Teaching of Psychology:
Ideas and Innovations

Sponsored by: Farmingdale State University

Proceedings of the 18th Annual Conference on Undergraduate Teaching of Psychology

March 24–26, 2004

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Introduction

The 18th Annual Conference on Undergraduate Teaching of Psychology was held on March 24—26, 2004 at Kutsher's Country Club in Monticello, NY. The conference was sponsored by the Psychology Department of the Farmingdale State University.

The conference featured three keynote speakers—Dr. Douglas Bernstein, sponsored by Houghton Mifflin Publishing Company, Dr. Jonathan Gibralter, President of Farmingdale State University of New York, and Dr. Joseph Palladino, sponsored by Prentice Hall Publishing Company. Participants also had 36 presentations from which to choose, an array of publishers' displays to visit, and many colleagues, old and new, with whom to network. Sixteen of these presentations are included in these proceedings.

The success of the conference was due to the continuing efforts of many people. The conference committee was expertly chaired by Dr. Gene Indenbaum who had the assistance of Dr. Judith Levine, Dr. Marilyn Blumenthal, and Ms. Barbara Sarringer. We would also like to extend our thanks to Houghton Mifflin and Prentice Hall for arranging for the keynote speakers to join us.

PROGRAM

Wednesday, March 24, 2004

REGISTRATION: 2:00-2:30 p.m.

SESSION 1 2:30 - 3:30 p.m.

RM 1 ORAL PRESENTATIONS

The Future Therapist: Preparing Undergraduate Students for Graduate Clinical Training
Emmanuel Akillas, Kutztown University, PA

Undergraduate clinical courses are often limited in scope and do not prepare students adequately for graduate clinical training. Several teaching methods such as, role-playing, simulated supervisory sessions, and mentor relationships with graduate students are presented and their merit is discussed.

Teaching with Technology: Simulating Clinical Case Management
Peter J. Behrens*, Penn State Lehigh Valley, PA

A course management system, ANGEL, presents clinical cases and exercises in PSY 412 Abnormal Psychology. Students read case profiles and arrive at clinical diagnoses and treatment plans according to DSM. As with real-life case managements, students have the opportunity to talk among themselves and with the instructor on the Web over a period of several days at any time of the day. A second component of ANGEL checks student knowledge through a series of exercises. Students read descriptions of disorders and answer a series of questions. ANGEL allows students several opportunities to master each topic at 100% correct responses.

Note: The ***** indicates the session chairperson.

RM 2 WORKSHOP

An Exercise to Improve the Recall of Memory Functioning in College Students
Ilyse H. O'Desky, Kean University, NJ

In order to teach the concepts associated with learning and memory, this in-class activity has been used successfully in undergraduate and graduate classes at a northeastern university. This activity involves the administration of a list of 16 words following standard administration procedures used in many neuropsychological assessments. By using this activity, the concepts of primacy effect, recency effect, learning curve, short-term memory, long-term memory, proactive interference and retroactive interference are clearly demonstrated to the student. This activity has been used successfully for nine years to demonstrate in-vivo the complicated concepts associated with learning and memory.

SESSION 2 3:45 – 4:45 p.m.

RM 1 PANEL

Teaching Research Methods Programmatically
Jeffrey I. Kassinove, David B. Strohmetz, & Gary Lewandowski, Jr.,
Monmouth University, NJ

One of the challenges in any psychology major is to infuse the curriculum with a coherent discussion of research methodology such that students who graduate with a degree in psychology have developed a rich understanding of the methodologies underlying psychological findings. We have been actively involved in the development and maintenance of a sequence of courses that presents research methods in a programmatic fashion. This panel discussion describes each course, the intended goals and objectives, and the strengths and weaknesses of the sequence.

RM 2 ORAL PRESENTATIONS

"Chunk-a-phile" Hunter: Looking for Chunks in All the Right Places
Stephen A. Wurst, SUNY-Oswego, NY

Chunking is the active process in which a person groups individual items into meaningful units. The examples of chunking used in most introductory textbooks, however, do not reflect the recent emergence of new chunks. I will highlight how an instructor can tailor chunking examples for classroom demonstrations by being vigilant of these chunks in everyday life. In this way, an instructor can find new chunks in areas such as text messaging/chat, new products and companies, media, and the news. Data on the recognizability of the new chunks will also be presented.

Note: The ***** indicates the session chairperson.

Textbook Plagiarism in Psy 101 General Psychology: Incidence and Prevention

J. Stephen Mansfield*, Plattsburgh State University of New York, NY

I have used a computer-based plagiarism analysis to scan homeworks for phrases that General Psychology students have copied directly from the class textbook. Analysis of 4836 assignments from 176 students reveals: a) a high rate of plagiarism: 50% of assignments contain a text string 50 characters (i.e., approximately 10 words) or longer that is copied from the textbook, b) students who plagiarize on one assignment tend to also plagiarize on other assignments, c) without plagiarism feedback, the rate of plagiarism tends to increase during a semester, and d) plagiarism feedback reduces the incidence of plagiarism.

Note: The ***** indicates the session chairperson.

Wednesday, March 24, 2004

Reception: 6:00 - 7:00 p.m.

Dinner: 7:00 p.m.

Invited Address:
Dr. Douglas Bernstein

"If I'd Only Known: Ten Important Things No One Told Me About Teaching"

Speaker and Reception Courtesy of Houghton Mifflin

After Dinner: Hospitality Room

Thursday, March 25, 2004

BREAKFAST: 7:30 – 9:00 a.m.

SESSION 3 9:00 - 10:30 a.m.

RM 1 ORAL PRESENTATIONS

Cognitive Intervention and Content Analysis of Students' Encouraging and Discouraging Self-Statements
Carol Campbell, Diana Loaiza, & Teresa King, C.W. Post Campus of Long Island University, NY

Fifteen undergraduates in a summer Psychological Statistics course rated frequency (scale: 1-10) of encouraging and discouraging statistics self-statements. Students could then read/think positive *personal* or *professor* self-statements from a standard menu or not. Two-thirds made more discouraging than encouraging self-statements across 16 sessions (means of 5.75 versus 4.95) All showed a use preference for *personal* over *professor* self-statements (mean read of 4.39 versus thinks of 2.90). While reading and thinking positive self-statements did not change the ratio of discouraging to encouraging ratings overall, 10 of the 15 students increased encouraging statements and decreased discouraging statements.

Team Testing and Anxiety: An Approach to Improve Student Learning
Ilyse H. O'Desky, Kean University, NJ & Kathleen Torsney, William Paterson University, NJ

Several studies have demonstrated that test anxiety impairs test performance and that interventions to assist students in managing test anxiety are vital to the accurate assessment of students. Although researchers have investigated the impact of collaborative testing on test anxiety and student comprehension, no studies have measured test anxiety before each test. This project compared the test anxiety and performance of students in two sections of a psychology of learning class employing individual and collaborative testing procedures. Initial results indicate improved performance and decreased anxiety among persons taking the test collaboratively. We will discuss implications for teaching and course development.

Note: The ***** indicates the session chairperson.

Test-Retest-Repeat: Study Habits and Test Performance
Robert A. Dushay*, Morrisville State College, NY

Student study habits are often obstacles to their success: they use poor strategies and spend too little time doing it. Dushay (2002) found that students who were permitted to retake tests after extra studying did improve their grades and were able to sustain this improvement for the rest of the semester, but student test scores were not correlated with time spent studying. In this follow-up study, I will examine the relationship between specific types of studying and test performance, and also compare the effects of two extra credit incentives (retaking tests and additional writing assignments) on studying behavior.

RM 2 ORAL PRESENTATIONS

Learning Styles, Laptop Computers and You
Jamie Efaw and Jennifer Swift, United States Military Academy, NY

In this presentation, we will share research on student learning styles and personality as it relates to preference for or against using laptop computers in the classroom. Past studies have indicated that classes that utilized the laptop technology in the classroom have higher scores on graded assignments than those who do not. Despite this finding, some students still choose not to use their laptops in the classroom-specifically in the realm of note-taking. Presenters will share the results of several hundred student surveys and interviews that highlight the correlations between learning style, personality types and preference for using laptop computers.

Cognitive Apprenticeship and Hybrid Learning in Teaching Introductory Psychology
John Mitterer & Kathy Belicki, Brock University, Ontario, Canada

In this presentation, we explore the concepts of cognitive apprenticeship and hybrid learning. We then go on to theoretically motivate and demonstrate four major aspects of the cognitive apprenticeship based hybrid-learning environment we have created in our introductory psychology course at Brock University. Our goal is to more fully introduce our students to the process of DOING psychology. First, we discuss our theory and practice of using technology to support medica-rich lecture presentations. Second, we introduce our design for using computer-based communications technologies to foster a collaborative course environment. Third, we discuss and demonstrate our use of technology to foster cognitive apprenticeship in scientific writing. Fourth, we demonstrate our use of technology to help provide richer, interactive experiences of research methods in psychology. We close this presentation with a discussion of our plans for the future of hybrid learning in introductory psychology.

Note: The ***** indicates the session chairperson.

Taming the Machine: Using PowerPoint Effectively in Large Lecture Classes
Celia Reaves,* Monroe Community College, NY

More and more teachers are using PowerPoint and similar presentation systems in their classrooms, primarily in large lecture courses, with sometimes mixed results. I will illustrate one way to make the transition to PowerPoint successful. Included will be hints for designing effective PowerPoint presentations, one best way of providing auxiliary materials such as notes, and making materials available to students outside of class, as well as evidence that the transition was successful in this case.

RM 3 ORAL PRESENTATIONS

On Being Respected or Liked: Principled Centered Teaching
Michelle Marks Merwin, University of Tennessee At Martin, TN

The purpose of this presentation is to foster discussion about teaching principles and to stimulate others to derive and articulate principles of their own. I explore how teachers can examine teacher-student interactions in order to derive fundamental teaching principles. Examining teacher-student interactions and their subsequent principles is beneficial. Quick decisions can be made and habits can be formed when they are derived from principles. Additionally, exploring principles may help teachers clarify their teaching philosophy. Exploring principles intellectually often removes emotionality from the situation and aids in more objective examination. Several principles and their derivations are explored.

Development of and Student Reactions to a Seminar in Positive Psychology
Patrick J. Barlow, Gannon University, PA

The growth of positive psychology has led to greater interest in how to share the insights of this research within the traditional undergraduate curriculum. Positive Psychology, as a recent re-focusing of the discipline, currently provides few texts or syllabi to aid instructors in course planning (Seligman, 2003). One effort in developing a seminar in positive psychology is highlighted, including a discussion of the selection of useful readings and learning activities. The seminar was conducted during the spring semester with student reactions ($n = 13$) to the material collected at the end of the course. Analyses of the student ratings indicate that the five course objectives were met (overall mean = 6.22, SD = 4.7) on a Likert-scale from 1 (not achieved) to 7 (fully achieved). Other qualitative feedback indicated that the discussion-oriented seminar appeared to be a good pedagogical approach and a course in this area should be offered in the future.

Note: The ***** indicates the session chairperson.

The Impact of Learning Communities on First Year Psychology Majors
Emily G. Soltano*, Christine Adams, & Andrea Wamboldt, Worcester State College, MA

Colleges strive to increase the retention of students for the duration of their college education. Currently, Worcester State College has implemented learning communities for all entering freshmen. Freshmen Psychology majors are all part of the learning communities in which they take three courses together: a freshmen experience course, English Composition, and General Psychology I. Data regarding student and faculty experiences, satisfaction and success with the program will be presented. Modifications of the program will be discussed.

SESSION 4 10:30 – 11:30 a.m.

PUBLISHERS' DISPLAYS AND COFFEE

SESSION 5 11:30 – 1:00 p.m.

RM 1 ORAL PRESENTATIONS

Sending Students into the World Wide Web: Web Review Project
Ann Calhoun-Sauls, Belmont Abbey College, NC

The initial version of an assignment in which students wrote a series of brief papers reviewing web sites on various topics of interest relevant to developmental psychology fell short of its goal of facilitating information literacy and critical thinking skills. The assignment has been revised to a term project in which students evaluate several related web sites as well as textbooks and journal articles addressing the same topic. In the current form, the assignment not only better meets the initial goal of increasing information literacy and critical thinking, but enhances information fluency.

Note: The ***** indicates the session chairperson.

Using the CRAFT of Teaching to Inspire Students Beyond Psychology
Eric J. Weis, Scott Hampton*, & Toya Davis, United States Military Academy, NY

The purpose of this presentation is to share innovative teaching techniques based on the mnemonic CRAFT (Creative, Realistic, Available, Feedback, and Technologically Astute) and its impact on student performance, attitudes and perceived application in the future. These techniques were developed and implemented by instructors in an Introductory Psychology course for 630 college freshmen at West Point during the Fall, 2003 academic year. We will demonstrate aspects of CRAFT during the discussion and share student responses and results of this method.

RM 2 ORAL PRESENTATIONS

Teaching Learning Lab: Fruit Flies, Rats, and Humans. Oh My!
Laura L. Phelan & Dawn R. Rager, St John Fisher College, NY

Our department offers four upper-level laboratory courses designed to provide undergraduates with direct experience in conducting psychological research in four areas (Developmental, Social, Cognitive, and Learning). We will focus on the Learning Lab course, which we have taught using several different experimental methodologies. Specifically, we have taught the Learning Lab course using two different non-human animal paradigms designed for studying learning in rats and fruit flies as well as paradigms designed for studying learning in human participants. We will discuss examples of studies involving these different paradigms and their respective advantages and disadvantages with regard to undergraduate education in psychology.

An Undergraduate Course in the Psychology of Humor and Laughter
David J. Bennett, North Park University, IL and Geoffrey F.W. Turner*, Simmons College, IL

We reflect on seven years of teaching a course on the Psychology of Humor & Laughter. Issues of design and topic selection are discussed as are special considerations for such a course. Also discussed is the value of such a course as an opportunity for psychology majors to apply knowledge gleaned from other courses in the major as well as the value of differing perspectives from students majoring in other disciplines.

Note: The ***** indicates the session chairperson.

RM 3 ORAL PRESENTATIONS

Graphing Psychology: A Psychology "Top Ten" List
Jeffrey S. Nevid & Nicholas Forlenza, St. John's University, NY

David Letterman has his "top ten" lists and psychologists have theirs. We offer a top-ten list of the most widely used graphs and diagrams in introductory psychology texts. An analysis of the most frequently occurring graphs and diagrams offers a snapshot of the types of quantitative relationships that textbook authors believe should comprise the student's first encounter with psychology.

The Immediate Feedback Assessment Technique: An Innovation in Multiple-choice Testing
David DiBattista*, Brock University, Ontario, Canada

The Immediate Feedback Assessment Technique (IFAT) is a commercially available answer form for multiple-choice testing that uses an answer-until-correct format and provides immediate item-by-item feedback. Research has shown not only that students strongly prefer the IFAT over traditional answer forms, but also that they learn more with the IFAT. However, instructors using the IFAT for the first time may encounter challenges they had not anticipated. I will share my experiences using the IFAT over the past several years and will provide tips that may be of value to instructors who are thinking of trying the IFAT with their classes.

Note: The ***** indicates the session chairperson.

Thursday, March 25, 2004

Lunch: 1:00 - 3:00 p.m.

Invited Address:
Dr. Jonathan Gibralter
President
Farmingdale State University

Speaker Courtesy of

Farmingdale State University

SESSION 6 3:15 - 4:15 p.m.

RM 1 ROUNDTABLE DISCUSSION

The Use of E-Learning in Teaching Psychological Testing and Developmental Psychology
William Van Ornum, James Regan, Kristine Austin, Kyle Brown, Rob Egan, Sara Giglio, & Jessica Kirk, Marist College, NY

Although the Internet and e-Learning have become common tools for many teachers, and especially for contemporary college students who have been raised on this technology, many psychology teachers are just beginning to participate in e-Learning, or they contemplate it for the future. This roundtable discussion, by two psychology teachers and five of their students, examines how e-Learning was used in courses of Psychological Testing and Developmental Psychology, and looks at how an e-Learning platform (U Compass) was used to upload syllabi and course material, guide discussion groups and chatroom sessions, and integrate live class meetings with other aspects of the courses.

RM 2 ORAL PRESENTATIONS

Lifespan Survey: A Multi-Course Data-Collection Exercise
Laurette T. Morris, SUNY College at Old Westbury, NY

The LIFESPAN SURVEY started out an exercise in my Adulthood and Aging course with two purposes: 1) to give students a taste of the research process, and 2) to illustrate differences between young, middle, and late adulthood. The survey is now also used in additional courses, with children and teenagers as subjects also. Class time is allotted for students to present their results, with some items tending to produce different responses as a function of developmental stage, while other items produce similar responses despite differences in age. Results that students and myself find illuminating (and sometimes amusing) will be presented.

Note: The ***** indicates the session chairperson

Student Knowledge and Attitudes Regarding Aging
Esther Loring Crispi* & Stacey A. Trapani, Marist College, NY

One hundred and fifty students were surveyed concerning their knowledge and attitudes about aging and their motivations for enrolling in gerontology courses. Attitudes about aging were assessed by having students choose from a list adjectives they associated with aging and then rank their top choices. Additionally they were asked to describe a respected elderly person. They also chose both courses and programs in gerontology that they might be interested in taking, and expressed any reluctance or disinterest they might have had to take such courses. This project provides information that can assist colleges considering establishment of programs in gerontology.

RM 3 ORAL PRESENTATIONS

Marathon-Distance Learning: What Running Teaches Us About Teaching
Ethan Gologor, Medgar Evers College/CUNY, NY

Followers of sport psychology can attest to how success in even the most physically taxing of activities depends on psychological factors. The author, who captained this year's "Psyching Team" for the New York Marathon, and who recruited and trained volunteers to assist the participants, before and after the race, discovered that the test of running in this extraordinary event, has myriad applications outside of the course. Setting, visualizing and changing goals, knowing whether one is inner-or outer-directed and controlling and using one's anxiety are lessons from which any test-taker, even at a desk in school, can benefit.

The Four Students in Your Classroom
Barbara Gentile, Simmons College, MA & Benjamin Miller*, Salem State College, MA

The four sons described in the Passover Haggadah provide a useful way to think about the diversity of preparation, motivation, and temperament we find in the classroom, and about the challenges of simultaneously reaching students at different levels.

Note: The ***** indicates the session chairperson.

SESSION 7 4:30 – 5: 30 p.m.

RM 1 WORKSHOP

The Not So Brave or New World of Teaching Online
Linda L. Dunlap* & Christina Royal, Marist College, NY

We will discuss key issues related to online teaching including developing required computer skills, ensuring integrity of course content, changing the role of the teacher, learning "netiquette," developing reasonable assessment techniques, understanding issues related to academic honesty, modifying traditional courses content and assessments, using a variety of communication methods, enhancing text readability, choosing what to have students read and not read online, using audio and video clips effectively, understanding myths and preconceptions about online teaching, assessing of core teaching strengths and conversion of these strengths to the virtual classroom, and predicting and preventing online teaching problems.

RM 2 ORAL PRESENTATIONS

Evolutionary Psychology: On Naked Apes, Modular Minds, and College Students
Robert T. Keegan, Pace University, NY

Evolutionary psychology recently has emerged as an interesting, challenging, and controversial point of view in psychology. The causes of the long delay between Darwin's Origin of Species and the emergence of evolutionary psychology will be discussed. Current assumptions, assertions, and controversies in evolutionary psychology will be explained. Two very different "strands" in current evolutionary psychology will be distinguished with an analysis of how they may be integrated. Based on experience in teaching this course and feedback from students, suggestions on how to teach a course in evolutionary psychology will be offered.

Note: The ***** indicates the session chairperson.

Integrating Learning Goals and Performance Outcomes in the Undergraduate Psychology Curriculum

Patricia A. Oswald & Katherine Zaromatidis*, Iona College, NY

Driven by a college-wide initiative to strengthen programs, the Psychology Department at Iona College has recently revised its undergraduate program goals and performance outcomes. The American Psychological Association has suggested goals for the teaching of psychology at the undergraduate level in order to enhance the quality of training received by undergraduates. The Department's revised goals and performance outcomes were modeled after the *Undergraduate Learning Goals and Outcomes of the American Psychological Association.* This presentation will address the ways in which these goals and performance outcomes were developed, including a discussion of how these goals and performance outcomes have been integrated with psychology course requirements by using the social psychology course as a model. The APA *Learning Goals and Outcomes, Iona's Psychology Department Goals and Performance Outcomes,* and sample syllabi that integrate these goals and outcomes will be provided to participants.

RM 3 WORKSHOP

Using Question-Making to Focus, Assess, and Evaluate Student Learning
Carol Campbell, C.W. Post Campus of Long Island University, NY

Participants will experience the application of the author's technique of using question-making as a teaching process in a mini-film/lecture experiential on children's play. The use of question-making to quickly *connect* each individual idiosyncratically to the topic and to *focus* their attention on the subject matter will be demonstrated. After the film, the participants will *evaluate* their own questions to assess their learning experience. I will discuss how the method can be used to quickly *assess* the cognitive level of functioning and writing skills of entering students as well as some insights about how to train students to make better quality questions.

Note: The ***** indicates the session chairperson.

Thursday, March 25, 2004

Reception: 6:00 p.m.

Dinner: 7:00 p.m.

After Dinner:
Hospitality Room

Friday, March 26, 2004

BREAKFAST: ***7:30-9:00 a.m.***

SESSION 8 9:15 - 10:15 a.m.

RM 1 Invited Speaker: Dr. Joseph Palladino
"Myths and Mysteries of the Humor Impaired"
Courtesy of Prentice Hall Publishing

SESSION 9 10:30 - 11:30 a.m.

RM 1 WORKSHOP

Investigative, Laboratory-Based Psychology Courses—Using a Smart Classroom and Web-Based Simulations to Teach the Research Methods Unit
Cheryl Bluestone, Queensborough Community College, NY

I will demonstrate activities that were developed to promote investigative, problem-solving learning to enhance the Research Method unit of the basic psychology course. This unit is one of several "modules" that were developed as part of a National Science Foundation CCLI Grant. The modules include traditional problem solving activities and web-based resources that can be most meaningfully introduced in a Smart Classroom. All of the activities reflect active, collaborative learning. These activities were adapted for use in a community college but the activities can be modified for a wide range of levels for the student in the survey psychology class.

Note: The ***** indicates the session chairperson.

RM 2 ORAL PRESENTATIONS

Promoting Visual Learning: The Do's and Don'ts of Effective Graphing
Jeffrey S. Nevid, St. John's University, NY

Graphs represent a powerful and intuitively appealing way of presenting scientific findings as well as illustrating relationships between variables. But to be effective learning tools, graphs must be designed clearly and readers must have the graphical literacy skills necessary to decode them. The presentation offers some suggestions for constructing effective graphs, such as deciding when to use bar graphs or line graphs, issues regarding use of 3D graphs, avoiding use of chartjunk, and preventing misuse of zero points.

Evaluating Different Techniques of Elaboration on Psychology Terms
William R. Balch*, Penn State, Altoona, PA

Different methods of presenting terms commonly taught in introductory psychology (e.g., independent variable, dissociative disorder, etc.) were evaluated. Students were paced through study booklets presenting the definition of each term first, followed by one of several different types of additional information that elaborated on the term (e.g., a paraphrase). Students then received a multiple-choice test on the terms. I will discuss the effects of each type of additional information on students' multiple-choice performance, as well as on their subjective ratings of how well they understood the terms and how helpful they found the additional information.

Coffee 11:30 – 12:00 p.m.

SESSION 10 12:00 – 1:00 p.m.

RM 1 ORAL PRESENTATIONS

The Use of PowerPoint and Other Technologies in Teaching Psychology
Joseph J. Maiorca & Roberta Paley, Fashion Institute of Technology, NY

Seen as the industry standard for delivering interactive multimedia presentations, Microsoft PowerPoint, approximately a decade old, is beginning to pop-up in classrooms of all levels across the nation. PowerPoint is a wonderful tool for learning in both a student and teacher-directed situation. It can add a new dimension to learning, allowing teachers and professors to explain abstract concepts, while accommodating all learning styles. The presentation will cite advantages and disadvantages of the use of PowerPoint (and other visuals) and its application to

Note: The ***** indicates the session chairperson.

teaching psychology. Used properly PowerPoint can be one of the most powerful tools for disseminating information ever known. Employed inappropriately, PowerPoint could potentially confuse students and make learning a difficult process. Illustrative applications will be presented.

Service Learning: Big and Small
Joyce A. Hemphill*, University of Wisconsin-Madison, WI

Over the past year, I have incorporated a service-learning component in my small Freshman Interest Group class of 20 students as well as into my large lecture class of over 200 students. I will present the challenges and benefits both the students and I, the instructor, experience with service learning.

RM 2 WORKSHOP

Understanding and Reducing Plagiarism
Joshua D. Landau, York College of Pennsylvania, PA

When instructing their students about different forms of academic dishonesty, many professors place some type of non-specific warning on their syllabi, directing students to avoid plagiarism. Unfortunately, the available research suggests that these blanket warnings are not an effective way to reduce plagiarism. This workshop will cover several techniques for reducing plagiarism. Specifically, I will describe and share various types of handouts and exercises that faculty can use to teach students what plagiarism is and, more importantly, how to avoid it.

Lunch 1:00 p.m.

Conference Committee:
Gene Indenbaum, Chairperson
Judith R. Levine, Program Subcommittee Chairperson
Marilyn Blumenthal, Conference Program Editor & Keynote Speaker Contact Person
Barbara Sarringer, Executive Assistant

HOPE TO SEE YOU ALL NEXT YEAR!

Note: The ***** indicates the session chairperson.

Technology in the Classroom:

Simulating Clinical Case Management with ANGEL

Peter J. Behrens

The Pennsylvania State University

Lehigh Valley Campus

It occurred to me in the preparation of this presentation that "Technology *Outside* the Classroom," is a more accurate title to reflect where and how the features of the course management system called ANGEL are most readily utilized.

ANGEL is the acronym for A New Global Environment for Learning. It is a course management system developed by Cyber Learning Labs at Indiana University and Purdue University. It was adopted by Penn State several years ago, with the goal that a majority of faculty at all locations would incorporate ANGEL into some portion of their courses each semester. As of Spring semester 2004, more than 50,000 students have experienced the ANGEL system in at least one course. More than 3,000 course sections are run by ANGEL each semester. Penn State's World Campus is using ANGEL to deliver its courses, and as you might suspect, the World Campus is a major consumer of ANGEL technology.

ANGEL is a versatile system that enables instructors to utilize the Worldwide Web to enhance their courses without knowledge of HTML. It also does not impose a particular teaching methodology on instructors or students.

ANGEL can be used to:

- Make course material such as syllabi, schedules, announcements, lecture notes, quizzes, and multimedia resources available on the Web from one location;

- Manage the administrative aspects of a course more efficiently by automating repetitive tasks; and
- Introduce new learning opportunities to students using its communication features.

Instructors choose among many features of ANGEL for course enhancement. I have made use of ANGEL in restricted ways for some courses and extended ways for others, depending upon the particular parameters and needs of the course in question.

For example, I use only the **Library Reserves Tool** and the **Custom Library Guide Tool** for Research Methods in Psychology. These tools assist students in learning to conduct library research, using data bases, learning APA style, and accessing full-text articles.

On the other hand, a sophisticated application of ANGEL has evolved over the past 2 years for an upper-division course in Abnormal Psychology. This is the major focus of my presentation today. I will describe how students use ANGEL to review concepts, understand diagnostic categories and therapeutic strategies, engage in self-testing, and simulate clinical case management, all outside the classroom – at any time.

Abnormal Psychology includes a traditional text (Sue, Sue & Sue, 2003) and two class sessions each week. But, ANGEL supplements learning.

Students access ANGEL through the campus home page, and the ANGEL features bar presents options. The **Calendar** feature has the status of an on-line course syllabus. The **Lessons** feature allows me to organize important content and provide links to additional resources. **In Touch** is the discussion feature of ANGEL. Finally, **Tools** presents students with the Library resources for the course.

I have developed the **Lessons** feature into 5 components for Abnormal Psychology. The first one is the publisher's site for the textbook (Sue, Sue & Sue, 2003). It contains review

material for the chapters, but it has proven to have unreliable links over the years. As a result, I have developed my own web-based material for students in the learning and review process. "Understanding Disorders" presents a set of short quizzes on chapter topics. Students read on a topic, such as "Understanding Anxiety Disorders" and answer a quiz formatted in a series of multiple choice or true-false items. ANGEL allows students to have one, two, or more chances to answer the quiz to 100% mastery. The **Activity Summary** reported to me displays the number of times each user has accessed each quiz and the level of competency achieved. For example, a student may answer all of the items correct on a first attempt or 3 of 4 items correct on the second (perhaps final) opportunity. As the instructor, I can define the content of the quizzes and the level of mastery for the topic.

Also in **Lessons** are entries called "Clinical Cases" that I devised which profile individuals with DSM-IV-R diagnoses of psychopathology. Each case is assigned in connection with a specific textbook chapter, and currently, 10 cases are posted on ANGEL. To simulate real-life case management, students may consult with one another and with me about a case assigned using ANGEL's **In Touch** feature. I establish a date and time by which discussions close and final answers about a clinical case must be submitted. All communications about a case take place within ANGEL, and students can post as many messages to as many members of the class as they wish. The major benefits of this type of exercise are that students can express a great deal of honesty and deliberative thinking, change their minds, vacillate on a response, and offer hypotheses abut the cases without the typical self-conscious hesitations that are often associated with the traditional classroom format.

Following the close of the ANGEL case dialog, each case is reviewed in the next class session for further clarification and final decision about the most reasonable diagnosis of the

individual, within the parameters of the information posted. Although students do not feel compelled to share their ANGEL posts in class, they often use their posted responses as a spring-board for class discussion.

Some of the advantages of using ANGEL for learning *outside* the classroom include:

- Greater reflection and research on a case than would normally occur in a limited class discussion;
- The simulation of professional dialog among students in real time over several days at any time of the day;
- The ability for students to ask questions and make comments in the course of their deliberation in the secure environment that ANGEL provides; and
- The ability for the instructor to give responses to students' questions and comments in dialog with one or more students at any time.

The two other features of **Lessons** in my design are "Library Research Help" and an "ANGEL Survey." The former is maintained by a campus Reference Librarian, and the latter allows students to evaluate ANGEL as a course enhancement through an anonymous on-line questionnaire.

Student reactions to ANGEL through a traditional course evaluation form and the "ANGEL Survey" have been generally favorable. Students remark about:

- the ease of access to the material (as long as they have no difficulty with the internet connection);

- the opportunity to self-pace through the material any day and any time, which means that the clinical cases and the quizzes can be worked into individual schedules of classes, internships, and employment; and
- the simulation of a team approach to developing clinical skills which will serve them well in a professional employment setting.

At the same time, I have reflected on what works and what doesn't work to optimize ANGEL as a course management system, and I thought I might share these with you, also. Do:

- provide practice and demonstration so students quickly learn to navigate ANGEL;
- develop posts and assignments that can be carried over from one semester to another, because ANGEL stores all communications;
- establish submission deadlines for assignments, because they can easily be verified, right to the minute; and
- provide weekly assignments so that students maintain attention and pacing in learning.

Don't:

- assume that students have sophisticated computer skills, especially returning adults; and
- expect ANGEL to be a substitute for traditional course materials and enhancements (e.g., a textbook, videotapes, overhead transparencies); ANGEL, like much of today's classroom technology, works best as a drive-train, not a hood ornament.

Helping College Students to Remember Memory

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As teachers, we all know that the best way to teach anyone is to involve them in an activity. This activity involves a class demonstration of the concepts involved in memory. In order to demonstrate these concepts, students will need seven small sheets of paper.

To begin the activity, have the student take out the first sheet of paper and write " A 1" at the top of the sheet. Then, read Appendix A and tell the students to listen carefully to the list of words as you read them. After you finish reading the entire list, the students should write down as many of the words as they remember. Next, have the students take out the second sheet of paper and write " A 2" at the top of this sheet. Read list A to the students again and have them write as many of the words as they can remember on the second sheet of paper. This procedure should be repeated from three to five times in order to demonstrate a good learning curve.

Next, have the students take out a new sheet of paper and write "B 1 " at the top of this sheet. Read Appendix B and once you have completed the reading have students write down as many of the words as they can remember. After the students have recalled all of the words that they can remember from list B, have them take out a new sheet of paper and write "free" at the top of this sheet. Without reading list A, have the students write down as many words as they can remember from the first list that had been read several times. After the students have written as many words as they can recall, have them take out the next sheet of paper and write "cued" at the top of the page. At this point, the students are asked to recall the words but they are given

various categories in order to demonstrate the way in which cues improve recall. The categories in list A include: school supplies, transportation, drinks, and clothing.

At this point, have the students put their lists away and use class time to discuss the - concepts involved in forgetting; possible topics may include: eyewitness testimony or , repressed memories. Approximately 20 minutes should be used in discussion, at which point students should be asked to take out another plain sheet of paper and write "recognition" at the top of this sheet. In order to complete the recognition task, the list from Appendix C should be projected onto the board.

Once this is completed, it is possible to use the lists written by the students to discuss the concepts of learning curve, primacy effect and recency effect. Project list A onto the board and have the students take out the paper they labeled 1 A and check their list against the list on the board. Tell the students to circle any words on their list that is not on the list on the board and then total the number of words not circled. Have them do this for all of their lists that involve list A, and then Project list B on the board and have them do the same thing for list B.

In order to demonstrate the concept of a learning curve, graph how many words were recalled by the students on list A 1 and using another color, graph how many words were recalled by the students the final time that list A was presented. By using a graph (see Appendix D), an illustration of this phenomena is clearly seen in a visual format. Similarly, the concepts of primacy effect and recency effect can be completed using a second graph. Have the students look at list A 1 and then call out each word in order and have the students raise their hand if they had

that word. The number of students recalling each word can then be graphed to demonstrate primacy and recency effects.

This activity also allows for the demonstration of proactive and retroactive inhibition. In order to discuss these concepts, ask the students to say which words they had circled on the original list. Usually several students will admit to having words circled on list A 1 and this allows for a discussion of the concept of proactive inhibition. Furthermore, there are typically one or two students in the class who have words from list B on their free recall list and this allows for a discussion of the concept of retroactive inhibition.

Finally, have the students compare the free recall list with the cued recall list and recognition list in order to discuss how cues improve memory. I have successfully used this activity in class for nine years and each time the activity has clearly demonstrated the different concepts involved in memory. If you have any questions about this activity or would like to contact me, my phone number is (908) 737-4011 and my e-mail address is iodesky@kean.edu.

Appendix A

LIST A:

NOTEBOOK

SCARF

COFFEE

TRAIN

SWEATER

FOLDER

JUICE

MOTORCYCLE

BRIEFCASE

SUBWAY

SODA

PANTS

BOAT

WATER

SHOES

STAPLER

Appendix B

LIST B:

PIANO

COMPUTER

ZEBRA

COLA

TEA

VIOLIN

RULER

ELEPHANT

LION

CIDER

CLARINET

PHONE

BACKPACK

GAZELLE

WINE

SAXOPHONE

Appendix C

TRAIN

RULER

TEA

NOTEBOOK

KNIFE

TELEPHONE

SCARF

PAPERCLIP

CANDY

WATER

SWEATER

BEEPER

BOOK

COMPUTER

FOLDER

SOCKS

COFFEE

COLA

CLARINET

PANTS

SODA

CARROTS

LION

BRIEFCASE

BINDER

SUBWAY

BACKPACK

BUS

JUICE

DRESS

CLOCK

BOAT

PIANO

SHOES

WINE

LOCKER

STAPLER

SNEAKERS

MOTORCYCLE

KEY

STAMPS

COCOA

Suggested Readings

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The "Chunk-a-phile Hunter:" Looking for Chunks in All the Right Places

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A major process of short-term memory (or working memory) is chunking, in which a person groups individual items into meaningful units. Most introductory psychology texts address chunking in the chapter on memory, with one or two examples. An important aspect of chunking is that it is an *active* process, in which the person needs to notice that pattern in the material (Hayes, 1989). This underscores an important general tenet of memory: The more you know, the better you can improve memory. In this particular case, the more patterns a person can retrieve from long-term memory, the better the encoding, and therefore, the better the retrieval.

Despite the importance of this concept, most introductory textbooks don't strongly address this point, and do little to show how chunks, both for letters and digits, are continually changing in regard to recognizability. For example, the newest edition of Rathus (2004) uses this example of chunking: GMCBSIBMATTCIAFBI (GM/CBS/IBM/ATT/CIA/FBI). These chunks, though highly recognizable to most college students, could be the same chunks used in the 1960's. Similarly, Kagan and Segal (2004) use TVCIAMABASATNASACNN (TV/CIA/MA/BA/SAT/NASA/CNN). Again, with the exception of CNN, these are relatively older chunks. It is also interesting that some of these chunks overlap with Bower and Springston (1970), one of the pioneering studies on chunking. Bower and Springston used TV and IBM, but also TWA, USSR, and DMZ. This also demonstrates that not only are new chunks emerging, but less recent chunks may be less recognizable to college students which also demonstrates the changing nature of chunks (TWA and the USSR are both "out-of-business"). Digits can also be chunked, as Nevid (2003) exemplifies, using 1992199319941995(1992/1993/1994

1995). Although this does provide the idea of chunking, more recent examples of digit chunks could be used.

The advantage of the classroom situation is that an instructor can tailor newer chunks to his/her class to demonstrate that information in the person's long-term memory guides how the person chunks. Many new examples of chunks have come from various sources: text messaging/chat, media (television, radio, and magazines), products, computing, companies, and news. For text messaging, a new lexicon is developing that shortens popular phrases, such as RUOK, BTW, BCNU, and LOL ("Are you OK?"; "By the way"; "Be seeing you", and "Laugh out loud", respectively). Media examples include the names of television programs (CSI [Crime Scene Investigation]; TRL [Total Request Live]; MNF [Monday Night Football], BDSSP [Best Damn Sport Show Period] for letters; 90210 for digits) and networks (TCM [Turner Classic Movies]; CMT [Country Music Television]), and new magazines (FHM [For Him Magazine]; XBN [Xbox Nation]). New products, such as DNL (the new 7-UP product), GPS [Global Positioning Systems], and THX [the theater sound system], can also be used as chunks in a class demonstration. From computing, many students will recognize (if not be able to identify the acronym components) chunks such as PDF, HTML, DSL, and CGI. Music also provides numerous chunks, including the artists DMX and SWV, and CD titles, such as Usher's "8701".

The key to using these chunks is to be aware of these newer examples. So where is a "chunk-a-phile" to look? Two websites can provide some direction: www.acronymfinder.com are rich resources for updated examples of chunks. But most chunks that I have used have come from being vigilant of situations in daily life: perusing newsstands for magazines, reading newspapers and watching the news scrolls on the cable news networks (THG and WMD are increasingly newsworthy chunks, but others such as GHB, JPL, and GLBT will be identifiable to some students); shopping

(DSW, GNC, TCBY, and EMS are mall-related chunks); and driving (104, 690, and 481 are highways near Oswego that are recognizable to my students, but probably not for most New Yorkers). Indeed, you can tailor chunks that will be recognizable to a subset of your students that will clearly demonstrate the active nature of chunking (BQEPLJGWB successfully identifies NYC students, but befuddle the Upstate students! [Brooklyn-Queens Expressway, WPLJ is a popular NYC radio station, and the George Washington Bridge]).

Two other issues in chunking that can be used in a classroom presentation: (1) whether a stimulus string is one chunk or two; and (2) "multi-chunks", where one acronym has more than one common representation. Stimuli such as NCLB, MDMA, and the still ever-popular NKOTB, will be chunked as two chunks for some students, or one chunk. ["NCLB" can be "North Carolina" and "Linebacker", or "No Child Left Behind"; "MDMA" can be "medical doctor" and "Master of Arts," or the chemical abbreviation for the drug "Ecstacy"; and "NKOTB" can be "North Korea" and "Off-Track Betting", or "New Kids on the Block"]. "Multi-chunks" can be represented by the aforementioned GWB (George Washington Bridge or George W. Bush), PDA (Personal Digital Assistant or Public Display of Affection), TLC (the music trio, or Tender Loving Care, or The Learning Channel), and PBR (Pabst Blue Label or Professional Bull Riders).

The presentation of the stimuli is also quite easy using PowerPoint ™. You can either present the stimulus string on one screen, or you can present one item on a screen at a time. My preference is the latter, using a presentation rate of one item per second. This can be brief, so an instructor may want to pilot a 2-second per item presentation rate as well to determine what might work best for any particular class.

To summarize, chunking is an important concept in memory and can be easily demonstrated in a general psychology class. By being aware of emerging chunks from various sources, you can tailor letter and digit strings for specific target subsets of students to highlight the active nature of this process.

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Textbook Plagiarism in PSY101 General Psychology: Incidence and Prevention

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This study investigates plagiarism by General Psychology students. Informal observations indicate that students often use phrases from the class textbook in their written homework assignments. This type of plagiarism may not be intentional (e.g. students could inadvertently copy from the text if they are lazy or sloppy during their note taking so that they forget whether their notes are direct quotes, or paraphrases in their own words). Intentional or not, it is important that plagiarism is detected and inhibited. If a paper containing plagiarized material receives a good grade, then the author receives tacit approval of his or her writing strategy. Plagiarism behavior that is reinforced is more likely to be repeated.

I have used a computer-based plagiarism analysis to scan homework assignments to find cases where students have copied directly from the class textbook. This system is a deterrent to would-be intentional plagiarizers, but more importantly, it also serves as a teaching tool to illustrate to students how frequently they copy phrases form the textbook when they should have used their own words.

4837 assignments were analyzed over two semesters. I have used these analyses to address the following questions: (a) What is the incidence of plagiarism? (b) What factors predict plagiarism? (c) Can a computerized plagiarism detection system reduce plagiarism?

Methods

Participants

Writing assignments were analyzed from a total of 176 students from 3 sections of General Psychology (2 sections in Fall 2001, and one section in Fall 2002). Students completed their homework assignments as part of their regular course work.

Homework assignments

Students answered questions based on the day's chapter from the class textbook (Shaffer & Merrens, 2001). The questions asked about methodological details and findings from the research described in the chapter. Homework was submitted via email prior to each class. The analyses in this paper are based on 4,837 assignments (M=24.9 per student, SD=6.7).

Spelling errors can mask potential matches between a student's work and the text. To avoid this, students were instructed that they would be penalized for poor spelling. Nevertheless, spelling errors were still present in many assignments. This will act to artificially reduce the incidence of plagiarism reported in this study.

Analysis

The students' work was analyzed with a computer program to find strings longer than 25 characters that were identical to the textbook. The matching algorithm is based on Greedy-String Tiling (Wise, 1996). Prior to analysis, each assignment was normalized by removing non alphabetic characters and separating each word by a single space.

Feedback

The amount of plagiarism feedback given to the class varied in the different sections due to differences in teaching methodology and differences in the availability of technology. One section received no formal feedback about the plagiarism analysis (this section provides a baseline level for the incidence of plagiarism). A second section was warned during the 8th week of the semester that plagiarism was being checked automatically. From then on, students who had excessive amounts of copied text in an assignment were graded zero for that assignment and privately warned to not do it again. The third section (which was taught a year later) received

plagiarism feedback privately via the web for every assignment. Portions of work that were identical to the text were highlighted. Students who had excessive amounts of copied text in an assignment were graded zero for that assignment and privately warned to not do it again.

Results & Discussion

Overall incidence of plagiarism.

Figure 1 shows the proportion of student assignments that contained plagiarized text as a function of the length of the copied string. These data are from the class that received no feedback about plagiarism. Figure 1 allows us to experiment with different plagiarism criteria. Arguably, a matching sequence of 2 or more words (approximately 10 characters) could be considered plagiarism. However, such a stringent threshold seems unreasonable because the text often included multi-worded scientific terminology (e.g. *within-groups experiment*). Adopting a criterion match-length of 25 chars (approximately 5 words) classifies 90% of all assignments as plagiarized! Even with a longer match criterion, the number of plagiarized assignments is remarkably high: a 50-character (10 words approx.) criterion classifies 38% of the assignments as plagiarized, and a 100-character (20 words approx.) criterion classifies 10% of the assignments as plagiarized. These data indicate that a large number of assignments routinely exceed a very liberal plagiarism criterion.

Factors that predict plagiarism

A comparison of the plagiarism scores between students shows that students are consistent in their plagiarism behavior. Students who plagiarize on one assignment tend to also plagiarize on other assignments. This can be demonstrated by calculating the reliability of students' plagiarism scores (the length of the longest plagiarized string) across all assignments (Cronbach's alpha = 0.95, based on all 176 students from all 3 sections).

The incidence of plagiarism was significantly correlated (r=0.5) with the readability (defined as the FOG index) of each book chapter, suggesting that plagiarism is more likely from chapters that require a higher reading level.

Trends throughout a semester

Figure 2 shows changes in plagiarism throughout the semester data are shown for the section that was not given plagiarism feedback and for the section that was given feedback from midterm onwards). There is considerable chapter-to-chapter variability, but there is also a general trend for plagiarism scores to increase as the semester progresses in the section that did not receive feedback ($r=.76$, $p<.05$).

The increase in plagiarism throughout the semester underlines the importance of detecting plagiarism when it occurs. Without negative feedback, plagiarism increases. This is an alarming finding, because it suggests that maintaining the *status quo* and not taking action to prevent plagiarism may in fact *promote* plagiarism.

Preventing plagiarism

Figure 2 allows a comparison between the classes that did and did not receive plagiarism feedback. The class receiving feedback during the second half of the semester does not show an increase in plagiarism as the semester progresses (this same trend is also found in the third section of the class that received plagiarism feedback throughout the entire semester).

Compared to the incidence of plagiarism without feedback (described in 3.1) the overall incidence of plagiarism was lower in the sections that received feedback: a 50-character plagiarism criterion classifies 32% of the assignments as plagiarized, and a 100-character criterion classifies 6% of the assignments as plagiarized.

These data are encouraging. They suggest that providing students with plagiarism feedback may be a successful strategy for training better writing habits. In their written course evaluations at the end of the semester 77% of the students claimed that they changed their writing habits based upon the plagiarism feedback. Hopefully these improved writing habits will generalize to other classes throughout their academic careers.

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Team Testing and Anxiety: An Approach to Improve Student Learning

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Several studies (Cassady & Johnson, 2002; Harper, 1971; Meijer, 2001) have demonstrated that test anxiety impairs the test performance of students and that interventions to assist students to manage test anxiety are vital to the accurate assessment of their abilities. Although numerous studies (Ergene, 2003; Goldsmith and Albrecht, 1993; Kondo, 1997) have discussed procedures to reduce test anxiety, no studies had actually measured test anxiety before each test to determine if the anxiety decreased as a result of the procedure. Researchers have begun to investigate the impact of one procedure involving team testing for reducing test anxiety (Mitchell & Melton, 2003; Zimbardo, Butler & Wolfe, 2003), however, these researchers have not consistently examined test anxiety and test attitudes during the team testing process. Research efforts must investigate anxiety levels during traditional testing and during team test taking in order to assess the impact of a collaborative approach. This paper will describe a study that sought to determine the influence of team testing on test attitudes and on test performance. The authors will discuss the current literature regarding interventions for test anxiety, the results of the study, and suggestions for future investigations of team testing procedures.

Test anxiety often results in poor test performance among college students. While some anxiety may be beneficial motivating some students to prepare for an upcoming exam, a moderate to high degree of anxiety can negatively impact on their exam performance (Mealey & Host, 1992). In addition, Kurosawa and Harackiewicz (1995) examined test anxiety self awareness and cognitive interference. Investigators have also analyzed the impact of test anxiety on working memory (Lee, 1999) Moreover, researchers have examined the relationships between

test anxiety and coping and academic problem solving ability (Blankstein, Flett and Watson, 1992) as well as test anxiety and gender, worry, emotionality among high achieving students (Williams, 1996). Additionally, influences on test anxiety have been examined including motivational orientation, self-efficacy and feedback condition (Dykeman, 1994), students attributions (Gadzella, Masten and Stacks, 1998), and fear of success and fear of failure (Piedmont, 1995).

Several researchers have proposed interventions for test anxiety reduction by teaching students a variety of cognitive behavioral techniques (Kennedy and Doepke, 1999) and providing instruction in breathing techniques (Wilkinson, Buboltz, Walter, and Seeman, 2001). Hwang (1997) found that a combined approach of cognitive/behavioral methods for reducing test anxiety was superior to either cognitive or behavioral approaches. Further, research efforts have indicated the beneficial impact of supportive communication (Goldsmith and Albrecht, 1993) and social support on test anxiety (Orpen, 1996). Rittschof and Griffin (2001) examined the influence of participation in reciprocal peer tutoring (RPT) on test anxiety among college students and discovered that although RPT did not decrease levels of test anxiety, students reported that the process was profitable for them. Griffin & Griffin (1997) also examined the use of reciprocal peer tutoring among graduate students and noted that the reciprocal peer tutoring did not result in significant improvements in reviewing for exams, however, the students felt that the procedure was helpful. Further, researchers have linked the use of team testing to anxiety reduction (Lockemy and Summers, 1993). Studies (Lambiotte et al., 1987; Slavin, 1978, 1991; Reppert, 1993) have also indicated that collaborative learning procedures lead to increased learning among students. Mitchell and Melton (2003) had investigated the use of collaborative or team testing with nursing students, however, the study did not indicate that test anxiety was

measured in any formal way. In addition, Zimbardo, Butler and Wolfe (2003) conducted a study of the collaborative approach among college students but the study did not indicate that the actual level of anxiety was measured during the study.

Therefore, the authors of this current study sought to compare test anxiety with traditional testing and with team testing to investigate the impact of team testing on test anxiety. The present study sought to determine the impact of collaborative testing on test anxiety, test performance, and attitudes toward testing. This project compared the test anxiety and attitudes of students in a university psychological testing class employing individual as well as collaborative testing procedures. It is hypothesized that students employing collaborative testing procedures will experience less test anxiety, devote more time to the test, and demonstrate improved test scores. It is probable that students engaged in collaborative testing will devote more time to the test than they would have during traditional testing because they will be discussing the items in depth. Further, it is also quite probable that students engaged in collaborative testing will demonstrate better recall of information since they have presumably spent more time processing the material.

Method

Participants were 70 undergraduate psychology students enrolled in a required, upper level psychology class offered at a public state university in the northeastern United States. The participants were enrolled in two sections of the same class taught by the same instructor. The course requirements of each section included 4 exams throughout the semester.

At the beginning of the semester, the students were informed of the possibility of participating in a study about how test taking attitudes develop or change during a semester. The authors explained to the students that their participation in the research is completely voluntary

and that they would not experience any negative consequences if they declined to participate. The participants completed the Test Anxiety Inventory (TAI) (Spielberger, 1980) prior to each exam. The TAI is a self report inventory designed to measure test anxiety as a situation-specific personality trait. The TAI contains 20 items and the respondents indicate on a four point Likert-type scale how often they experience the feeling described in each statement. The investigators also measured how much time each student spent taking each test.

One section of the class was offered to participate in team testing during test 2 and to take tests 1 and 3 independently. Another section of the class was offered to participate in team testing during tests 3 and 4 while taking tests 1 and 2 independently. Students taking the test collaboratively discussed their responses to test items with their partners, but each student was supplied with his/her own answer sheet so that he/she could provide his/her own answer if there was a discrepancy of opinion during the discussion. The authors explained to the students that they do not have to answer identically with their partners if they do not agree with each other.

Method of Analysis

The investigators conducted independent samples 2 tailed t-test to analyze the data regarding the type of testing condition (team or individual test taking), the exam score, the time spent taking the test and the anxiety rating. The results indicate that the team testing lead to significantly increased test scores (Table 1). This significance was demonstrated in both team testing conditions (Test 2 and Test 3).

Table 1: Exam Scores During Independent and Team Testing

Exam 2	N	Mean	SD	SE of Mean
Indep.	44	79.25	11.64	1.75

Team	27	86.96	7.98	1.53	
Variance	t-value	df	2-tailed sig.	Std. Error	95% CI for Diff
Equal	-3.03	69	.003*	2.55	-12.79 to -2.64
Unequal	-3.31	68	.002*	2.33	-12.37 to –3.06
Exam 3	N	Mean	SD	SE of Mean	
Indep.	39	83.13	8.52	1.36	
Team	28	88.14	7.56	1.43	
Variance	t-value	df	2-tailed sig.	Std. Error	95% CI for Diff
Equal	-2.49	65	.015*	2.02	-9.04 to -.989
Unequal	-2.54	62	.014*	1.98	-8.97 to -1.06

*p<.05

The results also suggested that team test taking lead to a significantly longer time spent taking the test during both conditions of team testing (Table 2). Time spent on exam in team test taking was more than 50% longer.

Table 2: Time Spent Taking Exam During Independent and Team Testing

Time 2	N	Mean	SD	SE of Mean
Indep.	42	31.26	8.80	1.36
Team	27	50.41	6.31	1.21

Variance	t-value	df	2-tailed sig.	Std. Error	95% CI for Diff
Equal	-9.79	67	.000*	1.96	-23.05 to -15.24
Unequal	-10.51	66	.000*	1.82	-22.78 to -15.51

Time 3

N	Mean	SD	SE of Mean

Indep.	39	20.79	8.16	1.31
Team	26	30.69	6.99	1.37

Variance	t-value	df	2-tailed sig.	Std. Error	95% CI for Diff
Equal	-5.06	63	.000*	1.95	-13.80 to -5.99
Unequal	-5.22	59	.000*	1.8	-13.69 to -6.11

*p<.05

The results of the participants' levels of anxiety during independent and team testing were contrary to many published reports, which suggest that team testing will lead to significantly decreased feelings of anxiety (Table 3).

Table 3: Levels of Anxiety During Independent and Team Testing

Anxiety 2	N	Mean	SD	SE of Mean
Indep.	42	47.93	12.28	1.89
Team	25	44.04	9.15	1.83

Variance	t-value	df	2-tailed sig.	Std. Error	95% CI for Diff
Equal	1.37	65	.175	2.84	-1.77 to 9.55
Unequal	1.48	62	.145	2.63	-1.38 to 9.15

Anxiety 3	N	Mean	SD	SE of Mean
Indep.	42	45.57	11.98	1.85
Team	28	45.11	10.52	1.99

Variances	t-value	df	2-tailed sig.	Std. Error	95% CI for Diff
Equal	.167	68	.868	2.79	-5.10 to 6.03
Unequal	.171	63	.865	2.71	-4.96 to 5.89

*p<.05

Discussion

The results of the study suggest that although team testing leads to increases in test scores and time spent taking tests, anxiety scores do not change. The increase in time spent taking tests indicates that learning is also improved in team testing (Sarason, 1980). Further, the lack of evidence for a change in anxiety score with team testing is supported by Rittschof & Griffin's (2001) study of reciprocal peer tutoring (RPT), which noted that RPT did not lead to result in a reduction of levels of test anxiety. It is possible that the lack of significance may be related to the anxiety instrument itself, which is a short self-report assessment. That is, the instrument may not be sensitive enough to detect subtle changes in anxiety levels over a relatively short period of time, such as a semester. Another potential explanation for the lack of significant decrement of anxiety may be that some students may actually experience more anxiety during the team testing condition because they may fear that they might lower a teammate's score. Thus, future studies of test anxiety and team testing should examine the impact of self-esteem and prosocial behavior upon the collaborative testing process.

Implications

The results of this project may be used to inform educators about the advantages and disadvantages of collaborative test taking procedures and therefore assist students experiencing high levels of test anxiety. As test anxiety often impairs performance, reducing test anxiety through collaborative procedures may lead to more accurate assessment of students. The collaborative test taking strategy may also help students to learn to work more cooperatively with each other and to be responsible not only to themselves but also to other students. Additional research in this area should examine personality variables associated with the decision to

participate or to decline in a team testing study. Investigations regarding the participant's beliefs about self-esteem and prosocial behavior may also yield important information relevant to testing anxiety and team testing. A study replicating this team testing approach and incorporating personality assessments may indicate if the negative results in the reduction of anxiety levels were a result of a limitation in the study or a cohort factor. In addition, examining the components of the anxiety inventory such as worry and emotionality may provide valuable findings regarding test anxiety and a collaborative approach. Finally, other research efforts may also evaluate the effectiveness of a team approach in improving long term recall of information. More studies must investigate the topic of test anxiety and team testing in order to determine factors which improve pedagogy and lead to the accurate measurement of student abilities.

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Taming the Machine:

Successful Use of PowerPoint in a Large Lecture Class

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Overview

- What this presentation will and will not do
- Description of Intro Psych at MCC
- Evidence for success: Comparisons
- Evidence for success: Grades
- Evidence for success: Attendance
- Description of this implementation

What this presentation will and will not do

- WILL: Describe one instance of the successful use of PowerPoint in a large lecture class
- WILL: Strike a balance between the worship and the demonization of PowerPoint

> Power corrupts.
>
> PowerPoint corrupts absolutely.
>
> ~Edward Tufte

- A web site with links to many documents about the pros and cons of PowerPoint (mostly cons) is: http://sooper.org/misc/ppt/
- WILL: Give encouragement to those who are considering making this transition
- WILL NOT: Give technical instruction on how to create PowerPoint slides
- WILL NOT: Give advice on good slide design
- Here is a wonderful web sites that can help with this: http://www.elearning.canterbury.ac.nz/

(On the right side, find a link under Create Great PowerPoints to Victor Chen's PowerPoint Slide Show.)

Description of Intro Psych at MCC

- Over 5,000 students per year
- Individual sections mostly 50 students; some double sections of 100 students
- Departmental uniformity: same book, same test bank, same grading system
- Material divided into ten units
- Each unit has 20 learning objectives, clearly identified for students
- Students take up to three multiple-choice tests on each unit, and the highest score counts
- Grades are determined by the average of these quizzes
- This provides a consistent foundation for comparisons Especially since I have taught this course in this system for 12 years

Evidence for success: Comparisons

- PowerPoint begins: Fall 2002
- Comparison period includes three semesters before the change (spring 01, fall 01, and spring 02) and three after the change (fall 02, spring 03, and fall 03)
- During this time there was no change in the test bank, the grading system, the edition of the book, or any other factor
- Specifically, I did not:
  - add any new demonstrations or activities
  - change the order or organization of the material
  - provide additional pedagogical aids such as test reviews (except as noted below)
- I present two different types of comparisons:

- One-semester comparisons (one semester before versus one semester after)
- Three-semester comparisons (all three semesters before versus all three semesters after)

Evidence for success: Grades

- There are three different ways to look at grades:
  - Average scores on the unit quizzes
  - Overall grade distribution
  - Percentage of students who are "successful" (getting a grade of C or better)
  - All three methods show higher grades with PowerPoint, sometimes as a trend, sometimes reaching significance.
- Average quiz score for all the students in the section
  - This includes only students who received an A-F grade, not those who withdrew
  - Short-term, there was a non-significant trend toward improving scores…but longer-term, the improvement was significant.
- Grade frequency distribution
  - While we give + and – grades, these are combined into overall letter grades for this comparison
  - Short-term, there was a non-significant trend toward an increase in A, B, & C grades, with a decrease in D, F, and W grades…and longer-term, the difference was significant, with more A and B grades, fewer C, D, and F grades, and more W grades.
- Percentage of student success (grade of C or better)
  - Short-term, there was a significant increase in the percentage of successful students…and longer-term, this trend continued but did not reach significance.

Evidence for success: Attendance

- Attendance was recorded in every class by having students sign in
- Students with poor attendance and poor grades were withdrawn (so they were motivated to sign in)
- Percentage of classes attended was computed for each student
- Presented in two ways: for all students, and for all completing students (those who were not withdrawn)
    - The picture for attendance is mixed
- When considering all students:
    - There was a significant short-term improvement in attendance…but longer-term, the picture reverses to show a significant decline in attendance.
- When considering only students who completed the course (were not withdrawn):
    - There was a significant short-term decline in attendance…but longer-term, the picture reverses to show a significant increase in attendance.
- A time-series graph can help to clarify what is going on here; attendance fluctuates, but if there is any trend it is upward.

Description of this implementation

- Today's presentation is a model
- Possible key factors:
    - Explicit structure
    - Readable, uncluttered slides
    - Graphic on almost every slide
    - Slides don't include everything!
    - Notes available ahead of time

- Ability to review presentations outside of class

Conclusion

- Is it worth it?
  - This analysis shows that the switch to PowerPoint doesn't necessarily reduce the quality or effectiveness of the course, but also doesn't necessarily improve it in any great way
  - I only spent about 50-60 hours making this transition (for about 35 hours of class time), but it typically takes much longer
  - Advantages of PowerPoint: clearer images, more student interest, professional development for me
  - Disadvantages of PowerPoint: up-front development time, dealing with technology in the classroom
- So is it worth it?
  - For me, yes
  - How about for you?

The Impact of Learning Communities on First Year Psychology Majors

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Like many other colleges, Worcester State College (WSC) has faced the challenge of high attrition rates among undergraduates. Attempts to increase retention at WSC have included a required freshman experience course. The goal of this course is to promote a smooth transition of entering students with respect to academic, social and personal adjustments. This one credit course includes but is not limited to such topics as time management, career goals, diversity, plagiarism, sexual assault and drug education.

An additional effort to increase retention is the creation of learning communities (LCs). A learning community is a cohort of students who are registered for several of the same classes and may also share living space. Due to this arrangement, the students develop a sense of involvement both academically and socially. Learning communities can also aid in the transition of students from the high school environment to college.

In Fall 2003, all freshmen psychology majors were required to be a part of a learning community in which they took three courses together: the freshmen experience course, which met for one hour per week, English Composition and General Psychology I. I had the opportunity to teach a section of the freshman experience course in one learning community and an Introductory Psychology course in a *different* learning community.

For instructors, there were several advantages of teaching classes that are part of the LCs. One advantage was the small class size (N=20), which allowed the instructor to get acquainted with *majors* earlier in their college careers. It was also an opportunity to teach an introductory course to majors which does not happen often at WSC. Also, the small class size allowed the

instructor to use a variety of teaching techniques such as hands on demonstrations, debates, discussions and student presentations. In the General Psychology course, another advantage I found was working with a cohesive group of students. Because these students were enrolled in *three* courses together, they formed a tight bond. They were a unified group of students who were willing to work with each other even outside of the classroom to prepare their presentations.

As with any new teaching experience, there were some disadvantages of teaching in LC classes. The students in my classes were a homogenous group—all freshmen Psychology majors, no upper class students, and all traditional college age.

As such, there was no "role model" student in the class to demonstrate appropriate [college] classroom behavior in the psychology course and the freshman seminar; and there was no student who "broke" the exam grade curve in the psychology course.

The fact that the students were already a cohesive group was a drawback for me in the Freshman Experience course. Unfortunately, the students did not grasp the academic, cognitive and social value of the course and as a unified group they indicated this through their behavior which was apathetic, disruptive and uninterested.

The following measures were used to assess the success of the LCs and the Freshman Experience course: Cooperative Institutional Research Program Freshman Survey (CIRP) which assesses students on expectation of college experience, degree and career goals; and First Year Initiative (FYI) survey which assesses acclimating to college life;. Academic success was also considered. Other measures may be used in the future.

The data thus far reveal that the WSC LC and freshman seminar were successful at promoting a sense of belongingness and acceptance. This seems to be a direct result of the LC in

which the students formed solid friendships with the each other. This was apparent from their behavior and informal conversations about their experience in the program. The students were also satisfied with the academic services provided at the college and the college overall. Unfortunately, the program was less successful in critical areas such as connecting with the faculty and out of class engagement, which was indicated on the FYI assessment. The program was ineffective at increasing academic, and cognitive skills as well as study strategies. These are main components of the freshman seminar. At this point, academic successes are not apparent. In the next few years, the college will track the number of students who leave WSC.

Several changes will be made to the LC and freshman seminar course for subsequent years to improve the program and hopefully increase retention. The structure of the LC will remain the same (i.e., students enroll in 3 classes together) but may be comprised of mixed majors to provide diversity. For the freshman seminar, one major change will be classes that meet for approximately 100 minutes for the first nine weeks of the semester. In Fall 2003 the class met for 50 minutes for the entire semester. In the past the shorter class period was not long enough to accommodate a guest speaker, a demonstration or a high-quality discussion.

Overall, the LC provided a good experience for both the instructor and the students. We will continue to assess the program and make modifications to suit the needs of the incoming freshmen students.

Sending Students into the World Wide Web: The Web Review Project in Developmental Psychology

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"What brings you to this conference?" I was asked this question more than a few times during the conference. The answer lays in the subtitle of the conference "Ideas and Innovations." For my small private college as well as for the community colleges and large of the Universities represented at the conference "innovation" frequently involves the introduction of digital technology into the classroom. Thus this conference seemed to be a particularly apt forum in which to present a series of assignments that I have developed to foster information fluency in my students.

The World Wide Web is frequently viewed as a two edged sword in psychology and other academic disciplines. On the positive side, the availability of electronic academic sources and electronic access to data and documents from both government and nongovernmental organizations (e.g., official statistics) greatly enhances the resources available to students, particularly at small colleges (McDowell,2002). However, the Web also allows students unprecedented access to what McDowel1 refers to as the unregulated electronic information world. Thus an important component of any college education is information fluency, that is, the combination of computer competency, information literacy and critical thinking (Zhang,2002). While stand alone courses on information fluency may be an important part of that education, it is also important that these same skills be taught and reinforced within specific academic disciplines (Grafstein, 2002).

In an attempt to address my own concerns over students' information literacy and specifically their ability to evaluate unregulated web sites, I instituted a web review project in my Developmental Psychology class. While developing information

fluency was obviously an important goal for this assignment, I also hoped that this assignment would be an exciting one for students because it would capitalize on their enthusiasm for the Web and allow them to further explore their own areas of interest relevant to the course.

In the initial version of the assignment, students completed a series of web review papers on any topic of their choosing through out the semester. Prior to the first paper, a class was spent reviewing a Web site that explains and demonstrates criteria for evaluating web pages. A partial list of the many fine web sites that do this appears at the end of this article. I also gave students a handout that explained the criteria to use for evaluating the web site. In addition to the criteria of accuracy, authority, objectivity, currency and coverage which are addressed in some form on most if not all of the web sites on evaluating web sites, the handout instructed students to identify the intended audience of the web site and to indicate whether or not the web site would be appropriate as a source for a term paper. The instructions also allowed students to comment on how well designed they believed the site to be, but stressed that this was of secondary importance to their review.

I was not satisfied with how well this version of the assignment met any of my goals for the assignment. While it did initially tap into the students' interest in the web, that enthusiasm seemed to diminish by the last brief paper. Also students tended to pick different, and sometimes course inappropriate topics, for each paper. Thus they did not get to explore any topic of interest in great depth. In spite of being forewarned about the dubious quality of many web sites, students

tended to turn in glowing reviews of the sites. While constructive feedback from the instructor led to more critical evaluations of the site, I still was not satisfied with the results.

In a second version of the assignment, students were required to review several sites related to the same topic. Furthermore, to underscore that "anyone" can author a web page arid to promote computer literacy, these evaluations were turned-in in the form of a web page themselves. The students' web pages were then added to the course web page. The web page was due at mid-semester and a more traditional term paper which could be on the same topic was assigned for the end of the semester. I believe that this second version of the assignment was more successful than the first. While some students who had not produced web pages before were nervous about the experience, most were enthusiastic. They were able to go into their selected topic more deeply. I'd asked students to clear their topic with me first which greatly reduced the number of web sites that would be more appropriate for an abnormal psychology class than to developmental psychology. Most importantly, the comparative nature of the assignment did seem to increase critical thinking regarding the various sources. However, I was still not satisfied with the level of critical thinking and information literacy demonstrated in the project.

In the third and current version of the assignment the web review is part of a four-part term project in which students access and evaluate not only web pages, but more traditional academic sources as well. That is, students also compare two textbooks that address their topic and use PsyclNFO to locate journal articles on the topic. The textbook comparison takes the form of a brief paper in which the students are instructed to note what information was contained in both sources and what information is found in only one source. For the journal articles, I require students to write an annotated bibliography including eight sources. I allow students to use the

abstracts of the articles as the basis of six of the annotations, but require longer summaries of two articles based on the full text of the article. In addition to projects that reflect on each type of information separately, students also write a final paper in which they compare the type of information found in each type of source. I no longer require the students to write a traditional term paper. With this version of the assignment, I believe that I have been successful in meeting my goals for the project. While some tweaking of topics has been necessary, students follow their topic through three different types of sources, clearly allowing them to explore the topic in-depth. Because the first place that students must look for their topic is their textbook, they are focused on topics relevant to developmental psychology and seem to be selecting a wider variety of course relevant1opics. A few students take a minimalist approach to producing their web page; however, most students including some of my computer phobic students have produced very attractive and impressive web sites. Although having students compare web sites to each other enhanced their critical thinking about the sites, I believe that having them compare web sites in general to the more traditional academic sources greatly enhances their evaluation of the web sites. The final papers reflected an understanding of the differences among the different types of sources and need to evaluate the appropriateness of the sources for a particular use.

I began this article for the proceedings by answering the question I was asked most often during the conference. I would like to end it by answering two questions that were asked during and after my presentation. One question had to do with why I'd chosen to use this assignment in Developmental Psychology and not in one of the other courses that I teach.

The Developmental Psychology class seemed particularly appropriate for several reasons. First, the topics covered in the course are ones for which there are a large number of web sites of varying quality. Second, it is taken not only by psychology majors, but by a wide range of

students at the college allowing me to reach a wider student population. Third, it tends to be taken relatively early in the students college career so that students may be able to apply the lessons learned in this class to other classes. However, I believe that the assignment would work well in a number of other courses.

Several people asked me about my decision not to have students also write a term paper for the class. I had several reasons for not doing so. The most basic reason is out of consideration of my time and my students' time. As a small, liberal arts college we require a great deal of writing in our courses. The semester that I taught this class, I was also teaching two classes that did have traditional term paper writing assignments and one that required a poster. Several of the students in the developmental psychology class were in one or more of these other classes. The second, related reason is a long-standing commitment to offering a variety of assignments. With-in the department, we have made sure that students have several opportunities to write traditional term papers, but that they also have opportunities to do other types of writing assignments that foster critical thinking.

But most importantly, I did not believe that having students write a traditional term paper would meet the information fluency goal of the class as much as having students write the comparison of sources paper would.

Using the Craft of Teaching to Inspire Students Beyond Psychology

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During the 2003 Conference on Undergraduate Psychology Keynote address, Professor Rathus shared exciting ideas and techniques for inspiring students in the field of psychology. Teaching is both an art and science (LaFrancois, 1999) and Rathus shared some of his 'art' with the audience. The current article also attempts to integrate innovative teaching techniques that inspire students toward the field of psychology as well as their future roles as professionals in our society. As a core curriculum course at the West Point, all incoming freshman must take General Psychology for Leaders. While continuing to stress the breadth of general psychology throughout the semester, faculty have gone to great lengths to also apply psychology to personal and leadership perspectives. Despite best intentions to tie real-world lessons for leaders and followers to the vast history of the psychology field in a literary format, a textbook can be dry and intimidating. Innovative teaching techniques that integrate textbook information with personal examples can open student's minds to the rich bounty of information in our field. Not only can such techniques make each lesson more interesting and relevant, but more importantly they can serve as a catalyst for personal student/leader growth beyond the classroom. The purpose of this study was to examine several teaching techniques based on the mnemonic CRAFT (Creative, Realistic, Available, Feedback and Technologically Astute) and its impact on student performance, attitudes, and perceived personal growth and application.

Method

Participants. This study involved 12 General Psychology instructors and approximately 630 college freshman students at the United states Military Academy at West Point. The

instructors and students used the same course-approved textbook, curriculum, learning objectives and exams.

Design. This descriptive study assessed students throughout a 17-week term to illustrate outcomes of the CRAFT techniques on student learning, attitudes, and perceived personal growth and application. Additionally, End-of-Course survey results compared student attitudes from the course to other courses in the department and the academy.

*Teaching Techniques: **CRAFT**.*

We begin with the "big C" of CRAFT. We specifically say "big C" because this first letter in our mnemonic sets the tone for your classroom. Be **Creative**! Instructor enthusiasm and motivation is contagious. Focus on both your presentation skills as well as the medium/format you use to convey concepts to the students. You are only limited by your imagination. As many general psychology texts begin with the scientific method, followed immediately by the much dreaded and maligned concept of psychological statistics, take advantage of students' pre-existing stereotypes and cognitive schemas regarding science. You can revitalize student interest by playing upon and even exaggerating their attitudes by becoming a mad scientist for these particular lessons and conducting a relevant (and hopefully humorous) experiment during class. Complete your ensemble with super statistic eyeglasses, crazy hair, and lab coat (don't forget additional coats for Igor or Igorette, your faithful assistants). Not only does this bring smiles to student faces but much more importantly, you have infused interest in what might be an otherwise dry classroom lecture. The majority of techniques we found effective have fallen into four general categories:

1. Props: Outfits such as the mad scientist

   Pets (e.g., bring in dog for classical and operant conditioning or observational

learning)

Family member guests (e.g., for personality development, gender roles)

Action figures/dolls (e.g., excellent examples of gender socialization)

2. Media: movie/commercial clips for visual learners to show application of concepts in action

   Song of the day

   Popular cartoons

3. Activities: Skits developed and executed by students

   Concept games such as psychology jeopardy

   In-class and out-of-class exercises

4. Meta-cognition: Acronyms/mnemonic aids for remembering difficult concepts).

The R of CRAFT stands for being both **Realistic** and **Relevant**. First, be sure to set realistic goals – for yourself as well as your students. If you expect students to be prepared for class, you owe it to them to be ready to teach. Assign projects, homework and class work that has depth rather than breadth in order to kick-start their critical thinking and application of concepts. Pass the torch of self-empowerment to the students and transfer ownership of the material. Once they understand that class is not a repetition of textbook material, but rather an opportunity to enrich that information, students become motivated to maximize their participation in classroom application (Keller, 1987a, 1987b). Do not be discouraged by initial poor grades or other subjective benchmarks of success. Focus on capturing their attention and inspiring them to be better people, not necessarily "A students" in psychology. Capitalize on this interest by adding student oriented self-awareness and self-reflection to your class. Each lesson should involve some form of personal application, highlighting where or how a particular

concept has affected the lives of your students (i.e., self, job, profession). Once ideas possess this "personal relevance," test students' understanding by having them provide personal examples of concept application. For example, in one section last fall, two varsity wrestlers were struggling with the achievement motive. It made conceptual sense to them but they had difficulty applying its components. When asked to apply this motive to their commitment and dedication to wrestling, the proverbial "light bulb of enlightenment" sparked to life. The key to overcoming this cognitive association obstacle was to *realistically* define your goal or purpose for each class and then add that critical *relevance* ingredient to allow students to link their past experiences to psychological concepts.

The next cue in our teaching mnemonic is to be **Available**. Some of the most effective teaching occurs outside of the classroom. This concept of availability far exceeds the normal before class/after class conversations and regularly scheduled office hours. It's a much wider application, showing the students that their learning and understanding of the material takes precedence over the simple pleasures of having an early workday. Being accessible and approachable for additional instruction outside of the classroom can be extremely successful, as long as the appropriate groundwork has been laid. Extend yourself to the low performers. If they are willing to put in the extra effort, be right there beside them for encouragement and motivation. You will be amazed by the true appreciation of a student who comes to the realization that their instructor "cares" about their progress and success. Below is a quote from a student on an anonymous end-of-course feedback survey:

"I really appreciate all of the effort you are putting into insuring that I keep my grade up! Your efforts make me desire to work harder than what I have been working. Hopefully, I will be able to walk out of your class with that B that both you and I hope I earn. As I said before, I am

just writing to let you know how much I really appreciate your efforts. You are a great teacher, thank you for your endless support."

The F in CRAFT corresponds to both **Feedback** and **Follow-through**. There is not a magical "cookie-cutter" approach to get the most out of each student. Tailor your feedback to highlight strengths, but more importantly, focus on weaknesses and areas that need improvement. Just as different leadership styles may be required for different subordinates in the job market, an instructor needs to recognize what type of feedback can be used to best motivate his or her students. Simple notes or e-mails sent to students' advisors and/or parents can have an unproportional positive impact. One such note to a parent prompted this unsolicited response:

"You and your fellow leaders must be doing something right…for me seeing [student name] happy and challenged and positive is such a great feeling. Thanks for all you have done."

Simple recognition can have a tremendous impact. In our General Psychology for Leaders course, students earn the "coveted PL100 tab" for achieving an A+ on one of our exams. This tab is a simple 1" x 3" black and gold patch, similar to a military school award, that suddenly becomes a distinguishing mark of excellence for the students.

The turn-around time on returning exams to students (with personalized words of congratulations or encouragement) is also a crucial component of the feedback process. Additionally, it is important to highlight that feedback is a two-way street. Providing students with an outlet for constructive comments/criticism on your course at designated times during a semester can greatly assist you as an instructor on personal strengths and weaknesses. These techniques also require "follow-through" on the instructor's part in order to track and manage individual progress in designated problem areas as well as address student comments/concerns

regarding the course. This feedback process sets the stage for life-long learning and focuses on providing guidance for personal growth and self-development.

The final component of CRAFT is to be/become **Technologically Astute**. We are embarking on an exciting world transition into the 21st century. It is imperative to stay abreast of technological advances in order to remain on the cutting edge of teaching and learning. The laptops are here! Being familiar with the available tools of the technology trade will allow you to take advantage of an enormously broad array of resources. Internet websites, audio/video programs, reference pages, on-line journal access, and programs such as "Blackboard" add valuable, current insight to instruction and assist classroom participation. Opportunities to review class homework in front of the entire class, allow student collaboration and presentation of classroom projects, as well as conducting testing on-line, can greatly enhance the efficiency of classroom instruction (Efaw et al., in press).

Results

During the Spring term of 2003, 17 out of 550 students failed the General Psychology for Leaders course. Only 4 students achieved an overall grade of A+ and the course grade average was 80%. This year, using the techniques listed in CRAFT to inspire students beyond psychology, there were only 2 failures out of 631 students. The students who achieved an A+ in the course jumped dramatically to 35 and the course average rose to 84%.

End of course feedback also displayed a much more positive trend. A mandatory requirement at the end of each term, students provide anonymous feedback on both course material as well as instructor aptitude. As described in Table 1, students are asked to rate their instructors across several dimensions. In six of the eight questions, the psychology instructors are rated significantly higher than their peers in other departments at West Point. These areas

correspond to teaching techniques, showing genuine care for students, and life-long learning beyond the walls of psychology through motivation, stimulation, and critical thinking. In order to address course-specific assessment, we were also able to submit department level questions to the survey. Once again, instructor skills and methods were rated extremely high in terms of both presentation ability and personal growth and development. Although not required, students were also given the opportunity to provide written comments on the survey. These attitudes reconfirmed the statistical survey results. They were overwhelmingly positive and provided substantive evidence that their experiences in the classroom went beyond the everyday "lecture/take notes/take exam" norm:

> "Sir, I really enjoyed your class. It was my favorite academic course of my plebe year and I learned a great deal about myself, others, and how I can apply this knowledge as a leader in the army. Thanks."
>
> "I was very inspired by his motivation and effort he put into making us excited to learn and see the relevance of the course material."
>
> "Your enthusiasm helped remind me why I'm at this school and showed me the type of leader I want to become. The fact that you cared so much helped me to care."

Discussion

As stated in the introduction, Professor Rathus' keynote address provided the catalyst needed for the General Psychology for Leaders instructors to ask ourselves the tough question: *"Are we doing enough to truly inspire our students in this great field of psychology?"* While the failure rate we experienced in the Fall of 2003 was not abysmal (3% of the course population), our instructors refused to accept the fact that 17 future Army officers failed to internalize the words of one of the academy's soldier/scholar/statesman, Dwight D. Eisenhower. Following

World War II, the former President and Supreme Allied Commander of Allied Forces, first voiced that psychology played the vital role in the "necessity of handling human problems on a human basis and [could] do much to improve leadership in the Army at large." This set us on a path of rediscovery. We capitalized on our strengths, identified our weaknesses, and put plans into motion that would reinvigorate our core survey course. The implications of our results highlight the ability of an instructor to "teach beyond the classroom." While above-average grades are a welcome sign of immediate confirmational feedback, we should use all means at our disposal to get students to not only understand and get motivated by our extraordinary field, but more importantly, be able to achieve personal growth by applying our concepts to their everyday and future lives. It is our hope that readers may find something valuable in our methods of additional 'teaching tools' to apply their CRAFT in their classrooms to inspire their students in the field of psychology and their future role as professionals and leaders in our society.

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Table 1. Student Ratings of Teachers (Academy vs. Psychology Department)

USMA Questions	**USMA**		Psych	
	M	SD	M	SD
1. Instructor encouraged students to be responsible for own learning.	4.43	.64	4.55	.57
2. Instructor used effective techniques for leaning.	4.22	.87	4.66*	.57
3. Instructor cared about my learning in this courses	4.41	.74	4.75*	.48
4. Instructor demonstrated respect for cadets as individuals.	4.53	.67	4.79*	.44
5. Fellow students contributed to my learning.	4.00	.93	4.03	.84
6. My motivation to learn has increased b/c of course.	3.90	1.06	4.28*	.80
7. This instructor stimulated my thinking.	4.21	.84	4.48*	.64
8. My critical thinking ability increased in this course.	4.01	.98	4.19*	.78

Note. Scale range: 1 = Strongly Agree to 5 = Strongly Disagree, * $p < .05$

Table 2. Student Ratings of Teachers (Psychology Only)

Department Only Questions	Psych	
	M	SD
9. Instructor communicated effectively (e.g. appropriate level, spoke clearly, inflections, etc.).	4.87	.37

10. Instructor was enthusiastic & energetic when presenting course material.	4.91	.32
11. Instructor had a structure or plan for every lesson's learning activities.	4.89	.35
12. Instructor showed me ways in which the course was of practical significance & applicable in my future (e.g., military applications, future or common course applications).	4.71	.53
13. Instructor helped motivate me to do my best work & gain maximum benefit from the course.	4.56	.62

Note. Scale range: 1 = Strongly Agree to 5 = Strongly Disagree

Teaching Learning Lab: Fruit Flies, Rats, and Humans. Oh my!

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Our department offers four upper-level laboratory courses designed to provide undergraduates with direct experience in conducting psychological research in four areas (Developmental, Social, Cognitive, and Learning). We will focus on the Learning Lab course, which we have taught using several different experimental methodologies. Specifically, we have taught the Learning Lab course using two different non-human animal paradigms designed for studying learning in rats and fruit flies as well as paradigms designed for studying learning in human participants. We will discuss examples of studies involving these different paradigms and their respective advantages and disadvantages with regard to undergraduate education in psychology.

In the past, we taught the Learning Lab using traditional operant conditioning procedures in rats. We began the semester by orienting students to the animal facilities and familiarizing them with APA ethical guidelines concerning the care and use of animals. We also provided the students with training in handling and caring for the rats and in using and maintaining the operant conditioning chambers. The students then worked together in small groups during class to shape lever-pressing responses in their rats using food reinforcement. Students also conducted literature searches and prepared written reports of their findings using APA format (this work was primarily accomplished outside of class). At the conclusion of the shaping study, students worked with their group members to design and conduct a follow-up study, which typically involved changing the reinforcement schedule and observing the effects on lever-pressing

behavior in the rats. As with the shaping study, students also conducted literature searches and prepared written reports of their findings.

Perhaps the most significant advantage of teaching the Learning Lab using an operant conditioning paradigm in rats was that students were excited about the opportunity to study basic learning phenomena firsthand. Moreover, the procedures were simple and the effects were reliable, so students also derived a sense of satisfaction with the success of their efforts. One of the principal disadvantages of this paradigm was that maintaining the rat lab was both expensive and time-consuming. The procedures also required approval from the Institutional Animal Care and Use Committee (IACUC), and working with the rats posed a potential risk of injury or illness to the students. From a pedagogical perspective, the psychological literature relevant to this paradigm was often either dated or difficult to obtain, or (if it was more current) complex and difficult for students to understand and integrate into their written reports. Finally, students' creativity in terms of designing their own studies was limited by time constraints and financial considerations.

Since the disadvantages of the operant conditioning paradigm in rats outweighed its advantages, we decided to change the paradigm used to teach the Learning Lab. Based on information from the PsychExps website (http://www.olemiss.edu/psychexps), the second author (D.R.R.) developed a computerized experiment to study learning in human participants. Specifically, the experiment was designed to test the hypothesis that the correct solution to a transverse patterning problem (which requires formation of configural associations) would be more difficult to learn as compared to a problem that can be solved using simple elemental associations. At the beginning of the semester, students were oriented to the psychology laboratory and learned about APA and Institutional Review Board (IRB) guidelines and

procedures regarding use of human participants for psychological research. Students then worked together in small groups to recruit and test participants, review relevant literature, and prepare written reports of their findings. At the conclusion of the study, each group of students designed and conducted their own human learning experiment. Typical studies designed by students included investigating whether manipulations of stimulus modality (e.g., presenting a list of words visually vs. auditorily) or person variables (e.g., gender or preferred learning style) affected learning and memory.

One of the principal advantages of using human participants was that students readily identified with the concepts and methodology. Additionally, the procedures used were simple and inexpensive. Although there was no shortage of current and relevant literature, it was often very complex and difficult for students to comprehend and integrate into their reports. However, since the guided experiment was almost completely automated, students tested participants outside of class time, and thus were able to spend class periods reviewing the literature and working on their writing together. Additional disadvantages included the need for IRB approval, and limitations regarding the types of learning experiments that can be conducted with human participants.

The approach taken by the first author (L.L.P.) was to introduce students to an invertebrate model used to study learning, *Drosophila melanogaster* (fruit fly). Students were first trained to maintain a colony of flies. Once students were comfortable and adept at handling the flies, a guided research project was initiated to examine the role of Pavlovian conditioning in mating behavior. Specifically, students were trained to condition flies by pairing a neutral odor cue (CS) with an aversive event, exposure to cold (US). It was expected that the odor cue that

was paired with exposure to cold would disrupt mating activity. Once students were able to condition the flies, they were trained to identify and measure components of mating behavior.

Fruit flies were chosen as a model system for the lab for several reasons. First, flies are easy and inexpensive to maintain. Second, the techniques used to study their behavior are accessible for undergraduates and there is an existing richness of genetic mutants and inbred lines that open countless research opportunities. Furthermore, flies perform both simple and complex tasks in the laboratory, which gives the students an opportunity to observe learning and courtship behavior. Much is known about the behaviors of fruit flies, including the stimuli that influence them and the central nervous system mechanisms. Despite the advantages listed above, many problems were encountered over the course of the semester. First, flies are sensitive to many environmental conditions that were difficult to control. For example, on several occasions flies were “sluggish” because the laboratory room was too cold. In addition, one of the fly colonies developed a bacterial infection that took several weeks to eliminate. Second, although the techniques are accessible, training consumed far more time than expected. Last and most distressing was that students had a difficult time accepting flies as a legitimate model to study the learning process.

In conclusion, all three paradigms are effective for teaching learning methodologies. However, for the animal paradigms, the disadvantages outweigh the advantages. Human paradigms appear to offer greater potential although more creative and varied strategies in the area of human learning are needed.

The Immediate Feedback Assessment Technique: An Innovation in Multiple-choice Testing

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Although there has been considerable controversy surrounding their use, multiple-choice (MC) tests are the most widely used type of objective tests in educational settings. The Immediate Feedback Assessment Technique (IFAT) is a new, commercially available answer form for MC testing that can be used easily and conveniently with large classes. In contrast to most MC answer forms that typically allow students to indicate only their first-choice answer for each item and provide no feedback on performance, the IFAT uses an answer-until-correct format that provides immediate feedback on each MC item. In addition, at the instructor's discretion, students may be awarded partial credit when their first attempt is incorrect, thus rewarding them for their proximate knowledge of the correct answer.

Research has consistently shown that undergraduate students readily accept the IFAT and prefer it to other MC answer formats, such as the more well-known and commonly used Scantron form. When DiBattista, Mitterer & Gosse (2004) let students use the IFAT on an examination, 83% said that they would like to use the IFAT in all of their courses that have MC tests. In contrast, fewer than 10% preferred the Scantron form to the IFAT, and almost two-thirds said that the IFAT is fairer than the Scantron form. Furthermore, although they were using the IFAT during a major examination, 78% of the students indicated that the IFAT made the test feel something like a game. It is worth noting that students' liking for the IFAT cannot be attributed solely to the fact that they may receive partial credit on items even when their first attempt is incorrect. Although almost all students say that they like having the opportunity to receive partial

credit, more than half of them say that they would still prefer to use the IFAT even if partial credit were not available (DiBattista & Gosse, 2004).

Students' preference for the IFAT has not been found to be related either to test performance or to a variety of personal characteristics, including age, gender, number of courses previously taken, students' self-reported degree of preparedness for the test, and students' perceptions of the difficulty of the MC items (DiBattista, et al., 2004). Moreover, DiBattista & Gosse (2004) recently found no significant relationship between either impulsiveness or test anxiety and preference for the IFAT, nor was there evidence that students with higher levels of either impulsiveness or test anxiety are disadvantaged by the use of the IFAT.

Another positive aspect of the IFAT is that the immediate corrective feedback that it provides actually enhances learning. For example, Epstein, Epstein & Brosvic (2001) had undergraduates use either the IFAT or the Scantron form on a series of unit tests, and then presented some of the same MC items on the final examination. All students used the IFAT on the final examination. Students in the two treatment groups had similar levels of performance for final-examination items that had not appeared on the unit tests. However, on items that had previously appeared on unit tests, students that had used the IFAT scored 13% higher than those who had used the Scantron form. Moreover, IFAT students were more than twice as likely as Scantron students to respond correctly on the final examination to items that they had previously answered incorrectly on the unit tests.

It is clear then not only that the IFAT is well accepted by students, but also that it helps them to learn the course material–a winning combination! However, instructors who use the IFAT for the first time may encounter challenges that they had not anticipated. For instance, because the IFAT permits the awarding of partial credit when the student's first response on an

item is incorrect, the instructor must construct a grading scheme that is both fair and appropriate. In addition, it is important that students be thoroughly informed about how the IFAT works before they are to use it for the first time on a test. Because students may be uneasy about using a novel answer form, they will ideally be given the opportunity to have a “dry run” with a sample IFAT form before the first test in which it is used.

Based on my experience with the IFAT over the past several years, I offer the following tips that may be of value to instructors who are thinking of using this interesting and novel technique for the first time.

- Give students full information about the IFAT in advance of the test. To reduce any anticipatory anxiety, inform students of both positive and negative aspects of the IFAT. For example, students often say that it is too easy to scratch a box on the wrong line of the IFAT form. When cautioned about this ahead of time, students can take greater care and avoid making this type of error.
- Refer to the IFAT as the “scratch-and-win” answer sheet. This encourages students to think of its game-like qualities.
- Use great care in arranging your test items to match the IFAT form you are using. That is, you must ensure that the correct answer for each item actually corresponds to the box that has the star in it. If you make an error on an item, some students–especially the ones who are most certain of the correct answer–will become confused and frustrated.
- When constructing your test, keep in mind the knowledge that students gain from corrective feedback on MC items. For example, a student may obtain certain information while answering the MC items and incorporate it into an essay question elsewhere on the test.

Personally, I see nothing particularly wrong with this–it demonstrates that the student is alert–but it is important for instructors to realize that it can happen.

- Before distributing the IFAT forms, carefully check them for flaws, scratches, etc.
- Use a reward-for-proximate-knowledge (RPK) grading scheme rather than either a simple or a correction-for-guessing grading scheme. When I use the IFAT, I award 100, 25, 10 and 0 percent of the available marks, respectively, for answering correctly on the first, second, third and fourth attempts.
- Recall that grades will be somewhat higher than usual with a reward-for-proximate-knowledge grading scheme. For example, for a MC test of normal difficulty, the use of the RPK grading scheme described above increases the average grade by about 5 percentage points (e.g., Simple: 65.9%; RPK: 71.3%). Instructors who are concerned about possible grade inflation can compensate for the slightly higher grades produced by the RPK grading scheme by making a few of the test items a bit more difficult than would otherwise be the case.
- Arrange seating of students to minimize easy copying. Make it a point to remind students that it is *their* responsibility to ensure that other students cannot see their answer sheet.
- Provide students with a copy of "Suggestions for using the IFAT form" (Table 1) whenever they use it on a test. I print these suggestions on a brightly coloured sheet of paper that is distributed right along with the test papers. Because this handout is distinctively coloured and easy for proctors to spot, it can be readily identified as being a legitimate item for students to possess and not a crib sheet. A bonus is that students can use the edge of the handout to ensure that they are scratching on the correct line of the IFAT form.

Table 1. Suggestions for Student Using the IFAT Form

- The corner of your ID card is perfect for scratching the boxes.
- Scratch the IFAT form with care so that you do not tear it.
- Use the edge of this piece of paper to ensure that you are scratching on the correct line of the IFAT form.
- Mark you answer first on the test paper, and then scratch the box on the IFAT form.
- The star may appear anywhere within a box. It is not always in the same location, so scratch the entire box.
- If you scratch any portion of a box, it will be counted as a guess.
- Think before answering! Once a box is scratched, you cannot “unscratch” it!
- You can earn part marks even if your first attempt is not correct. Keep scratching until you find the star.
- You can immediately determine your mark on the multiple-choice portion of the test. If you choose to do this on the form, please do it neatly!
- Keep your IFAT form secure! It is *your* responsibility to ensure that other students cannot see your answer sheet. Place it face down when not in use.

Student Knowledge and Attitudes Regarding Aging

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Marist College

The purpose of this study was to gather information from college students in order to determine the feasibility of the establishment of a gerontology program at Marist College, Poughkeepsie, NY. This survey project was a follow-up to a community needs assessment on the same topic undertaken by Dr. Crispi and three students during the prior school year.

It was hypothesized that that knowledge about gerontology and positive attitudes about aging would predict student interest in courses and programs in gerontology. These hypotheses were based on literature in the area of adult development and aging that have shown that age-related information can be of significant importance in the formation of evaluations of the elderly by younger adults (Kite & Johnson, 1988), and that knowledge about gerontology can potentially counteract ageism and replace it with a more balanced view of aging (Cole, 1992).

Method

Participants

Two hundred forty-three undergraduate and graduate students from fourteen different disciplines on both the main campus and satellite centers were surveyed on topics related to their knowledge and attitudes concerning issues related to aging as well as their motivation to enroll in courses that could potentially be offered in gerontology. The majority of the students were traditional undergraduate psychology majors. Sixty percent were from the main campus, the remainder from the satellite centers. The median age was 27.

Instruments

A questionnaire was developed to survey student attitudes and enrollment motivation. Students were first asked to choose from a list of 30 adjectives the ones they associated with aging and then to rank their top three choices. Adjectives that could be associated with aging were both positive (e.g., higher intelligence, spirituality, or wisdom) and negative (e.g., disease, poverty, or wheelchairs).

Students were then assessed regarding interest in enrolling in courses related to aging. In order to provide information to students who were not aware of the growing demand for college graduates with training in gerontology, students were first given background information from a recent community needs assessment conducted by Crispi, Vangel & Wetter (2003). This earlier study found that there would be an increase in the number of elderly people living in the local area in the near future as well as an expected increase in life expectancy resulting in a greater demand for jobs, specialized training and education in the field of gerontology. A survey of community agencies that serve the elderly, which was conducted as part of the needs assessment, also indicated that the majority of those agencies would be more likely to hire college graduates to work in their agency if they had training in gerontology.

Given that information, students were then asked whether or not they had an interest in pursuing courses or programs related to gerontology. They were asked to select from twenty different courses they might be interested in taking if made available at the college. They also selected programs of interest, which included: non-credit courses, workshops, electives, minors and graduate certificates. Additionally, students were given an opportunity to express any reluctance they had to take courses in aging by choosing from eleven reasons why they were reluctant or disinterested in enrolling in such courses.

Procedure

During the last three weeks of the spring semester, packets of surveys were sent to all full-time psychology faculty members for distribution to a representative sample of undergraduate psychology classes. Survey forms were also given individually to all on-campus psychology graduate students. Additionally, promotional advertisements and fliers were sent to the off-campus extension centers and the students at those centers were given access to a convenient online version of the survey form.

Results

Students indicated that they preferred to take courses that were personally relevant to them rather than the more academically oriented courses that would prepare them for a career in gerontology. Courses of greatest interest included the following topics: coping skills in later life (46%), lifestyle changes over life (38%), practical issues faced later in life (37%), and death and dying (34%). The courses that they expressed the least interest in taking included: aging of minority groups (11%), effects of historical time on aging (16%), aging and alcohol (19%), and elder abuse (19%).

When given a choice as to what types of courses they would be interested in taking, the students were most interested in taking elective credit-bearing courses (41%). They also expressed some interest in graduate certificates (26%) and short workshops (21%), but very little interest in either an undergraduate major in gerontology (1%) or any non-credit bearing courses (7%).

Overall, students viewed the characteristics of aging negatively. Of the top eight characteristics associated with aging, seven were negative: physical decline (86%), loss of memory (80%), living in a nursing home (80%), death (78%), disease (77%), loneliness (75%), and pain (72%). The only positive characteristic in the top eight was wisdom (78%). The bottom

five characteristics associated with aging were more positive: flexibility (8%), conformity (9%), creativity (11%), optimism (16%), and security (19%).

Some students reported being reluctant to take courses in aging. Sixty-six (28%) said they feared working in a depressing environment and forty-nine (21%) had no interest in aging.

Results support the hypothesis that knowledge about aging could increase interest in gerontology courses and programs, especially in older, graduate students. Knowledge about gerontology was significantly related to: higher level of education (r=.40, p<.01), older age (r=.26, p<.01), the number of positive terms associated with aging checked by the student (r=.15, p<.05), and an increased interest in taking courses in aging after having completed the survey (r=.27, p<.01).

Using forward stepwise regression analyses, three factors were significant predictors of the number of courses a student would take: the number of positive terms associated with aging that the student checked on the survey F (2, 212) = 19.7, p<.01; the degree of reluctance to take courses related to aging (inverse) F (3, 211) = 15.13, p<.01; and positive feelings about aging after taking the survey F (4, 210) = 12.48, p<.01). Additionally, two factors were significant predictors of the number of programs a student would take: the number of negative terms associated with aging that the student checked on the survey (inverse) F (2, 212) = 17.49, p<.01; and student age (inverse) F (3, 211) = 14.35, p<.01.

Discussion

It would be valuable to present students with information related to aging to enhance their knowledge in those areas prior to the implementation of any courses or programs in gerontology. An introductory level course in gerontology that is geared toward personally relevant issues would help to accomplish this. The younger students, who the survey indicated had the least

knowledge regarding gerontology and who were also the most reluctant to want to enroll, would be appropriate first targets for knowledge enhancement prior to the implementation of courses. It would be expected that the students would become more knowledgeable after such a course and consequently would be more likely to express interest in programs in gerontology.

When designing programs for students, the survey indicated that younger students were more open to a diverse offering of programs whereas older students were more focused and specific in the program for which they expressed interest. Students of all ages generally were most interested in taking elective credit-bearing courses, not in obtaining a degree in gerontology. They also expressed some interest in obtaining a graduate certificate.

The information obtained by this study can be helpful to colleges that are interested in establishing courses and/or programs in gerontology. The study results provide an overview of student knowledge, attitudes, and interests regarding both the aging process and the prospect of taking courses in gerontology.

This survey project was a collaborative effort between Dr. Crispi and Stacey Trapani, a recent Marist graduate. We would also like to acknowledge Pamela Vangel, another recent graduate who helped to develop the survey instrument.

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(Marathon) Distance Learning: What Running Teaches Us About Teaching

Ethan Gologor

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I've lately become interested in running and what it means. And I don't refer jut to legged or even four-legged animals moving fast. We run for office, we run into trouble, we run up our bills. We want to run with the fast crowd but we don't want to get run down. We run our eyes down the page and our ideas by our friends. We want our shows to have a long run, to have the run of the house, to be on a run with our roulette wheel bets. We want our machines to keep running, without running up too much of a cost. And I don't want just to run through this or run around the issue. . And I'm happy to see that our lunchtime guest speaker didn't just run off but is sitting here in the back, but if I'm not careful, I'm going to run into some run-on sentences and this brief talk will run into hours..

You get the idea. There are more definitions of the word "run" in the dictionary, I believe, than for any other word. As I check my modest New Collegiate, I find a column and a half of definitions, twenty-four for the transitive verb, thirty-two for the intransitive, twenty-two for the noun. And that's without all the two-word phrases...that I was running up or down or into above. My contention, and it is the source of much of my interest in the subject, is that running, like so many things in sport, is a metaphor and when we discern the appropriate dimensions and variables—terms we like to use in science—we will be learning about these other endeavors as well, be they politics, gambling, marriage or...well....learning.

I became interested in the subject---being something of a sportsman myself, but always having failed miserably at running—when I attended a few marathons, as part of what the New York medical volunteers called the psyching team. In such an event, one that seemingly was

designed to show the overriding importance of physical preparation and endurance, what, you might ask, could be more irrelevant or trivial than psychology? Are we expected to conclude that running 26.2 miles, the distance which Pheidippedes was supposed to have covered (actually, it was purportedly a bit less, for some reason) to announce the ending of the Greek war with Persia (at which point he promptly dropped dead) is mainly in the head? Dare we tell those who cramped in three different muscles at mile 16 (not just Puff Daddy), or who hit the “wall” at mile 21, or who fell to the ground in agony at mile 24 to think positively, to focus on their goals, to use the crowd for inspiration? You might as well a terminally ill patient, and many on the unseasonably warm New York course last year felt they were just that, they they're in control of their own deaths.

And yet, sport psychologists, especially "running psychologists" do exist. And while many simply use behavioral-cognitive techniques, familiar enough to many who wish to improve performance therapeutically (relaxation, ritualization or visualization, for example) and others have attempted to apply findings in other areas to sport (social facilitation, for example), what is at least equally interesting is whether the application can go the other way. Can one extrapolate sport psychological findings to other areas? Just as sport medicine has grown and may show its real usefulness when its techniques or findings can apply outside of sport (Does the arm splint which prevents exaggerated mobility, thereby enabling Chad Pennington to go back to throwing footballs for the Jets before his injury is completely healed have application to the pregnant woman in danger of miscarrying?) so psychological discoveries in the sport arena or on the race course can be applied possibly to marriages, to personality differences or to test taking.

But first let's take a look at some of these findings, reported widely in various interviews and discussions with runners (some of these are particularly noted in non-scientific works or

guides such as Bob Glover's "The Runner's Handbook"):

l) It's hard to get started (but recognizing this helps);

2) There is not one course—you can vary, particularly on treadmills, rate, distance and even incline (particularly useful, if you find yourself under performing your expectations. You can change, in other words.

3) There is no one strategy of what to attend to. (Research has shown some relationship between performance and external or internal association or dissociation—some, in other words, heed their own drummers, and others look at the scenery).

These and other reports provoke different hypotheses. We understand now why dropping out (which happens often to those engaged in physical activity—not only do injuries readily occur, but it takes time and commitment to stay with it regularly) often puts you at the beginning again, and beginning is never easy a second time. Is this not true of students, of those in second marriages, of dieters? We also understand why having goals is critical—but those that are neither too distant nor too close. Any marathoner who thinks after one mile, "I've got 25 left" is bound to be discouraged. But neither do you want to be counting each block (61st Street, 62nd Street as you come up First Avenue in Manhattan; Avenue X, Avenue W, as you grind up Ocean Avenue in Brooklyn) when you have 500 of them. Thinking ahead a moderate distance is optimal, as those who scored highest on "Need for Achievement" in McClelland's research many years ago were those with moderate goals. We understand that forgiving oneself—it's all right not to reach your goals each time—is vital for being able to start again. We may also discover that basic personality types perform differently on the race course. It has long been my contention, first put forth in a work on tennis (Gologor, 1979), that extroverts, in many sports, have a much harder time coming from behind than introverts, whose perseverance and absence

of distraction enables them to see activities through to the end. This has been observed in test performance as well. It was my prediction then that for long-distance runners, one would find a greater preponderance of internal, rather than external motivation.

To test this observation, and hunt for some other corollaries of performance, a brief questionnaire was designed. Some ideas were modified versions of the Motivation of Marathoners Scale (Masters, Ogles & Jolton, 1993), one which has been used for different levels of competitors even in triathlons. The two-page questionnaire follows:

General Information:

1) Age _____

2) Gender_____ (M or F)

3) Do you consider yourself an "athlete?" Y____ N_____

4) Would you be very depressed if you were injured and could not participate in sport?

Y ____ N_____

5) How long have you been running regularly _____?

6) How much do you run in an average week. _____?

7) Have you run a marathon? If so, when, where and if you finished, what was your time? If you did not finish, what caused you to stop? If not, what is the longest you have run?

8) Do you usually run alone or with others

9) To the best of your ability, judge on which of the following you are most focused when you run:

a) my body and how it feels

b) thoughts having nothing to do with running

c) events (e.g., scenery, people walking) having nothing to do with running

d) external events (e.g., other runners, mile markers, spectators) related to running.

10) Why do you run?

In each of the pairs below circle the choice which more appropriately describes your reason for running. (Choose one even if neither is or both are an accurate reflection of your reasons).

1) I run

a) for health reasons (e.g., to stay fit, lose weight)

b) to achieve something

2) I run

a) because I like to compete with others

) because it gives me a feeling of competence or confidence

3) I run

a) to socialize with others

b) to earn respect from others

4) I run

a) to get distracted from my problems

b) to push myself toward higher goals

5) I run

a) to share an experience with others

b) because it's exciting

6) I run

a) to meet people

b) to lower the risk of certain diseases

7) I run

a) to keep myself fit

b) to relieve tension

8) I run

a) so people will be proud of me

b) to improve my own time

9) I run

a) to improve my time relative to others

b) because it give me a sense of accomplishment

10) I run

a) to show off

b) because I have to

11) I run

a) because I enjoy being with others doing something similar

b) because I enjoy competing with others

12) I run

a) to beat someone I haven't beaten before

b) so people will look up to me

13) I run

a) to keep physically fit

b) to be seen as doing something special

14) I run

a) to be part of the crowd

b) to see how well I can do

15) I run

a) to do something not everyone can do

b) to keep my weight down

Aside from the general information on the first page, the 15 forced-choice questions on page two paired each of six different motivations against each of the others. The six were as follows:

l) Health (e.g., to keep my weight down; to keep myself fit)

2) Achievement (e.g., to push myself toward higher goals; to get a sense of accomplishment)

3) Psychological (e.g., because it's exciting; to relieve tensions)

These three were viewed as Inner-Directed or Introverted Scales, inasmuch as they were independent of others.

4) Competition (e.g., to beat someone I haven't beaten before; to improve my time relative to others)

5) Social (e.g., to be part of the crowd; to meet people)

6) Exhibitionistic (e.g., to show off; to be seen as doing something special)

These last three, focusing on others' performance or reactions, were deemed Extroverted.

Preliminary analysis of results, based on twenty-five completed questionnaires, distributed to runners volunteering to take part, who had run in a variety of states, from Florida to New York, and who varied considerably in age and running experience, showed the following:

In all cases, a preponderance of runners showed a majority of motivation selections to be from the introverted scales. Additionally, two independent scorers rated question 10, where runners were asked to provide their own motivation ("Why do you run?") according to the dimensions already cited. There was 100% correlation between the ratings of the two raters, and

practically total agreement with the forced choice questions. In other words, if a subject wrote "I run to accomplish something," rated as "Achievement," then invariably one of his highest scores on the forced-choice questions would be on achievement.

Further analysis showed no significant difference between gender and motivation. It was expected that men would prove more competitive but scores on this dimension were practically identical for both sexes. Analysis of a comparison of degree of athletic identity with performance and motivation remains to be done, as more and more athletes are surveyed. It will be hypothesized that those who consider themselves athletes will, for example, score higher on achievement than on social. But more to the point, higher degree of identity will be a predictor, it is hypothesized, of greater likelihood of continuing once having stopped.

If true, this latter conclusion will enable us to extend the notion of "identity" to areas already mentioned. We predict that those who stop diets, marriages or school are those, whatever else may be given as reasons, who do not consider themselves as "thin people," "spouses," or "students," respectively. As we may wish, for this last group particularly, to extend some of the psychological findings in the area of sport and running, in particular, to education—by having them "visualize" their completion; by having them set "realistic" goals (not too distant, not too close); by having them become familiar with their testing environment in much the same way as runners' familiarity with the course assists performance by reducing the anxiety over the unfamiliar—so we may find that by instilling a sense of "student identity," students will be more able to overcome the bumps and hurdles along their course. Even when they're forced to stop, they will come to view their behavior as a temporary hiatus, rather than a sign of their being "drop-outs," and be able to get back on the track.

Integrating Learning Goals and Performance Outcomes in the Undergraduate Psychology Curriculum

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Psychology, as a discipline, has led the way in curricular development by its strong emphasis on pedagogy. Included in this pedagogy, is the recognition that articulating clear learning goals is essential to any curriculum. This paper discusses the process that the Psychology Department at Iona College used to develop its learning goals and performance outcomes. Specifically to be addressed: (a) why goals and performance outcomes are necessary; (b) how the APA Goals can be used as a starting point; (c) the role of a departmental mission statement; (d) our Department's process, and (e) a review of our goals and performance outcomes.

The for Need Goals and Performance Outcomes

The development of a comprehensive set of learning goals and performance outcomes was partly in response to a college-wide initiative at Iona to: (a) strengthen programs, (b) seek accreditation by external bodies, and (c) make more explicit the knowledge and skill set of graduates.

Having clearly articulated learning goals serves a number of functions. First, having learning goals provides accountability to stakeholders regarding the quality of teaching and learning in psychology. These stakeholders include students, faculty, administration, accrediting bodies, and policy makers. Second, learning goals enable psychologists to emphasize the scientific nature of psychology and the breadth of the discipline. This is very important because of the misperception that exists that psychology is solely a service-oriented profession. Third,

they provide students and future employers with a clear set of expectations about the knowledge and skills of psychology majors. Fourth, students' ability to communicate their expertise is enhanced because expectations have been made more explicit in their curricular experiences.

Moreover, as research and assessment "experts," psychologists should demonstrate leadership in this important area of educational assessment, thereby helping to shape national expectations for undergraduate education, and encourage research on effective educational practices. Articulating criteria for education and training guidelines in psychology may help address issues related to the quality of programs and provides a basis for comparison among programs. Psychology departments wishing to improve and/or expand their programs can look to clearly articulated criteria to assess vis-à-vis what others are doing. An added benefit is that clearly articulated goals may foster the development of transfer credit agreements between 2-year and 4-year colleges and universities. Clarification of how 2-year programs can build effective foundations for the BA in psychology is fostered by this endeavor. The recent proliferation of distance learning modalities calls for clarified goals and outcomes in order to ensure comparability with traditional classroom instruction.

APA Goals

The American Psychological Association convened the *Task Force on Undergraduate Psychology Major Competencies*; in 2002, the APA approved the 10 broad-based goals and 49 more specific learning outcomes developed by this task force. The APA goals are as follows:

- Goal 1: Knowledge Base of Psychology (breadth and depth of content areas; major perspectives in psychology)

- Goal 2: Research Methods in Psychology (scientific nature of psychology; research methods; data collection, analysis, interpretation; appropriateness of conclusions drawn from research)
- Goal 3: Critical Thinking Skills in Psychology (evaluate the source, context, and credibility of information; evaluate new ideas with an open but critical mind; effective problem solving)
- Goal 4: Application of Psychology (e.g., I-O, Counseling, School, etc.)
- Goal 5: Values in Psychology (tolerate ambiguity; act ethically; recognize and respect diversity)
- Goal 6: Information and Technological Literacy (use databases effectively; use relevant software; cite sources correctly; avoid plagiarism, honor commercial and intellectual property rights)
- Goal 7: Communication Skills (effective writing and oral skills in various forms and for various purposes; quantitative literacy; effective interpersonal communication)
- Goal 8: Socio-cultural and International Awareness (interact effectively with people of diverse backgrounds; understand socio-cultural contexts that influence people; understand factors related to prejudice and discrimination)
- Goal 9: Personal Development (identify personal and professional goals; employ goal setting, self-evaluation, and metacognition)
- Goal 10: Career Planning and Development (apply psychological skills and knowledge in occupational pursuits)

Criteria for Goal Development at Iona College

As a first step, the psychology department developed a set of agreed upon criteria to be used in the development of our learning goals and performance outcomes. First, we wanted the psychology department goals to be consistent with the *Mission Statement* of Iona College and with the department's *Mission Statement*. Second, we wanted to use the APA goals as a model. Third, we wanted our undergraduate goals to be consistent with the graduate goals that we had recently developed.

After these criteria were established, each member of the department developed a first draft of a specific goal and its corresponding performance outcomes. What emerged from this process were six broad-based goals and 29 corresponding performance outcomes.

Iona's Undergraduate Goals

The undergraduate goals and performance outcomes that we developed are as follows. The competent bachelor's level psychology candidate . . .

- Goal I: Is knowledgeable about research methods, including research design, data analysis, and interpretation, and is able to use computers and information technology for many purposes. Eight specific performance outcomes fall under this goal: scientific nature of psychology; how to plan, conduct, analyze, and interpret research findings; computer skills; ethical use of research and research technology.
- Goal II: Utilizes scientific thinking, critically analyzes information, and engages in creative problem solving to derive insight into and facilitate the growth of their own and others' cognitive and emotional processes. Seven specific performance outcomes fall under this goal: critical consumer of psychological information from scientific and non-scientific sources; consider novel perspectives.
- Goal III: Recognizes, understands, and respects the complexity of diversity.

Three specific performance outcomes fall under this goal: knowledge of individual differences, abilities, and challenges; understand the influence of biological, psychological, socio-cultural, and socio-economic factors on behavior; sensitivity and skills needed to work with individuals of diverse characteristics and background.

- Goal IV: Is knowledgeable about the ways psychological principles can be applied in various real-world settings and careers. Five specific performance outcomes fall under this goal: apply psychological principles, theories, and research findings to real-world settings and career choices.
- Goal V: Demonstrates a knowledge base of psychology and an appropriate value system in applying this knowledge base. Three specific performance outcomes fall under this goal: knowledge base of major content areas; ethical considerations.
- Goal VI: Is an effective communicator. Three specific performance outcomes fall under this goal: effective written and oral communication in various forms and for various purposes; utilize APA style and format.

Goals and Performance Outcomes Applied to a Social Psychology Course

These goals and performance outcomes were applied to all undergraduate courses offered in the psychology department starting with course offerings in Fall 2003. To illustrate the process, a social psychology course will be used as an example.

Social psychology is an upper level course. Although it is not required for psychology majors, it is highly recommended and a majority of psychology majors do complete the course. In addition to psychology majors, students majoring in criminal justice also complete this course. The typical student is a traditional day student, who is either in junior or senior year.

Social psychology topics align well with the goals and performance outcomes adopted by the psychology department. Since these goals were created using APA goals as the model,

topics in this course align with APA goals as well. For example, the course begins with a definition of social psychology and discussion of the various research methods used. This topic ties into Goal I, knowledge of research methods including research design. Discussions of prejudice and discrimination highlight Goal III, recognizing, understanding, and respecting diversity. Goal V, knowledge of an appropriate value system (ethics) in psychology, is explored when discussing studies such as Milgram's obedience research and Zimbardo's prison study.

In addition to aligning topics with goals, course assignments are also designed to measure goals and performance outcomes. Exams are designed to measure student knowledge of course material as well as the goals aligned to the various topics. Goal VI, effective communication, is addressed through the essay format of exams. A research paper that references journal articles is also required. This assignment addresses Goal I as well as Goal VI, in addition to other goals depending on the student's choice of topic.

An oral presentation on one of the classic social psychology studies is also required. Students must discuss the method, results, and implications of the study assigned, and all presentations must be accompanied by PowerPoint slides. Once again, it is evident that Goal I is addressed as students must present on the research design. Goal I also includes technological literacy, which is evidenced through the students' PowerPoint presentations. Once again various other goals may be assessed depending on the assigned topic.

In-class activities may also be used to assess goals and performance outcomes. Students are asked to complete a variety of self-report inventories, such as the Bem Sex Role Inventory, the Self-Monitoring Scale, and the Need to Affiliate Scale. Among other things, these exercises lead to a recognition and understanding of diversity (Goal III). Another class activity students enjoy involves analyzing magazine advertisements using the Elaboration Likelihood Model

(ELM). Students are asked to find ads targeting both the central and peripheral routes to persuasion. This exercise highlights how psychological principles are applied to real world settings (Goal IV).

In summary, goals and performance outcomes can be aligned with course topics as well as required assignments and in-class activities. Student grades on the assignments and activities can be aggregated for the various goals. This allows for an examination of which goals are being adequately mastered by students. Goals not being mastered can be examined more carefully, and assignments and/or activities can be modified to help with mastery in these areas.

Infusing Active Learning in the Research Methods and Statistics Unit of a Community College Psychology Course: Student Perceptions and Self-Efficacy Beliefs

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The research methods unit in the survey social science class can provide students with an important foundation for understanding basic issues in scientific reasoning. It typically includes an overview of the features of several research strategies (i.e., correlational designs versus the true experiment), interpreting correlations, significance testing, measures of central tendency, and variability. Despite its importance, students tend to perceive research methods and statistics coursework as uninteresting and difficult (Connors, Mccown, & Roskos-Ewoldwen, 1998). Even at the graduate level, a considerable number of students experience anxiety about their ability to succeed in courses that involve these skills, and many students avoid such courses unless they are required for their major. (Connor, 2003; Giesbrecht, Sell, Scialfa, Sandals, & Garfield, 1997; Hewett & Porpora, 1999; Lanier, 2002; Piotrowski, Bagui, & Hemasina, 2002). However, what we know about this is limited to findings from research with undergraduate and graduate students in advanced courses. To date, we know very little about students' views about learning these concepts when they are first encountered in the introductory level social science class.

There is also some consensus that the basic underpinnings of quantitative and scientific reasoning are encountered by students relatively late in their college coursework. Gainen and Willemsen (1995) specifically argue that it is crucial to incorporate new models of science and mathematics teaching earlier in the college sequence-- in what they call quantitative gateway courses, such as basic statistics. It may be important to introduce students to fundamental

concepts in statistical and scientific reasoning even earlier--in the survey level social science course. Building a solid foundation of scientific and numerical literacy is essential for a range of academic endeavors as well as for deeper understanding of scientific reasoning in everyday life (Cerrito, 1999).

Most textbooks have extensive and, at times, creative coverage of research methods and statistics concepts, but abstract discussion about the steps involved in research endeavors do not always elicit student involvement with the material (Stadler, 1998). In contrast, activity-based learning experiences are more likely to encourage students' engagement with course material (Bluestone, 2000; Perry, Huss, McAuliff, & Galas, 1996). In particular, small group activities have been found to promote students' mathematical and scientific thinking (Springer, Stanne, & Donovan, 1999). Advances in technology have created additional possibilities for students to engage in activity-based learning using computer simulations and tutorials about mathematical, scientific, and statistical concepts. These resources provide a rich background to allow instructors to integrate hands-on investigations in the classroom without expensive laboratory equipment.

This article describes an activity–based, hands-on module for the research methods and statistics unit in a community college introductory psychology course that was developed with the assistance of a small NSF-Funded CCLI grant (#0087959). The goal was to build students' understanding of basic concepts and their self-efficacy beliefs in this domain. Introduction to psychology tends to be a popular course and often fills social science requirements for a range of liberal arts and science curricula, making it an ideal course in which to emphasize this material. Nevertheless, the activities described here can be easily modified for use in a wide range of entry level foundation social science courses in junior or senior colleges.

Expanding students' understanding of mathematical and scientific concepts and the community college setting: Survey courses typically offer the "smorgasbord" approach – covering many topics quickly and relatively superficially. In contrast, instructors must re-envision the foundation course to include more depth and less breadth of coverage to meaningfully integrate hands-on investigative experiences. To do this in the community college presents some additional issues and potential challenges to consider.

First, community college students enter postsecondary education with relative deficiencies in mathematics and science skills along with concurrent negative beliefs and reduced aspirations related to their ability to successfully master these skills (Carlan, 2001). At the same time, when students are matched on measures of pre-college achievement, these differences have not been found (Pascarella, Bohr, Nora, & Terenzini, 1995). While the data are equivocal, courses rich in mathematical and scientific thinking are important for entry level students. Community college students represent a significant proportion of future teachers and workers in technology-related fields where math and science fluency is essential (National Science Foundation, 1999). Moreover, there is some evidence that the current level of community college course work may not adequately prepare students for the independent work required at senior colleges. Students who enter four year schools from community colleges tend to experience a drop in their grade point averages at transfer—a phenomenon sometimes referred to as "transfer shock" (Carlan, 2001). The development of technologically-rich, investigative foundation-level community college courses may facilitate a smoother transition to the four-year school while providing a foundation for quantitative and scientific literacy that is important for successful entry into the workforce (National Science Foundation, 2000).

To create such curricula, we must take advantage of what we know about methods that

are conducive to improving achievement and to countering students' beliefs that such coursework is uninteresting and beyond their abilities.

What do we know about student learning in statistics and research methodology?

In a review of key issues and pedagogical approaches in statistics education, Garfield (1995) suggests that teachers must develop specific goals for influencing students' attitudes and *thinking* about statistics. Among the goals she mentions are two that can be easily integrated in the introductory course. These are:

1. Help students recognize that an understanding of elementary issues in research methodology and basic statistics is useful to them for interpreting a wide range of information in their everyday life;
2. Demonstrate to students that statistical concepts are attainable and that mastery is possible for any student is prepared to invest effort.

There is also some agreement that there are relatively *basic* concepts which are important foundations for literacy in statistics (Garfield, 1995; Willemsen, 1995). At least two of these essential concepts—such as the fact correlation between two variables does not imply causal relationships and that statistics rarely proves anything *conclusively*--- are first introduced in the survey course. While these points are stressed in most social science courses and texts, it seems that students don't always "get it" (Peden, 2001).

So how can we help them to get it? First of all, math and science courses that emphasize collaborative, activity-based learning are associated with students' engagement with and understanding of key ideas, particularly when students have opportunities to apply what they have learned in more than one context (Sternberg & Grigorenko, 2002). Moreover, some mathematical concepts are easier to grasp when they are in a visual form, making simulations a

potentially valuable tool to make difficult concepts accessible for all students (Garfield, 1995; Giesbrecht et al., 1997; Hewett & Porpora, 1999; Lane, 1999).

Students' self-efficacy beliefs also play a critical role in engagement with and achievement in scientific and statistical reasoning (e.g., Finney & Schraw, 2003). This is at least partly due to the fact that positive self-efficacy beliefs are associated with stronger student effort, persistence, and lower anxiety when faced with difficult tasks (Pajares & Miller, 1997). While *numerous* factors may influence self-efficacy beliefs, several important factors include students' interpretations of past mastery experiences, exposure to vicarious experiences, and a learning environment that provides support and encouragement for the risk-taking that is essential to building new skills and true mastery experiences. Notably, many community college students are likely to come to college with fewer of these prerequisites.

Changing student misconceptions vis a vis scientific reasoning is a process that is not likely resolved in the short term (Gardener, 1991; Garfield, 1995; Garfield & Chance, 2000). Providing deeper learning experiences in foundation level courses can be an important step in this process. .

Background and Overview of the Project

The course was offered in a large, urban 2-year public institution, where the student population is approximately 25% white, 23% black, 20% Hispanic, and 19% Asian/or Pacific Islanders. (About 13% chose not to identify their ethnic background.) Over 50% of the student body report annual incomes under $25,000; one-third of the students are trying to support a family, work, and attend school simultaneously. Retention rates within the college vary by program, but range from 30-40%. The goals of this project were part of larger efforts to reform curricula and increase student retention and achievement.

Activities were piloted with over 400 students over approximately 3 years as part of this NSF-funded initiative. The module was first introduced as a 'unit' in the fall of 2003. The process of actively conducting research was a key element of the module. Participating in the research process from start to finish provides students with a chance to gain a real feeling for the practical problems and "nitty-gritty" details that are integral to actual research in a way that is not possible if one is simply reading about the steps (Gelman & Nolan, 2002). In the course of the assigned investigative activities, students were introduced to running and interpreting basic statistical operations (including frequencies, measures of central tendency, t-tests, cluster graphs, chi-square tests, and correlations).

The complete unit was introduced to this cohort of 20[1] psychology students that were part of a learning community (LC). In a LC, students take two courses that are linked by a theme. In this case, psychology was linked with sociology by the shared theme of "Love, Gender, and Sexuality." Students did not actively select the LC but instead were placed in the LC during advisement if they needed both courses for their degree.

Activity One: In psychology, students were assigned to read the text and to complete homework exercises on the topic. Following this, students completed measures of their self-efficacy beliefs for learning selected concepts in the unit. Once these steps were completed the major concepts were introduced with an interactive PowerPoint Presentation. The presentation had active links to simulations so that students could actively explore each concept as it was being taught. (See Table 1 for sample links) Students then began work on the first investigation.

Meanwhile, in sociology, the students were examining cultural constructions of love. The sociology instructor proposed that there are *predictable patterns* to beliefs about love (and to our

belief systems in general) because of societal influences. To illustrate his point, he gathered anonymous data related to the experience of love in his classes. The students were asked to complete the sentence "I know I'm in love when _____," as well as other questions such as age, and beliefs about love in a Likert format. The topic of love and "falling in love" generates a good deal of student interest, as it is often an experience close to college students' day to day concerns. He examined a few of the written responses to the "love" question in class as part of the sociology discussion. This qualitative exploration of the data *did* appear to support the notion of patterned responses.

The set of anonymous responses generated by these survey questions in the sociology instructor's other survey sociology classes served as group-level data for the first illustrative exercise for the research methods unit in psychology. The instructor first modeled all steps with the class as active participants. Then the students worked in pairs to code, enter, and analyze the categorical data to evaluate whether the group level data provided evidence for patterned responses as the sociology instructor had suggested. The numerical data were used as illustrative exercises for concepts such as measures of central tendency, correlation, and t-tests. Once the students had completed their analyses, they were given a template to help them structure and formulate their findings as a lab report. After receiving feedback on the first draft they were required to resubmit the report for a grade.

Activity 2: Later in the semester, the class examined concepts related to gender stereotyping and gender identity acquisition through the lenses of both disciplines. In sociology, the instructor asked the students to select three magazine advertisements that contained "interesting representations of gender." The students had instructions that described specific criteria which

were used to evaluate whether the ads they found generally undermined or supported traditional gender role stereotypes (for example, was the central character timid? weak? dominant, etc). Students thereafter brought their ads to the psychology lab, where the ads were pooled. Again, in pairs or groups of three, students coded, entered, and analyzed the data, using the previously identified criteria. Once again students completed first drafts and then final drafts of lab reports where they were required to interpret the results of the basic analyses they had conducted.

Tools to assess students' responses to the unit

Self efficacy: Reliable self-efficacy measures related to statistics are available, but they address concepts and skills for students taking statistics courses (Finney & Schraw, 2003). However, self-efficacy beliefs are more highly predictive of student achievement when the beliefs assessed are close to the actual skills and concepts students will be asked to learn. Thus, the instructor developed and utilized a measure based on the more fundamental concepts that are central to the survey level course. The students completed the self-efficacy measures before the unit began and at the end of the semester. The instructor was blinded from student responses to all instruments until the semester was over and grades were submitted.

Perceptions of Learning: Students filled out Student Assessment of Learning Gains (SALG) instrument at the end of the semester. The SALG asks students to rank specific aspects of their classroom experience on a scale from 1 to 5^2 with respect to their learning of concepts and skills, appreciation of content, and applicability of concepts to their daily life and other courses. The instrument is available in a template fashion on-line at http://www.wcer.wisc.edu/salgains/instructor/default.asp where specific questions for this course.

Student Achievement: Student achievement was evaluated using the scores on the two lab reports, as well as students' scores on two multiple-choice quizzes. The first brief quiz was given mid-unit. The second comprehensive quiz was given at the end of the unit. The relationships among achievement scores, SALG scores, and self-efficacy beliefs were examined. Self efficacy ratings were completed before and after the lab activities and examined with t-tests.

Relationships among students' self-efficacy, achievement, and perceptions of the learning activities: So how did students respond to these intensive activities? The mean score for students' responses to all the SALG questions that were specific to the lab activities was 3.96 (range 3.0-5.0)—generally indicating that students felt they learned a good deal from the activities. Specifically, 87.5% of the class felt that using the Internet for concepts like correlation helped them understand the concepts "moderately" or "very much," while 12.5 % felt it only helped a little or not at all. Abut 81% of the students reported experience with unit provided 'a first hand knowledge of the steps in conducting research' while almost 20% felt it contributed 'very little'. Similarly, 93% felt that what they had learned in the research methods unit would be useful in their daily life.

The results of the paired t-tests on self-efficacy scores indicated that students' self-efficacy increased after the unit ($t=-2.52$, $df=13$, $p<.05$.). Thus, students' confidence that they could understand and use skills from the unit was significantly higher following experiences with active investigation and simulations. Additionally, there was a significant positive correlation between the students' mean self efficacy scores at time one and performance on the comprehensive quiz ($r=.52$, $P<.05$; $n=18$).While there was also a modest positive relationship between self-efficacy score at time one and lab one scores, it was not statistically significant.

Scores on self-efficacy at time two were also strongly related to SALG scores ($r=.63$, $p<.05$). Thus, students who reported higher self-efficacy beliefs at the end of the semester were more likely to report that they learned from those experiences and could apply them to their everyday lives.

Applications and Conclusions: The implications of these findings may be considered tentative due to the small sample size and the absence of a control group. However, these preliminary data are at least partly in accord with the literature on student learning. As noted earlier, the evidence suggests students with high self-efficacy in a specific area are more likely to perform well in that area (Pajares, 2004a). Students who felt more confident about their ability to learn this material tended to perform better on the comprehensive quiz. Also, students who reported higher self-efficacy at the end of the semester tended to feel they learned more from the activities. While this may seem intuitive it is consistent with Bandura's assertion that students with high self-efficacy exert a variety of cognitive, motivational, affective, and self-regulatory skills in facing difficult tasks (Bandura, 1994). Students who have higher self-efficacy work harder, perform better, and also develop more positive cognitions in a manner that is likely to be reciprocally reinforcing. Mastery experiences and the positive *appraisal* of those experiences are likely to contribute further to self-efficacy *and* to thus influence a range of domains including the type of courses a student may select, career goals, and so on (Pajares, 2004b)

Several "intangibles" in the classroom experience provided additional evidence that the students were benefiting from experiences with the unit. Students were *engaged and motivated.* The "feel" of the class was abuzz with interest, shared problem-solving, and questioning. They spontaneously developed peer networks to work on lab reports after class and before class. Most strikingly, they communicated that they were willing to take risks to rise to the challenge of

completing these tasks. Such risk-taking is essential in building new skills and self-efficacy. Many of these "intangible' factors were notably absent in some of this instructor's more traditional survey level classes.

Practical Issues and Future Considerations:

There are some practical issues in integrating the module as described. Instructors may not have access to a SmartLab equipped with computers for the students to explore simulations and analyze data in the classroom. As an alternative, exercises with these simulations can be assigned to the students for homework. Simple computations (e.g., frequencies,) can be completed by hand to create graphs and tables the students can interpret.

A related practical problem is related to content coverage. It takes at least 4-6 hours of classroom time to deliver this module as described. In order to do this, one has to omit some content. The amount of classroom time can be reduced if several of the activities are assigned as individual or group homework. Still, there are real questions about what is more important in the trade off between diminished course content and deeper content coverage. There are advantages to covering fewer topics more deeply--- most notably greater student satisfaction (Kennedy, Rodrigue, & Davis, 2000). Moreover, many colleges offer the survey course in two semesters to ensure some depth of content coverage. Finally, newer trends in the pedagogy of science teaching emphasize that it is more important for students to learn a few concepts thoroughly, than to superficially cover content. This enables students to attain the skills for independent investigation, rather than simply gathering abstract facts they may not truly understand and may soon forget (See, Laws, 2004 and the results from the Workshop Physics Group http://physics.dickinson.edu/~wp_web/wp_homepage.html for a fuller discussion of this).

Separately, the dynamic of completing the work together as a class seemed to add to collective feelings of self-efficacy.

Another practical issue is related to the complexity of the lab report format. While all the students appeared to be enthusiastically engaged in the process of conducting the activities and investigations, several subsequently struggled with completing the lab report. The instructor provided a simplified template for the lab report, along with external links to support the students in this task. In retrospect, writing the lab report requires a complex set of skills, distinct from mathematical and scientific reasoning. Though the majority of students in the class had completed remedial coursework in reading and writing, a lab report is a particularly unfamiliar format for most entry level college students. This format may require some experience with the conventions of formal writing. While it is likely that the students gained more from the lab activities by being asked to interpret and describe their findings, the development of additional ways to scaffold them in completing this task would make this task more meaningful each student.

Summary and Conclusions

Despite practical considerations and the limits of these correlational data, findings suggest that an expanded, in-depth activity-based research methods and statistics unit may contribute to gains in self-efficacy beliefs in these areas. Students also perceived the activities as contributing to their understanding of critical concepts in statistical thinking. Moreover, students reported that they viewed the material s as potentially useful to their daily lives and for other academic work. These are essential components of in beginning to change students' thinking about mathematical thinking (e.g., Garfield, 1995).

An interesting anecdote provides another perspective on this, suggesting that the incorporation of these activities may impact favorably on student learning over the long term. Several students from this class enrolled in this instructor's section of Lifespan Development, where the first topic includes a review and extension of concepts in research methodology. In going over the first exam in class, it was apparent that the students who had taken the LC got all the questions-- even the difficult ones—correct. In contrast, the majority of the other students got them incorrect. Noting this, a former LC student raised her hand and said something to the effect of "I don't know if this is fair, after all we spent all that time looking at simulations and doing those labs, of course we would know it. Why would they understand this?" Her question implied that she and her LC classmates had gained an understanding of concepts that community college students ordinarily have trouble with. Her statement also implied that they had retained the knowledge and transferred it to apply it to new contexts.

In an examination of current trends in self-efficacy research, Frank Pajares stresses the point that true mastery experiences are essential in developing higher self-efficacy and that those experiences may contribute to future academic achievement in related areas (Pajares, 2004c). Although the instructor has yet to assemble aggregate data in this regard, this small anecdote, along with this preliminary data, would seem to support Pajares' conclusion. Future research should attempt to follow the students who took part in this module to determine if this student's spontaneous assessment is representative of some transfer in an acquisition of skills in this domain. The benefits to entry level students who may lack confidence in their ability to do work involving mathematical and scientific reasoning-- far outweigh the disadvantages of diminished content coverage. These experiences provide a foundation for a more complex understanding of investigative processes and scientific and mathematical thinking in later learning.

While these results are by no means conclusive, they point to the fact that an opportunity to

actively learn about and gain master in the steps and concepts in scientific investigation contributes to self-efficacy. With an "…increasing need for people entering the workforce to be familiar with "mathematical skills, scientific literacy and abilities in analytical thinking to make on-the-job decisions (National Science Foundation, 2003)," this type of learning is crucial.

The Use of PowerPoint and Other Technologies in Teaching Psychology

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In the last two years, my colleagues from the Social Sciences Department at FIT have done an outstanding job in establishing and implementing a successful mentoring program. We encourage faculty members to use the latest in technology as long as it is consistent with curriculum objectives. In some cases, however, technology can be misused.

The purpose of this report is to address the advantages and disadvantages of using PowerPoint to promote classroom participation and learning. This has many implications for new teachers and teachers who are transitioning from different careers.

PowerPoint is a software program that allows instructors to create computerized "slide" presentations. One can add text, animations, notes, graphs and web links to these presentations.

<u>What are some of the advantages of PowerPoint?</u>

- it is fun to watch
- used correctly, it can motivate students and staff
- it allows you to rethink/reflect on your lesson
- it is easy to use
- it has a spell-check function, something a blackboard or an overhead lacks
- one can integrate content with different multimedia venues
- it enables you to printout presentations for your students, or better yet, they can upload to a course website like blackboard.

<u>What are some of the limitations of PowerPoint?</u>

- PowerPoint is a linear tool making it difficult to jump ahead
- it does not directly facilitate interaction between faculty and students
- technically, classrooms need large monitors or projectors to display presentations. It is important that your technology plan furnishes this. (TV out cards or VGA-TV converters can accomplish this.)
- overuse can bore learners and diminish its effectiveness.

One frequent criticism of PowerPoint is that content can sometimes take a back seat to FLASH. Some may suffer from the "PPP" syndrome. That is, PowerPoint Paralysis which refers to the overzealous concentration on the use of Power Point while disregarding or minimizing content. This could happen to anyone using PowerPoint.

One should design PowerPoint slides so that it supports your presentation. Certainly, if your lesson consists of nothing but PowerPoint, then you should be concerned. You want to plan your Power Point slides to support and reinforce a verbal presentation. It is important to balance content with style.

A typical introductory presentation may consist of 6 - 7 slides. For example:

1. title and who is talking
2. introduction (form of question, aim, statement of purpose)
3. supporting slides with main ideas and details/data
4. depending on objective, comparative analysis, advantages/disadvantages,
5. conclusion
6. credits/references

The bottom line is that you want your audience listening to you and not just reading from the slide. Similarly, effective teachers should not limit their presentation by just reading slides to students. Each slide should be a guide and summary of your points.

As a general rule, there should be no more than 25 words per slide. Keep the text short—use bullet points. You don't need to use continuous discourse/essays for the slides. Watch your color schemes, some colors, like yellow/pink project poorly and/or contrast poorly with one another. Red/green contrast is often difficult to pick up. Font size must be large enough to read and should be clear. Fancy fonts are not necessarily better ones.

One of PowerPoint's major attractions is the opportunity to add artwork, soundtracks and animations. This makes it possible to make transitions and emphasize points. Once again, you want your audience focusing on what you are saying and not on the effects. Use visual/sound effects sparingly.

Once you have a first draft of your slide presentation, conduct a pilot test/trial run with a few colleagues or students. Ask yourself, is this presentation making me a better teacher? Is this the best way for students to learn the lesson?

Use a simple evaluation scale from 1 to 4 (Poor to excellent) on five dimensions: organization, flow, colors, effects, appropriateness. Technology is a lot of things, but it should not take the place of well-polished traditional methods of teaching.

In conclusion, it has been interesting to see the growth and the subsequent criticism that has been leveled at PowerPoint. There are claims that it is overused, that it represents style over substance and it encourages passivity. There is no doubt that when PowerPoint is not used well then such criticisms are valid.

PowerPoint is really not a lot different from any other teaching aid, such as transparencies, videos, or flip charts. It is quite easy to misuse any of these aides. The problem is not with PowerPoint, but rather, it is a question of how it is used. Any teaching-learning situation should consist of a variety of methods to motivate students and to promote participation. We should always keep in mind that the objectives of the lesson drive the methodology NOT THE OTHER WAY AROUND.