

Nuhfer, E.B., and Knipp, D., 2003, The knowledge survey: A tool for all reasons: *To Improve the Academy*, v. 21, p. 59-78. (http://www.isu.edu/ctl/facultydev/KnowS_files/KnowS.htm)

Wirth, K.R., and Perkins, D., 2006, "Knowledge Surveys: An Indispensable Course Design and Assessment Tool," presentation at *Innovations in the Scholarship of Teaching and Learning at Liberal Arts Colleges*. (http://www.macalester.edu/geology/wirth/WirthPerkinsKS.pdf)

**Avoiding Death by PowerPoint: Are your bullet points lethal to student learning?**

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Although PowerPoint can be a powerful teaching tool, it has been soundly criticized for producing boring presentations, full of endless content that fails to show context and relationships between ideas. This tendency of PowerPoint obviously works against what we as instructors should strive for: stimulating our students to connect ideas and engage in critical thinking. In *Beautiful Evidence,* Edward Tufte's provides a metaphor to show the dangers of PowerPoint, stating, "The pushy PP style tends to set up a dominance relationship between speaker and audience, as the speaker makes power points with hierarchical bullets to passive followers." Tufte encourages us to avoid making our students hostages to our presentations.

This presentation will provide you with an alternative method of creating slides that moves beyond bullet points, freeing your students to engage critically with the ideas you present and retain what they learn. We will discuss the ideas of Edward Tufte, Michael Alley, and Kathryn Neeley that suggest we should first consider our student's needs and then create slides that provide statements that challenge our students to think and visual presentations that stimulate our students to make connections between concepts.

After discussing the theory behind this method and examining examples, we will work together to create a slide that exemplifies this method so you will have a working knowledge of how to create effective slides in the future.

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Alley, Michael and Kathryn Neeley. "Rethinking the Design of Presentation Slides: A case for Sentence Headlines and Visual Evidence." *Technical Commuication.* Volume 52: Number 4. November 2005. pp. 417-426.

Tufte, Edward. *Beautiful Evidence.* Cheshire, Conn: Graphics Press. 2006

Tufte, Edward. "PowerPoint Is Evil" Wired Online Magazine. Accessed 16 August, 2007. http://www.wired.com/wired/archive/11.09/ppt2.html

**Working with Students Who are Visually Impaired in Large Introductory Science Classes – A Case Study in Environmental Science**

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Over the past year, five students who are visually-impaired took the Blue Planet (ENVS 101) class.  In order to provide the environment for these students to succeed, we hired a sighted tutor, developed text-only materials for lecture notes, provided descriptions of images in the text, and provided in-class activities and exercises in formats that could be used by the students during class.  Working with Accessibility Services, we were also able to translate images into textured figures (PIAFs), and the sighted tutor was able to explain many of the concepts using these figures.  Our tutor also used tactile objects such as food, to enhance the students' understanding of concepts.  Though much more could have been done, and may be developed for the future, the students were able to successfully complete this course. The students and tutor participate in the presentation.

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# Seven Principles for Good Practice in Undergraduate Education

## Good practice in undergraduate education:

### 1. Encourages Contact Between Students and Faculty

Frequent student-faculty contact in and out of classes is the most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working. Knowing a few faculty members well enhances students' intellectual commitment and encourages them to think about their own values and future plans.

### 2. Develops Reciprocity and Cooperation Among Students

Learning is enhanced when it is more like a team effort that a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning. Sharing one's own ideas and responding to others' reactions sharpens thinking and deepens understanding.

### 3. Encourages Active Learning

Learning is not a spectator sport. Students do not learn much just by sitting in classes listening to teachers, memorizing pre-packaged assignments, and spitting out answers. They must talk about what they are learning, write about it, relate it to past experiences and apply it to their daily lives. They must make what they learn part of themselves.

### 4. Gives Prompt Feedback

Knowing what you know and don't know focuses learning. Students need appropriate feedback on performance to benefit from courses. When getting started, students need help in assessing existing knowledge and competence. In classes, students need frequent opportunities to perform and receive suggestions for improvement. At various points during college, and at the end, students need chances to reflect on what they have learned, what they still need to know, and how to assess themselves.

### 5. Emphasizes Time on Task

Time plus energy equals learning. There is no substitute for time on task. Learning to use one's time well is critical for students and professionals alike. Students need help in learning effective time management. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty. How an institution defines time expectations for students, faculty, administrators, and other professional staff can establish the basis of high performance for all.

### 6. Communicates High Expectations

Expect more and you will get more. High expectations are important for everyone -- for the poorly prepared, for those unwilling to exert themselves, and for the bright and well motivated. Expecting students to perform well becomes a self-fulfilling prophecy when teachers and institutions hold high expectations for themselves and make extra efforts.

### 7. Respects Diverse Talents and Ways of Learning

There are many roads to learning. People bring different talents and styles of learning to college. Brilliant students in the seminar room may be all thumbs in the lab or art studio. Students rich in hands-on experience may not do so well with theory. Students need the opportunity to show their talents and learn in ways that work for them. Then they can be pushed to learn in new ways that do not come so easily.

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Freshman Learning Communities

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**Faculty proposals to teach Freshman Seminars
in the fall Freshman Learning Communities**
are invited on November 1 each year, and are due on December 1 each year.
For more information Contact:
Joel Nossoff, Director, Freshman Learning Communities
505-277-6518    jnossoff@unm.edu

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Office of Support for Effective Teaching

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