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AFACCT is an association of and for Maryland Community College faculty. It was established in 1984 with the following goals:

- to provide opportunities for professional growth and development of members of Maryland Community College faculty by the effective use of statewide resources;
- to foster and improve teaching excellence by promoting the sharing of ideas, instructional materials, and strategies;
- to maximize the impact and effectiveness of available funds for professional development;
- to open new lines of communication between and among faculty members with similar disciplines and interests;
- to sponsor discipline and cross-discipline conferences;
- to publish a directory of faculty members in the Maryland Community Colleges; and
- to promote the exchange of faculty among Maryland Community Colleges.

AFACCT's decisions are made by a Board of Representatives which consists of one member from each of the Maryland Community Colleges who serves as a liaison. In addition, a Coordinator and an Assistant Coordinator, elected by the Board, serve with direction from the instructional dean

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PROCEEDINGS

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TEACHING STUDENTS TO THINK CRITICALLY IN PSYCHOLOGY: AN ANALYSIS AND SYNTHESIS

James Bell

Abstract

Higher education writers stress that critical thinking is one of the most important skills for college students to master and introductory psychology textbooks are increasingly discussing critical thinking. At first glance, there is little agreement on what critical thinking is. Closer inspection of the 12 books devoted to critical thinking in psychology and the 12 textbooks which include critical thinking in both the index and glossary indicates that 75% agree that critical thinking is an evaluative process focusing on the evidence and reasoning in a communication. Critical thinking is different than creative problem solving. Ideas for teaching students to think are included.

Point # 1: Psychology writers believe critical thinking should be included in the undergraduate psychology curriculum.

The American Psychological Association approved "The Principles for Quality Undergraduate Psychology Programs" in August 1994. "In quality undergraduate programs: 1. The curriculum enables students a. to think scientifically about behavior and mental processes . . . 2. The curriculum is based on clear and rigorous goals. These include. . . . critically evaluating the empirical support for various theories and findings." (APA Education Directorate News, *Trends in education*, Winter 1995, *II*, 1, 10-11) (McGovern, T. and Reich, J. 1996, March. A comment on the Quality Principles. *American Psychologist*, *51*, 252-255).

Rathus in his textbook entitled *Essentials of Psychology* (1994, pp. 26-27) says that "Higher education is a broadening experience not only because of exposure to intellectual disciplines and human diversity, but also because it encourages students to learn to think critically. By thinking critically, people can challenge widely accepted but erroneous beliefs, including some of their own most cherished beliefs. Critical thinking helps make us into active, astute judges of other people and their points of view, rather than passive recipients of the latest intellectual fads and tyrannies . . .

"Psychologists have been working with the Association of American Colleges to establish goals and guidelines for undergraduate education. One psychology task force

listed several goals for undergraduate education in psychology (McGovern, 1989). The first was to foster a knowledge base consisting of important psychological theories, research findings, and issues. This goal seems obvious enough. But the second goal was to promote skills in critical thinking and reasoning. These thinking skills involve:

"Development of skepticism about explanations and conclusions
The ability to inquire about causes and effects
Refinement of curiosity about behavior
Knowledge of research methods
The ability to critically analyze arguments

"The emphasis on critical thinking reflects the widespread belief that your college education is intended to do more than provide you with a data bank of useful knowledge. It is also meant to supply intellectual tools that allow you to analyze information independently. With these tools, you can continue to educate yourself for the rest of your life." "As noted by the educator Robert M. Hutchins, `The object of education is to prepare the young to educate themselves throughout their lives.' One of the primary ways of educating yourself is through critical thinking." (Rathus, 1994, p. 29)

McGovern's *Handbook for Enhancing Undergraduate Education in Psychology* (1993) summarizes the consensus of a conference of psychology teachers:

> "How do we want our students to change as a result of their education? We identified three ways in which successful psychology students changes as a result of their undergraduate education. First, they accumulate a body of knowledge. Second, they master intellectual skills that enable them to use their knowledge wisely. These skills include the ability to think critically, to express themselves clearly in writing and speaking, to reason empirically, and to demonstrate ethical judgment and sensitivity to other people and cultures. Third, psychology students acquire or strengthen personal characteristics such as maturity, rigor, tolerance, flexibility, high ethical standards, and a positive attitude toward lifelong learning." (McGovern, 1993, pp. 27, 29).
>
> "The fundamental goal of education in psychology, from which all the others follow, is to teach students to think as scientists about behavior . . .
>
> "The first element of scientific thinking that students should master is the empirical criterion of truth. They should learn that the final authority for factual statements in psychology is evidence and not affect; how they feel about a topic has no bearing on its truth. Their understanding of the empirical approach should include a recognition of the distinction between facts and inferences drawn from facts . . . They should understand that naming is not explaining . . . The person who understands these things is an informed consumer and evaluator of the psychological and quasi-psychological information reported in the media and a knowledgeable and independent decision maker on problems that involve behavior." (McGovern, 1993, pp. 168-169).

In the June 1991 issue of the *American Psychologist* McGovern et al. in their article "Liberal Education, Study in Depth, and the Arts and Sciences Major -- Psychology" listed eight goals for the psychology curriculum. The first goal was labeled knowledge base. The second was labeled thinking skills. Here is what they said about thinking skills.

> "Advanced work in the discipline requires skills in learning, critical thinking, and reasoning -- skills that come in part from working with quantitative information in statistics or experimental methods courses and from critical thinking of original texts in all courses. Psychology students also need to gain familiarity with qualitative methods and to develop a disciplined curiosity about human behavior and experience. **Even at the introductory level, students should be able to inquire about behavioral antecedents and consequences and to view with amiable skepticism the explanations and conclusions in popular media reports on psychology and other social sciences.** As they advance, psychology students should learn to think critically about themselves, including their difference and their similarities with others; to evaluate their attitudes about people who are different from themselves; and to know how gender, race, ethnicity, culture and class affect all human perspectives and experiences." (p. 601) [Emphasis in bold added.]

"If there is a single goal on which most educators agree, it is that we seek to teach students skills in critical thinking . . . psychologists and educators agree much less about exactly how critical thinking should be defined." (pp. 17-18). (Underwood, M., & Wald, R., 1995, February. Conference-style learning: A method for fostering critical thinking with heart. *Teaching of Psychology, 22*(1), 17-21.)

"The concept of critical thinking is quite broad, and the literature is extremely heterogeneous." (p. 37). (McBurney, D., 1995, February. The problem method of teaching research methods. *Teaching of Psychology, 22*(1), 36-38.)

Point # 2: Critical thinking is defined in many different ways.

Which of the following statements best expresses your current view of critical thinking?

The definitions below are quoted or slightly modified from the literature on critical thinking.

1. Critical thinking is the active and systematic attempt to understand, evaluate, and find flaws in arguments.

2. Critical thinking involves deciding what to believe and how to act after a careful evaluation of the evidence and reasoning in a communication.

3. If students are to exhibit critical-thinking skills, they must learn to decide when specific cognitive skills are relevant (a metacognitive skill) and then successfully apply the cognitive skills to solve problems.

4. Critical thinking is an active, purposeful, organized cognitive process we use to carefully examine our thinking and the thinking of others, in order to clarify and improve our understanding.

5. Good thinking is what we will term critical thinking.

6. Critical thinking is an investigation whose purpose is to explore a situation, phenomenon, question, or problem to arrive at a hypothesis or conclusion about it that integrates all available information and can therefore be convincingly justified. In critical thinking, all assumptions are open to question, divergent views are aggressively sought, and the inquiry is not biased in favor of a particular outcome.

7. The hallmark of a critical thinker is an inquiring mind. Simply put, good thinkers are good questioners. Critical thinking is the process of raising questions.

8. Critical thinking involves the skill and propensity to engage in an activity with reflective skepticism.

9. A critical thinker is the individual who is appropriately moved by reasons.

10. Critical thinking is skillful, responsible thinking that facilitates good judgment because it (1) relies upon criteria, (2) is self-correcting, and (3) is sensitive to context.

11. Critical thinking is disciplined, self-directed thinking which exemplifies the perfection of thinking appropriate to a particular mode or domain of thinking.

12. Critical thinking is the process of purposeful, self-regulatory judgment. This process gives reasoned consideration to evidence, contexts, conceptualizations, methods, and criteria.

13. Critical thinking is the use of those cognitive skills or strategies that increase the probability of a desirable outcome.

These are some of the definitions that are encountered when reading the literature on critical thinking. Before teaching critical thinking, it is essential to be clear on what critical thinking to focus on.

Some Of The Ways That Critical Thinking Is Defined

critical thinking is:

- thinking

- clear thinking, effective thinking, good reasoning, good thinking, thinking straight, intelligent thinking, smart thinking, practical reasoning, good judgment, reflective judgment

- higher order thinking, higher cognitive skills, higher order thinking skills
- complex thinking
- Bloom's higher levels of educational objectives

- reasoning (reasoning abilities)
- problem solving (creative problem solving)
- assessing the reasons for making decisions, making informed decisions

- assessing the validity of arguments
- critical evaluation, critical analysis
- dealing with controversy
- assessing evidence
- assessing both the evidence and reasons in a communication

- raising questions, raising good questions, asking intelligent questions

- informal reasoning, informal logic,

- critical reading, reading critically, reading beyond the lines

- involves only skills (abilities)
- involves skills plus dispositions (attitudes, tendencies)
- involves knowledge, skills, and dispositions

- involves the attitude of skepticism

- metacognition (metacognitive thinking - thinking about thinking)

- discovering the weaknesses in the ideas, reasoning, and evidence of others
- discovering the weaknesses in our own ideas, reasoning, and evidence; being self critical, self correcting, self assessing, self evaluating

Point # 3: How do psychology writers define critical thinking?

How do writers of introductory textbooks define critical thinking? .

Although there is not a consensus on defining critical thinking, the majority of introductory psychology textbook authors and authors of books on critical thinking in psychology define critical thinking with the major emphasis on evaluation.

Critical thinking as a topic started moving into introductory textbooks in the late 1980s. My informal survey of 18 introductory textbooks published during 1990-1992 that were sent to me indicated that 11% (2 of 18) had critical thinking in both the glossary and index. For 1994-1996 the percent is 31% (11 of 35). Another 37% had critical thinking listed in the index or defined in the glossary or discussed in either chapter 1 or 2. 31% of the textbooks did not list critical thinking in the index or glossary or first two chapters, but most indicate that supplementary sources on critical thinking are available to supplement the textbook in a separate booklet or in the study guide.

What do books which focus primarily on critical thinking in psychology suggest critical thinking is? Twelve books deal primarily with critical thinking in psychology.

Critical thinking is evaluative.

Key terms: evaluate, assess, judge, critically scrutinize, accurate, consistent, detect flaws, evidence, evaluating alternatives, reflective skepticism, asking why.
(Bell, 1995; Coats, Feldman, and Schwartzberg, 1994; Keeley, 1995; McBurney, 1966; Mayer and Goodchild, 1994, Smith, 1995; Stanovich, 1966; Tavris, 1995: Wade and Tavris, 1993)

Critical thinking involves a variety of thinking skills.

Key terms: pattern recognition, problem solving, psychological reasoning, perspective taking, formulating inferences, calculating likelihoods, making decisions, good thinking.
(Halonen, 1995; Halpern, 1996; Zechmeister and Johnson, 1992)

Point # 4: Critical thinking is most often treated as evaluative.

Point # 5: Critical thinking is different from creative problem solving.

Psychology writers use the term "critical thinking" to refer to evaluating evidence and/or arguments while other writers use the term to refer to creative problem solving. A

few writers use the term "critical thinking" to mean any of a variety of types of thinking.

How do critical thinking and creative problem solving relate? There is some overlap in the terms. However, critical thinking focuses primarily on evaluating evidence and reasoning while creative problem solving focuses primarily on finding answers to questions.

Critical thinking in the social sciences is relevant in four different areas of thinking: (1) the evaluation of information and reasoning, (2) the evaluation of ideas as a part of creative problem solving, (3) the evaluation of our own observations, and (4) the evaluation of our thinking.

(1) The critical evaluation of information has as its purpose deciding what to believe. Sometimes that belief will be followed by action. Deciding what to believe when reading a secondary source involves first understanding the message. Evaluation starts with careful attention to key terms and propaganda techniques. The evidence and reasoning are identified and evaluated. Lastly, students decide what to believe. The desire to use these skills to decide what to believe based on reliable evidence and effective reasoning has been called reflective skepticism or the critical attitude. Beginning social science students can be taught to evaluate secondary sources while upper level students can learn to evaluate primary sources.

(2) Critical thinking is also a part of creative problem solving. After a problem has been defined and several possible solutions have been proposed, critical thinking is used to decide which solution appears to be the best. Criteria are used to evaluate the possible solutions.

(3) Critical thinking can be used to help each of us be more careful in drawing conclusions from our own observations. Besides training our critical thinking on others, we can check our own observations and interpretations with a dose of skepticism. This use of critical thinking is called self assessment or self regulation.

(4) Critical thinking can be used to monitor our own thinking to improve our thinking. This use of critical thinking is a part of metacognitive thinking or thinking about our thinking.

How do critical thinking and creative problem solving differ?

A. What is a "problem?"

A problem exists when there is a gap between the present situation and a desired situation. "Something requiring thought and skill to arrive at a proper conclusion or decision. . . .

syn: issue, nut, question

rel: enigma, mystery, a puzzle, bugaboo"(*Webster's Collegiate Thesaurus*, 1976, p. 629)

B. What is "routine problem solving?"
Routine problem solving occurs when we already have the answer to bridging the gap or the correct answer is immediately obvious.

C. What is "creativity?"
looking at one thing and seeing another, relating the apparently unrelated, ability to produce new and interesting results, ability to make new accomplishments of social worth

D. What is "creative problem solving?"
Creative problem solving is needed when there is not an obvious way to bridge the gap. The resulting solution could be seen as novel. Designing an experiment to test a new hypothesis would be an example of creative problem solving.

E. What is "critical thinking?"
Critical Thinking involves evaluating the evidence and reasoning in a communication to decide what to believe and do.

1. Evaluating secondary sources. In introductory courses students can learn to evaluate secondary sources.

2. Evaluating primary sources. In upper level courses students can learn to evaluate primary sources.

F. **Conclusion:** There is overlap between creative problem solving and critical thinking. Both are higher order thinking skills.
1. In creative problem solving, critical thinking is needed when deciding which proposed solution is best. Criteria are used to select a solution.
2. In deciding what to do after having critically evaluated information (What does research tell me about lecture versus small group discussion?), the individual may need to do some problem solving (For example, a psychology teacher might consider: "In what ways can I produce effective group discussion?").

Point # 6: Psychology teachers need to decide what thinking skills to teach.

How might thinking skills be taught?

As I add in additional thinking skills to my courses, I find that I start with Method

1 which usually does not work. Very quickly I move through Methods 2, 3, and 4. Method 5 is what I have found that I need for almost all assignments that involve new thinking skills. The following foundation learning and thinking skills are important to all of the thinking skills I am adding to my courses: follow directions, compare and contrast, distinguish relevant and irrelevant material, distinguish fact from opinion, double-check work.

Method 1 State the assignment which involves thinking skills (assign).

I make an assignment and give students no further instructions.

EXAMPLE: "Critically evaluate this short article."

Results:

a. If students can do the assignment without further help, I do not change the assignment. This is a very rare occurrence.

b. If students can't do the assignment, I move to Method 2.

Method 2 Assign and provide criteria.

I add some of the criteria I will use to grade the assignment.

EXAMPLE: "Critically evaluate this short article. I will be checking to see if you have identified the scientific evidence and the nonscientific evidence. For the scientific evidence label the three parts - citation, description, results."

Results:

a. Students who have previously learned to critically evaluate show improvement when they know the criteria.

b. Students who have not learned to critically evaluate are unable to identify the scientific evidence and the three parts.

Method 3 Assign, provide criteria, and provide an example.

To guide student thinking and learning I provide an example of a good answer which I label "Example Answer."

EXAMPLE: The first scientific evidence in the source I identify and the three parts are labeled.

Result: Examples usually help but only for simple types of thinking. More complicated types with just the answer don't seem to help much. Identifying only one example of scientific evidence does not seem to help very many students.

Method 4 Assign, provide criteria, provide an example, and add in hints.

I add hints that are based on difficulties of previous students. If students forget to do an aspect of critical thinking, then the hint reminds them to do that step. Hints are written down since verbal hints are missed by too many students.

EXAMPLE: "Previous students often overlooked the criteria of listing all the sentences that are a part of scientific evidence."

Result: Hints provide some increased learning but are usually not very helpful until students have learned a skill and need reminding of the criteria.

Method 5 **Assign, provide criteria, provide an example, add in hints, and provide practice.**

I provide both practice on the whole skill (identify scientific evidence) and on parts of the skill (identify citations, research results, and the description of the study).

If the first practice is on only part of the skill, later practice will need to be on the entire skill.

EXAMPLE: To teach students to identify scientific evidence I do the following:

Ask students to identify the three parts of scientific evidence: citation, description of the study, and the research results. This practice involves explaining to students the importance of being able to identify scientific evidence and explaining what each of the three parts involves.

Ask students to identify scientific evidence in several different sources at first in groups and then alone. Model how to identify scientific evidence. Provide opportunity for questions and answers. Provide immediate feedback to students. Build into several assignments the need to identify scientific evidence.

Result: Most students learn to identify scientific evidence. Some pick up the skill quickly whereas others need several sessions of practice and feedback.

Method 6 **Add to method 5 mastery learning.**

If students are not successful the first time on an assignment, they are asked to redo the assignment until they can show they have learned.

EXAMPLE: "Your answer does not show you have learned to critically evaluate. Redo the section on identifying scientific evidence. Restudy your text on identifying scientific evidence."

Result:

Almost all of my students are able to critically evaluate by the end of the course. About 5% are not successful due to having missed several key classes and for reasons I have not yet figured out.

Method 7 **Assign without criteria, hints or examples.**

Can students identify scientific evidence without being told when asked to critically evaluate? Here I am looking for application (transfer of learning).

EXAMPLE: "Write down your thoughts about this article." Note that I have not indicated that critical thinking is what I am looking for. Currently I do not grade on application since I think I don't effectively teach application.

Result: Students don't apply as often as I would like. I need to give more practice in a variety of situations.

Method 8 **Observe whether students identify scientific evidence in situations outside of my classroom.**

I am looking for transfer in other situations. During discussions do students cite relevant scientific evidence? Do students cite scientific evidence when writing papers where there is no explicit requirement of scientific evidence? Do students ask the instructor to provide scientific evidence to back up conclusions?

EXAMPLE: "In Speech class I had to give a speech on the effects of TV. I was able to find scientific evidence which made my position stronger."

Result:

Transfer to other courses does occur. How often? I do not know. I do not have an unbiased method of checking. I do know that in my upper level classes that the appropriate use of scientific evidence is lower than I desire.

Does transfer take place in the everyday lives of students? Good question. Students do come and tell me about family situations where they asked for the source of the evidence and raised questions about the quality of that evidence. However, these observations are not scientific evidence!

Point # 7: What are the critical evaluative questions listed in recent general psychology textbooks? A synthesis:

What do I know about the source of the information?
Do I understand what I have read?
Am I clear on the definition of key terms?
What assertions (arguments, claims, conclusions) is the writer making?
What evidence is given to support the assertions (arguments, claims, conclusions)?
What assumptions is the writer making?
Are there other ways of explaining the evidence?
What additional evidence might I need to obtain to decide what to believe?
What do I decide to believe?
How can I use (apply) what I have learned?

Point #8: Critical Evaluative Thinking Vocabulary

critical evaluation - syn: appraise, assess, classify, critique, evaluate, examine, gauge, grade, inspect, judge, measure, rank, weigh

Examples of jobs which require critical evaluative thinking - authorities, critics, editors, experts, inspectors, judges, lawyers, teachers and jurors.

Key Terms for Discussing Critical Evaluative Thinking

accurate
alternative explanations
argument
assertions (claims) and unsupported assertions
assumptions
bias
conclusion
construct definitions, operational definitions
contradictory
control
data
definitions of terms - vague, incorrect, misleading
evidence - scientific vs nonscientific
expertise (authority)
fact - citation, sample, procedure, results
flaws
hypothesis
inferences
observations - objective, repeated, representative
opinion
personal experiences
population, sample, random sampling
primary source, secondary sources
propaganda techniques - glittering generalities, name calling, band wagon, testimonial
proof and proves (not)
reasons
research methods - clinical observation, naturalistic observation, tests, surveys, experiments
skepticism
theories
values

Critical Evaluative Thinking builds on the research methods chapter in introductory psychology textbooks.

Point # 9: If you wish to read further on critical thinking in psychology, try these sources.

Anisfeld, M. (1987). A course to develop competence in critical reading of empirical research in psychology. *Teaching of Psychology, 14*, 224-227.

Bell, J. (1988). *A guide to critical thinking for Maryland social scientists.* Columbia, MD: Howard Community College. (ED 296 770)

Bell, J. (1995). *Evaluating psychological information: A guide to critical thinking in psychology* (2nd ed.). Boston: Allyn and Bacon.

Browne, M., & Keeley, S. (1994). *Asking the right questions: A guide to critical thinking* (4th ed.). Englewood Cliffs, NJ: Prentice-Hall.

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Messer, W., & Griggs, R. (1989). Student belief and introductory psychology. *Teaching of Psychology, 16*, 187-191.

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Smith, R. (1995). *Challenging your preconceptions: Thinking critically about psychology*. Pacific Grove, CA: Brooks/Cole.

Stanovich, K. (1996). *How to think straight about psychology*. Glenview, IL: Scott, Foresman and Company.

Tavris, C. (1995). *Psychobabble and biobunk: Using psychology to think critically about issues in the news*. NY: HarperCollins

Wade, C., & Tavris, C. (1996). *Learning to think critically: The case of close relationships*. NY: Harper and Row.

Zechmeister, E., & Johnson, J. (1992). *Critical thinking: A functional approach*. Pacific Grove, CA: Brooks/Cole.

See the February 1995 special issue on Critical Thinking of *Teaching of Psychology*.

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What do you believe? Critical evaluation focuses on evaluating based on criteria. Indicate by letter the goals you believe are important for critical evaluating.

Which of the following goals do you believe beginning psychology students should learn? B
Which of the following goals do you believe psychology students (nonmajors) should learn? N
Which of the following goals do you believe psychology majors should learn? M
Which of the following goals do you believe psychology graduate students should learn? G

Students will be able to critically evaluate written secondary sources:
- the assigned psychology textbook
- other textbooks
- books found in the library
- magazine articles
- newspaper articles

Students will be able to critically evaluate written primary sources:
- books
- journals

Students will be able to critically evaluate both primary and secondary sources on topics researched in the library.

Students will be able to critically evaluate sources found on the Internet.
- Secondary sources
- Primary sources

Students will be able to critically evaluate films, videos, and television programs.
- Students will be able to critically evaluate how the mentally ill are portrayed in the mass media.
- Students will be able to critically evaluate how psychology is portrayed in the mass media.

Students will be able to critically evaluate lectures.

Students will be able to critically evaluate comments from family and friends.

Students will be able to critically evaluate their own persuasive attempts.

Students will be able to critically evaluate their time management and study skills.

Students will be able to critically evaluate their studying and taking of tests.

Students will be able to critically evaluate their own written work.

Students will be able to critically evaluate their verbal statements.

INTERESTING SOURCES ON COLLEGE TEACHING, COOPERATIVE LEARNING, AND ACTIVE LEARNING

James Bell

Selective List of Periodicals Relevant to Teaching in College: See on the Internet for a fuller list at http://www.psu.edu/academic/ue/periodicals.html

AMATYC Review (math)
American Biology Teacher, The
Art Education
Banneker Banner, The (math)
Change
Chronicle of Higher Education
College English
College Math Journal
College Teaching
Communication Education
Community and Journal College Journal
Community College Review
Community College Social Science Journal, The
Cooperative Learning and College Teaching Newsletter
Educational Forum
Educational Leadership
Educational Technology
Harvard Educational Review
History Teacher, The
Improving College and University Teaching
Innovation Abstract
Instructional Science
Journal of Accounting Education
Journal of Chemical Education
Journal of College Science Teaching
Journal of Economic Education
Journal of Education for Business
Journal of Excellence in Teaching
Journal of General Education
Journal of Higher Education
Journal of Instructional Development
Journal of Nursing Education
Journal of Professional Studies
Journal of Reading
Liberal Education
Math Teacher
Music Educators Journal
National Teaching and Learning Forum, The
New Directions for Teaching and Learning - I find this source very useful.
Syllabus (multi-media)
Teaching College
Teaching of Psychology
Teaching Philosophy
Teaching Professor, The
Teaching Sociology
THE Journal (technology)

Interesting Books on College Teaching

Andrews, J. (Ed.). (1985). *Strengthening the teaching assistant faculty.* San Francisco: Jossey-Bass

Angelo, T., & Cross, K. (1993). *Classroom assessment technique* (2nd ed.). San Francisco: Jossey-Bass.

Astin, A. (1977). *Four critical years: Effects of college on beliefs, attitudes, and knowledge.* San Francisco: Jossey-Bass.

Astin, A. (1992). *What matters in college? Four critical years revisited.* San Francisco: Jossey-Bass.

Axelrod, J. (1979). *The university teacher as artist.* San Francisco: Jossey-Bass.

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Ideas on active learning

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"Instructors must also help students in all disciplines in higher education to develop skills to adapt to a rapidly changing, inter-dependent world. Individuals are required to think critically and to synthesize large quantities of new information, to be sensitive to diversity, and to develop attitudes and skills that promote lifelong learning (National Institute of Education [NIE], 1984). However, reports on the quality of education in the United States [4 reports are cited] point out that there is too much information being offered to students and too little attention being paid to the strategies for learning, inquiry, and problem solving. To enhance the quality of education, instructors must broaden their repertoire of pedagogical techniques to include strategies that foster critical thinking and problem-solving skills and that instill a willingness and motivation to continue learning beyond the classroom (AAC, 1985)...

"To meet these challenges for enhancing the quality of education, advocates for educational reform have included among their recommendations the need for teaching that stimulates active learning. The NIE's 1984 report, *Involvement in Learning: Realizing the Potential of American Higher Education*, promoted active learning as the number one priority in American higher education, noting that it is crucial for the development of higher cognitive abilities. It is possible to integrate active pedagogical methods for teaching, learning, and assessment into all courses...active learning accounts for only a small part of the pedagogy in the typical college course (NIE, 1984). There is no indication that psychology teachers make any greater use of active learning than other instructors, although pedagogical resources exist for the psychology teacher and current psychological theories of learning and cognitive support its use....

"Too often students play a passive role in college courses. Studies using in-class observers report that the lecture occupies as much as 80-95% of class time, regardless of class size (Eble, 1988, Lewis, 1982, Lewis and Woodward, 1984)...an over reliance on the lecture method tends to foster passivity on the part of students. Using a variety of teaching styles can increase student involvement (NIE, 1984) and can accommodate the diverse learning styles students bring to the classroom (Kolb, 1984)."

"Active learning exercises increase the cognitive demands on students. They produce intellectual discrepancies that motivate the development of improve cognitive abilities such as critical thinking (seven sources are cited)....In short, strong evidence supports the value of active learning for students and faculty. That evidence comes from studies investigating active learning methods such as writing to learn, critical thinking, and cooperative or collaborative learning....Writing assignments are a traditional technique for active learning....Group projects, exercises, or discussion groups are excellent opportunities for active learning."

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Educational Products at NASA/Goddard Space Flight Center

Larry W. Brown

Community College Coordinator
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NASA/Goddard Space Flight Center

Adjunct Faculty
Howard Community College

The Office of Education of NASA/Goddard Space Flight Center has launched an effort to support community college faculty in their effort to provide students with the latest technology, and information in those areas of space exploration under the guidance of this center. A number of educational products have been or are being produced from data obtained from spacecraft. Products consist of printed material, videos, slides, and CDs. Products cover education curriculum, student and faculty activities, laboratory and lecture demonstrations, posters and images.

These materials can be obtained from the Public Affairs Office or the Education Office at the following address.

The Education Office
Code 130.3
Goddard Space Flight Center
Greenbelt MD 20771

phone:	301-286-7478(Larry)
	301-286-7205(Office)
Fax:	301-286-1655(Office)
e-mail:	labrown@pop100.gsfc.nasa.gov
	Robert.E.Gabrys.1@gsfc.nasa.gov
internet:	http://pao/

The center maintains a Teacher Resource Laboratory located in the Visitor's Center located just outside the center. Access is available Tuesday through Saturday from 10:00AM until 4:00PM. The Laboratory maintains a supply of all of the educational products of Goddard and other NASA centers. These are free in limited quantities. The laboratory maintains a number of large and small exhibits of aerospace topics which can be borrowed for display. The only cost is the transportation of the exhibit to and from Goddard. Also, the laboratory maintains both a slide and video collection of materials suitable for classroom use. The slides can be duplicated free onto user supplied slide film. Videos are duplicated onto user supplied video cassettes. The process is slow so you should be prepared to spend the same amount of time to duplicate the video as it would take to show it. Appointments are not required but are recommended. Contact

Lynda Matys
Teacher Resource Center
Goddard Space Flight Center
301-286-8570

The Education Office is engaged in two new projects which we hope will be approved. This next Summer we hope to hold a workshop for community college faculty on the inclusion of Goddard data and educational materials in their course curriculum. Information on this workshop should be available in March or April if the project is to go

forward this year. The cost will be free at this point in planning. The second project dells with the internet. An Educational Mall like structure is under construction. In this concept Goddard data and educational products will be brought under one roof so that faculty will be better able to locate material for their classroom in a quick

CONNECTING ON THE FIRST DAY OF CLASS: A CLASSROOM EXERCISE

Richard L. Faircloth and Michael S. Glasgow

Abstract

Students often begin our science classes with a great deal of anxiety. They typically are unfamiliar with the instructor, do not yet have friends in the class, and often have low expectations regarding their general preparedness for the course. "Connecting on the First Day of Class" has proven to be a very good way to introduce the course and the instructor to these students; and it also may establish a basis for confidence building that can have lasting impact upon the students' performance throughout the semester.

Introduction

We have observed that students, on the first day of class, often behave as though they have found themselves in an alien environment. They usually do not know the instructor or anyone else in the class and, while many have questions about class procedures, they often are reluctant to ask them. "Connecting on the First Day of Class" encourages students to interact with the instructor and with each other, and it allows the instructor to provide course information in a way that sets the tone for the rest of the semester. Students begin to realize that the instructor is approachable and genuinely concerned with their success in the course.

Procedure

A suggested procedure for "Connecting" is an exercise involving the course syllabus, which is to be handed out later in the class. The steps are outlined as follows:

- Setting The Stage
  - When you enter the room for the first class meeting, provide only the name and number of the course to insure that everyone is in the correct room. Do not include your own name!
  - Organize the students into groups of 3-5 who do not know one another.
  - Distribute a summary sheet similar to Attachment A.

- Student Collaboration in Groups
  - Ask the students to introduce themselves and get acquainted by sharing information about themselves.
  - Assure the students that the summary sheet is only for their convenience and will not be collected.
  - Have each group compile a list of questions they have about the course content, course management and grading, the instructor, the college, etc. Their group's list is to be created by brainstorming within the group.

- Faculty/Student Interactions
  - The instructor can walk around the room and interact with each group over the next 10-15 minutes. If students have nothing on their lists, suggest one or two examples: "Would you like to know my name?" or "What type of tests do you think I give?" and "How will I determine your grade for the course?"
  - When time is up, or the students seem to have listed all of the questions which they can think of at the time, the instructor should move to the front of the room and solicit questions from the groups. These should be written on the board or overhead projector so that all can see them and, perhaps, be stimulated to think of more things they would like to know about the course.
  - When the class' combined list has reached a significant number (15-20 questions or topics of concern), the course syllabus should be distributed.

With students remaining in their groups, the instructor should begin to discuss with them the questions that have been compiled on the board. Many of the questions will be answered by items in the syllabus which has just been distributed; so the instructor can take this opportunity to point out the usefulness of the syllabus and suggest that it be kept for future reference. If a particular question is not answered by the syllabus, that answer might be provided verbally or an additional reference might be provided for the student's further research.

Concluding Statement

This activity provides an excellent opportunity for the instructor to "connect" with the class and with individual students. Students will have begun connecting with each other in their small group experience, and the discussions which follow will demonstrate that the instructor is concerned with their successful completion of the course. The instructor can exhibit an approachable manner and a willingness to answer any and all questions which may arise relative to the course and its content. No question is viewed as trivial or a sign of weakness on the part of the student. The success of this first day exercise depends heavily upon the instructor's ability to relate in a reassuring manner to the students, but the benefits of the activity tend to reverberate throughout the semester's activities and are evidenced in the student's increased willingness to share in the total learning experience with their instructor and their classmates.

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Attachment A

A mind that is stretched to a new idea never returns to its original dimensions.
Oliver Wendell Holmes, Jr.

Take a few minutes, as a group, to list any questions you might have about the course content, course management, the college, the division, the department or the instructor of this course. You may use the following space to record your questions as they come to mind.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

A WORKBOOK APPROACH TO WRITING THE RESEARCH PAPER

Judy Ferrand and Jeanne Altstatt

Abstract

Traditional research paper textbooks are difficult for students to use; they provide too much information and very little actual practice. Those textbooks tell students about the paper; they don't show students how to write the paper. We have decided that the workbook approach is much better for teaching the research paper because it gives students the actual practice that they need on each step of the process of writing the research paper. Putting It Together: A Workbook Approach to Assembling the Research Paper provides examples written by actual students plus individual, pair, and group activities that actively teach the step-by-step process of writing the research paper. We feel that when students have completed learning the process prescribed in Putting It Together: A Workbook Approach to Assembling the Research Paper, they have not only written this research paper, but they have also learned a valuable strategy for meeting the challenges of future writing assignments.

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THE GAMES PEOPLE PLAY

Richard C. Fulton

Abstract

The key to successfully using games in the classroom is adequate preparation. Taking time to prepare the materials in advance and think through the games to anticipate possible snags will make the difference between a fun learning experience and a chaotic waste of valuable class time. The use of games for learning not only engages the students, but helps them to remember important information which they may find useful, especially at test time. The materials needed, directions, and suggested uses of a number of games are given below. I hope you will find this information useful in helping you incorporate games into your classroom.

Charades

Materials Needed:

Envelopes for each category
Slips of paper or index cards with the particular topic/subject listed.
Timer, stopwatch, or clock with a second hand.

Directions: Divide the class into groups of four or five students. You should have enough categories for every student to participate. During the first round, start with group one. Then start with group two for the second round, and so forth. During each round one member will draw a topic (term, place, person, etc.) from the envelope representing the particular category. The group members will have one minute to try to get the answer. If that group correctly answers the topic, they receive two points. If not, the other groups, in successive order, may try to guess the answer. If they are correct they receive one point. Before beginning, you should establish very specific rules about what the students may and may not do while acting out their word. For instance, tell them they may not speak, draw on the board, spell words with their hands, use numbers, etc. The more rules you have establish up front, the smoother the game will run. If a group member breaks a rule, the group loses their turn. You should have extra categories and/or subjects, in case of a tie.

Suggested Uses:

Review of terms, places, people, etc. (Great for test preparation)
Shows how people convey messages nonverbally

Jeopardy

Materials:

Cards with the answers
Timer (most likely you)
Students need their own paper and writing instrument

Directions: Divide the class into groups of four or five students. Give each group a card which contains an answer. The group then tries to develop the question for their answer. Each group that correctly identifies the question receives a point. There are numerous variations you could use. One way would be to give every group the same answer and see who develops the best question. Or, if you are pushed for time, and who isn't, give each group a different question. This way more material can be covered/reviewed. Questions and answers can be discussed among the class members after each round, especially if a better question exists. In case of a tie you might want to consider a final jeopardy question, where each group receives the same answer and the first group with the correct question wins. Again, you could choose the group with the best question to the answer, but you would have to set a strict time limit.

Suggested Uses:

Review terms, places, people, quotes, etc.
Problem solving

Board Games

Materials Needed:

Gameboard drawn on a large piece of poster board
Index cards with questions written on them
Dice
Game pieces
Timer

Directions: Board games can be played in one of two ways. The first way is to divide class into groups of four or five students. Give each group a game board, a game piece for each member of the group, dice, and cards with questions. To play, the students take turns drawing a card and answering the question on it. If they answer the question correctly within the time given, they get to roll the dice and move that number of spaces. Play continues until someone reaches the finish spot. The second way to play is to have only one board and have each group represented by one game piece. The group draws a card and confers about the answer when it is their turn. This way the groups are competing against each other instead of as individuals. The best part about using board games is that you can change them each time you play.

Suggested Uses:

Review of material covered
Practice for a test

Name That Tune, etc.

Directions: Divide the class into groups of four or five students. Give each group a turn to come up with the correct answer in a given amount of time, usually 30 seconds after a sound bite is played. If you choose, you could stop after each group's turn and discuss the sound bite and its relevance in history, music, politics, etc. Each group would receive two points for a correct answer. If there is more than one answer they should receive a point for each answer given. Make sure no group receives more than their share of 'hard' or 'easy' questions. The phrases or quotes could be read by you instead of using a recording if necessary. Students would still have to identify where it came from, who wrote it, etc.

Materials Needed:

Playback unit (record, tape, or CD player)
Snippets of music, voice, etc. Best done if prepared ahead of time.
Cards, if reading information

Suggested Uses:

Review of information (for example: music, literature, quotes, historical events)
Testing knowledge

Hangman (or Wheel of Fortune without the Wheel)

Materials Needed:

Envelopes with terms, phrases, etc. listed on cards (set up like charades).
Each envelope should represent a different category.
Timer (to speed the game along if necessary)
Chalkboard or Overhead to display the "blanks" to be answered.

Directions: Divide the class into groups of four or five students. Using words, terms, people, phrases, quotes, passages, etc., create enough blanks for the answer. The group that is guessing should be aware of the category from which the answer was taken. Depending on how you draw your hangman, groups should be given 5 to 6 guesses. You may also award bonus points if the group answers correctly before using all of their guesses. Once the round is finished the class could discuss the answer or the terms used.

Suggested Uses:

Review for tests
To check student retention of lecture/reading

Bingo

Materials Needed:

One blank bingo card per student (see attached sheet)
Answers to questions written on a chalkboard or overhead
Questions to each answer written on index cards for you to read
Bingo markers for students (pennies, candy, etc.).

Directions: Write a list of 20-25 answers on a chalkboard or overhead. (These are the answers to the questions you have written on the index cards.) Give each student a blank bingo card and tell them to write one answer from the list in each square on their card. Read the questions and have students cover the corresponding answers on their card. Play continues until someone has covered all the squares in a column, row, or diagonal line on his/her card. (You may also play until someone has covered every space on the card. When someone gets "bingo", check their answers to make sure they are correct and discuss them with the class.

Suggested Uses:

Review of material for a test (for example: matching dates with events, quotes
with the author, mathematical problems with the answer, foreign language words
with their English translation)

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THE FORCE EXERTED BY A MOVING FLUID

Richard M. Gottfried

Abstract

A moving fluid will exert a force, called a pressure force, when it strikes a stationary object. The pressure force depends on many factors, including the relative speed of the fluid, but is not dependent on fluid viscosity. In this experiment you will establish the relationship between the force of the fluid and its relative speed by directing a jet of water against a free-hanging, uniform, metal plate which can rotate.

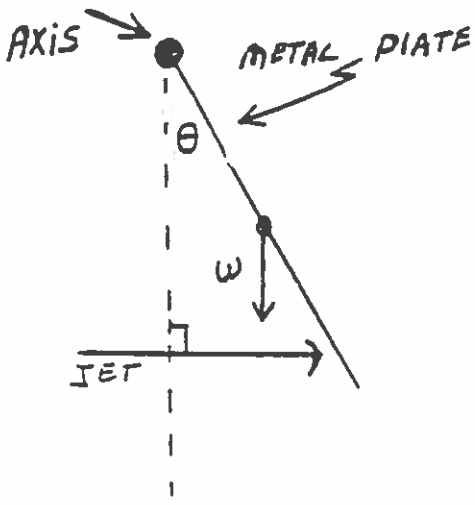
Background

The jet will deflect the plate from the vertical, until the torque from the force of the jet is balanced by an opposite torque from gravity acting at the plate's center of mass. A steady water jet striking the metal plate will deflect it at a constant small angle when the torques about the axis are equal and opposite (see diagram). Data will be collected so that the force of the jet, F_J, can be determined for at least 4 equilibrium conditions (i.e., 4 deflection angles). Measuring the mass flow rate, by timing how long it takes to fill a graduated cylinder to some height, for each equilibrium angle will allow calculation of the speed of the jet. The relationship between the force of the jet and its speed can then be established.

Pre-Lab

Do the following in your logbook *before* you do the experiment.

1. Draw a Free-Body-Diagram for the metal plate when it is in equilibrium at some angle.
2. Write the equation that describes the net torque acting about the plate's axis.
3. Algebraically, solve the torque equation for F_J.
4. Write the data you will need to determine F_J experimentally.



Procedure

1. Measure the diameter of the nozzle by pushing it into the clay and, using the calipers, carefully measure the size of the circular impression in the clay.

2. Replace the nozzle and *carefully* turn on the water so a horizontal jet strikes the metal plate near the bottom of the plate. (Ttry to keep the nozzle within a few centimeters of the plate so that the effects of gravity can be ignored.)

3. When the plate deflection stops, measure and record the data necessary to find F_J for that angle.

4. Leave the water running and measure the flow rate with the stop watch and graduated cylinder.

5. Vary the jet's speed and repeat steps 2 through 4 for at least 4 different deflection angles.

Experimental Analysis

1. Use the torque equation and find the force exerted by the jet at each of the deflection angles.

2. Use the definition of mass flow rate to find the speed of the water jet. Assume the area of the jet is the area of the measured circular nozzle.

3. Determine the relationship between the force exerted by the jet and the speed of the jet. (Perhaps by a log-log plot?!)

4. Using the equation of continuity and assuming the pipe feeding the faucet has a diameter of 0.5", find the speed of the water in the pipe feeding the water jet.

5. Using Bernouli's Equation, find the pressure in the 0.5" feeder pipe at the same level as the jet. Assume the jet's pressure is atmospheric pressure.

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USING A COMPOSITION COURSE TO INSPIRE PEACE

Rita W. Guida

Abstract

As a nation we profess our desire for peace. Yet, we are only beginning to actually teach peace in our schools. If we are to have peace, perhaps we need to incorporate its lessons into as much of our education as possible. One avenue for this is to focus the readings and assignments of a freshman composition course on the practice of peace. Participants in a peace-based composition course at Howard Community College report an increase in interest and a change in assumptions and behaviors after completing the course.

Introduction

In America, "a violent crime is committed every 17 seconds. The leading cause of injury among American women is being beaten at home by a man. More than 100,000 weapons are brought into schools every day" (McCarthy). Everyone familiar with these statistics is looking for a solution. An approach which I believe may make a difference is that suggested by Coleman McCarthy: the active teaching of peace in our schools.

McCarthy points out that our approach to the study of history has focused on battles and wars, praising military leaders and glorifying soldiers. Competitive sports and violent television also foster the belief that aggression is a normal part of daily life. On a recent rerun of Andy Griffith , Opey was encouraged to stand up to the school bully. Why not encourage him (and the viewers) to practice conflict resolution? While we speak of peace, we follow it only as a first attempt.

On every educational level, curricula seldom include those who have actively worked for peace. Few students have heard names like A.J. Muste, Lanzo DelVasto, John Woolman, but they can tell you who Napolean and Grant were. Coleman McCarthy has been actively working to change this since 1986 through the Center for Teaching Peace. The Center provides a home study course highlighting the essays of of the famous (Gandhi, King, Tolstoy, and Thoreau) and the not so famous (Day, Kohn Benedetti, and Dworkin).

Certainly, peace education should begin in elementary school, focusing on young children who have not yet formed intractable patterns for violence. However, children definitely are shaped more by their parents than by their teachers. To change the next generation of children, we need to convince their parents, many of whom currently attend college. For those who attend a community college, combining readings and discussions on peace with an already existing composition course may be more effective than introducing a separate course on peace.

A peace based composition course benefits students in several ways. It enhances critical literacy by providing an opportunity for students to read essays written by great thinkers. In addition, because women and minorities have long been active in the peace movement, it provides cultural diversity. Finally, the topics themselves (family, love, culture, government, economics, discrimination, justice) relate to students' own lives and the world events happening around them.

Sample Composition Course Based on a Theme of Peace

Course

The topic is used in the second semester of a required two-semester composition course based on argument (EG 102). Twenty two students meet three hours a week in a networked computer lab. All students write at least six essays (6,000 words) including an extensive documented essay of at least 2,000 words.

Readings

Readings are chosen from two sources:

1. One World, Many Cultures by Stuart Hirschberg

2. Collection of essays written by peace activists (from Coleman McCarthy's Center for Teaching Peace).

Students read essays pertaining to family relationships, culture, race, gender, economics and government; all essays explore the unconscious aggression and competition we bring to these areas. Essays and narratives from other cultures challenge students to view life from another culture's perspective. While the readings vary, the list below suggests some of the most effective readings.

Family

"Birth Ceremonies" by Rigoberta Menchu
Birth rituals of a Guatemalan Indian tribe

"Family Satyagraha" by Eknath Easwaren
Gandhi's method of peaceful resistance applied to families

"How to Love Our Children" by James and Kathleen McGinnis

Culture

"Loving Your Enemies" by Martin Luther King, Jr.
Sermon on philosophy of non-vioent protest

"Human Nature Isn't Inherently Violent" by Alfie Kohn

"Why I Quit the Clan" by C.P. Ellis

Gender

"Circumcision of Girls" by Nawal El Saadawi

"Rape Is All Too Thinkable for Quite the Normal Sort of Man" by Neal King and Martha McCaughey

"Dreamworlds II"
Video analyzing the impact of MTV

Economics

"This Money Is Not Ours" by Dorothy Day
Letter rejecting government interest payment as usury

"Amish Economics" by Gene Logsdon

Government

"On the Duty of Civil Disobedience" by Henry David Thoreau

"Patriotism or Peace" by Leo Tolstoy

"The Judge and the Bomb" by Judge Miles Lord
Sentence of war protestors who damaged property

"Wilfred Owen: the Pity of War"
Video- -film clips of WWI interspersed with Owen's poetry

"Letter from Birmingham Jail" by Martin Luther King, Jr.

Assignments

1. Non-traditional essay assignments

For the first essay, students pair up to research the biography of a peace activist and then cooperatively write a single essay. For the final assignment, students write a negotiation essay (assignment suggested in Aims of Argument). In the negotiation essay, students argue opposite sides of an issue, then present concerns shared by both sides and, finally, suggest creative options that would please both sides.

2. Response paragraphs

At the beginning of each class, students write responses to the essays they have read, usually limited to two paragraphs.

3. Traditional essay assignments

Students write three standard argument essays related to the readings and class discussions.

Impact of Material

Like most of us, college students accept the inevitability of war. Assigned readings in a single course are unlikely to effect immediate change. The goal is to plant seeds for future growth. Both semesters that the course has been taught, the topic was unannounced. Students had not chosen to study a theme of peace. And the topic was introduced at the same time that students and faculty were switching to a networked, computerized environment. However, a majority of students stated that they found the theme meaningful and the readings beneficial.

1. On an evaluation form, 80% of students responded positively to course content Negative respondents believed the issue too distant from their personal lives

2. In the response paragraphs, students were often startled by the essay's content. Most students analyzed the issue as it affected their own lives. Frequently, they included comments about how glad they were to have read and thought about the issue.

3. Students chose popular argument topics for their negotiation essay: marijuana laws, the flag amendment, affirmative action, capital punishment, school prayer. However, the tone of their essays avoided the combative edge often present in papers on emotional subjects. Not only did they suggest

effective solutions for their issue, but most moved into conclusions reflecting a deep concern for all the problems facing society.

Conclusions

The idea of teaching peace is foreign to most of us. It seems more appropriate in the history or political science class. We see it as the work of the government rather than the individual. And the task seems so insurmountable. Yet, as teachers we have a unique opportunity to influence the next generation. Students need exposure to inspirational material wherever we can include it. A composition course easily incorporates a theme of peace, but it can be woven into other courses as well. As educator Maria Montessori reminds us, "Establishing lasting peace is the work of education. All politics can do is keep us out of war."

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COMPUTERS IN CHEMISTRY

MULTIMEDIA INTERACTIVE CHEMISTRY MODULES

Dr. Sridharan S. Iyengar

ABSTRACT

Five interactive chemistry modules were created with Macromedia's Authorware program. These are user-friendly units of instruction that are independent of each other. The common features to these modules are:

1. suitability for self-paced learning by the user
2. highly interactive, allowing the user to respond to respond to questions during presentation
3. designed to provide instant feedback to the user
4. independent of any chemistry textbook
5. dynamic and modifiable
6. packaged to be run in either Windows 3.1 or Windows 95 environment
7. usability in lectures by the instructor

The modules are:

1. Nomenclature of inorganic compounds
2. Periodic Table of Main Group Elements
3. Measurements
4. Stoichiometry
5. Stereochemistry of chiral compounds

These modules will be placed in the local network in our college for use and review by students. Their feedback will be used in improving the modules and to design and create others.

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COMPOSITION AND SOCIAL CONSCIOUSNESS
A TOPICAL APPROACH TO TEACHING COLLEGE COMPOSITION

Kenneth Kerr

Abstract

This approach teaches college composition, both freshman English as well as developmental English, through an examination of a social issue. Students select a social issue and use it as the basis for all expository and argumentative writing throughout the semester. For credit English students, this culminates in a research paper that makes use of all essays written throughout the semester. The benefits are seen in the quality of research papers, additional practice using MLA/APA documentation, and the students' greater understanding and knowledge about the topic of study.

Rationale

It has been my experience that students make poor and inappropriate choices when permitted to select their own topics for compositions. Often these choices are superficial, related to popular culture trends, or otherwise not academically appropriate. The topical approach directs and limits the students' selection options to more academically challenging and appropriate topics. Additionally, this approach allows students to explore a topic for the length of the semester rather than the three-to-four week time period sometimes allotted to the research paper

Often times, what is written in first-year English courses has little relevance to the type of writing required by the content areas. Additionally, the assignments usually given in developmental English courses are largely first-person experiential and of little academic relevance. This approach not only addresses this problem, but also provides opportunities for paired courses and interdisciplinary study. By adopting a writing across the curriculum approach, more relevant, academically appropriate writing activities can take place in both the developmental and credit composition courses.

The addition the of experiential learning assignment allows the students to become first-hand researchers. By selecting a social problem present in the community in which the student lives, a personal investigation can take place giving the student a greater, more personal understanding of the problem being studied.

As part of their research, the credit students are required to perform first-hand research by experiencing the problem as a participant-observer/researcher. This again required critical thinking to determine an appropriate experience and how it could best be incorporated into the final research paper. Developmental students were offered this assignment as extra credit.

The investigation of the social problem culminates in the form of a research paper that takes an argumentative stand on some aspect of the social issue (This is not part of the developmental course). The advantage of this approach becomes clear as the student are now able to use major parts, if not entire essays, in the construction of the argumentative research paper. Not only are the students now somewhat expert on the chosen topic, they have also built an impressive bibliography and have had over twelve weeks practice using MLA/APA documentation.

Student Reactions

At the completion of the semester, the students were asked to evaluate the benefits of this approach. They were also given the opportunity to suggest alternative assignment outside the restriction of staying with one topic throughout the entire semester.

The following is a summary of those responses.

How beneficial was the social issue approach to studying writing?

Very beneficial	47%	
Somewhat beneficial	48%	(95%)
Don't know	2%	
Not very beneficial	3%	
Not good at all	0%	

How would you rate the practice of choosing a topic and staying with it all semester?:

Very beneficial	38%	
Somewhat beneficial	47%	(85%)
Don't know	5%	
Not very beneficial	3%	
Not good at all	6%	

How would you rate the experiential learning:

Very beneficial	58%	
Somewhat beneficial	32%	(90%)
Don't know	8%	
Not very beneficial	3%	
Not good at all	0%	
No response	2%	

Course Procedure

Topic Selection

The students are required to select a social problem that exists within their community. These problems include, but are not limited to, crime, education, teen pregnancy, public assistance, population growth, drugs, and public health issues.

Once selected, the topic is then the focus of study for the entire semester. Students work through several expository and argumentative modes, examining the social problem from many angles. The students must think critically to select a topic that is able to be explored in each of the required assignments.

Assignments

Credit English students write four essays of between 500-800 words and a research paper of 2500-4000 words. Students begin building a bibliography and practicing MLA/APA citations from the first paper. Developmental students perform the same activities, writing 150 word paragraphs rather than essays.

The initial assignment is a definition essay/paragraph. In this assignment, the students define the parameters of the social problem. This essay forms the basis for all subsequent essays, explains any unfamiliar concepts or terminology related to the social problem, and determines who, what, when, where, and how the problem exists in the community. Also required of this assignments the determination of a target audience for this and all assignments that follow.

The second required assignment is a process essay/paragraph that identifies and documents a discrete process present in the social problem. The students are required to identify and record the steps present in the process and express them in third person objective, academically appropriate prose.

A comparison-contrast essay/paragraph requires that the students show an understanding of the social problem through comparing it with some other topic more easily understood by the identified audience. Through this assignment, the students gain an appreciation of the complexity of the social problem through its comparison with one more easily understood.

The students are also required to critically summarize a primary source journal article from a respected academic publication. This assignment provides additional opportunities for bibliography building, summarizing, paraphrasing, quoting, citations, and a discussion plagiarism. Developmental English students are permitted to select an article from a secondary source, such as a news magazine.

When students were asked what they would have chosen for the required assignments if they were not limited to one topic for the entire semester, the majority of the students, over 50 percent, did not respond. Of those who responded, over 25 percent indicated they would have chosen the same topic. Others offered topics could have been treated as social problems. The remainder listed topics that were inappropriate for an academic assignment.

Conclusion

The topical approach to the teaching of composition, both at the credit and developmental levels, has several advantages over traditional instructional methods. The disadvantages are in the area of unworkable topic choices and dissatisfaction with the limitations of a single topic on the part of a minority of students--about nine percent of those responding to the questionnaire.

The quality of student papers and bibliographies were superior to those research papers submitted under a more traditional method of instruction. It is also probable that students are better prepared to write for courses other disciplines. In addition, by retaining the same topic for each assignment, students are able to concentrate on the form and structure of the composition rather than committing limited time to investigating a new topic for each assignment.

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COMPETITION, COOPERATION, & COLLABORATION:

THE DIFFERENCE?

Jerri Holland Lindblad, Ph.D.
Frederick Community College

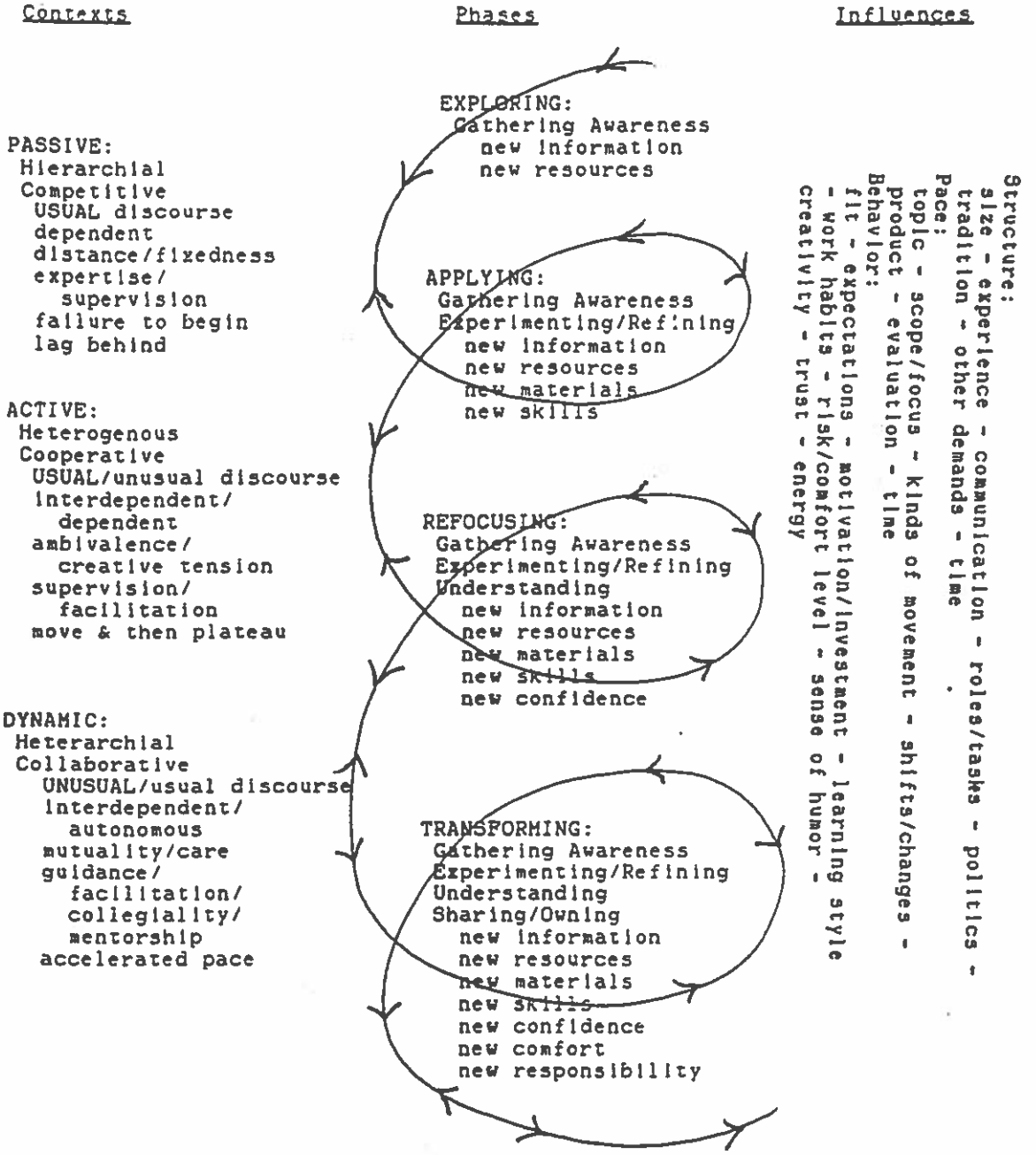


Figure 2. Stretching and Growing Collaboratively:

Regressive/Non-Progressive/Progressive Movement

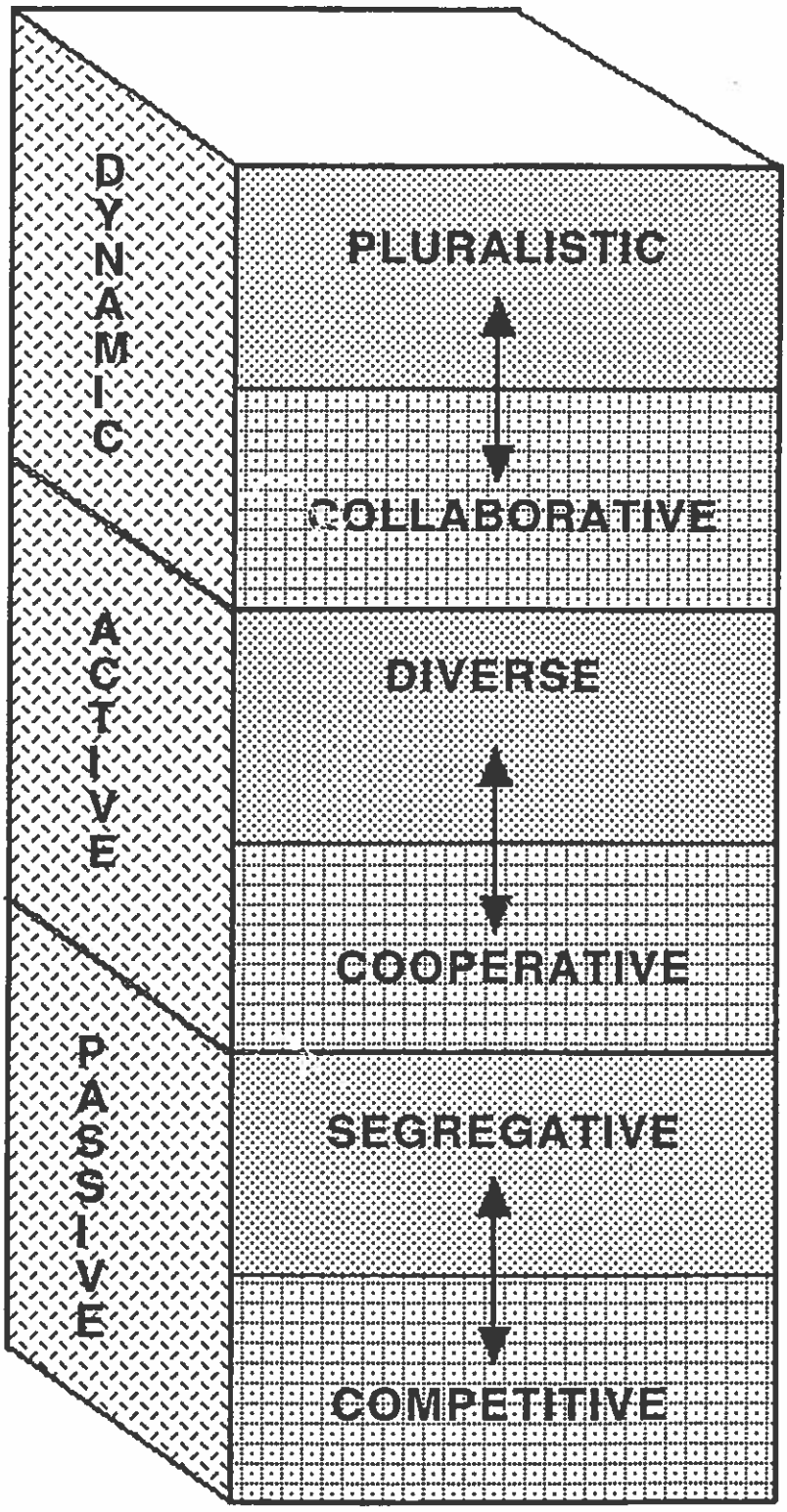


Fig. 4: Working Etc.

WORKING RELATIONSHIPS:

CONTEXT
CULTURE
BEHAVIOR

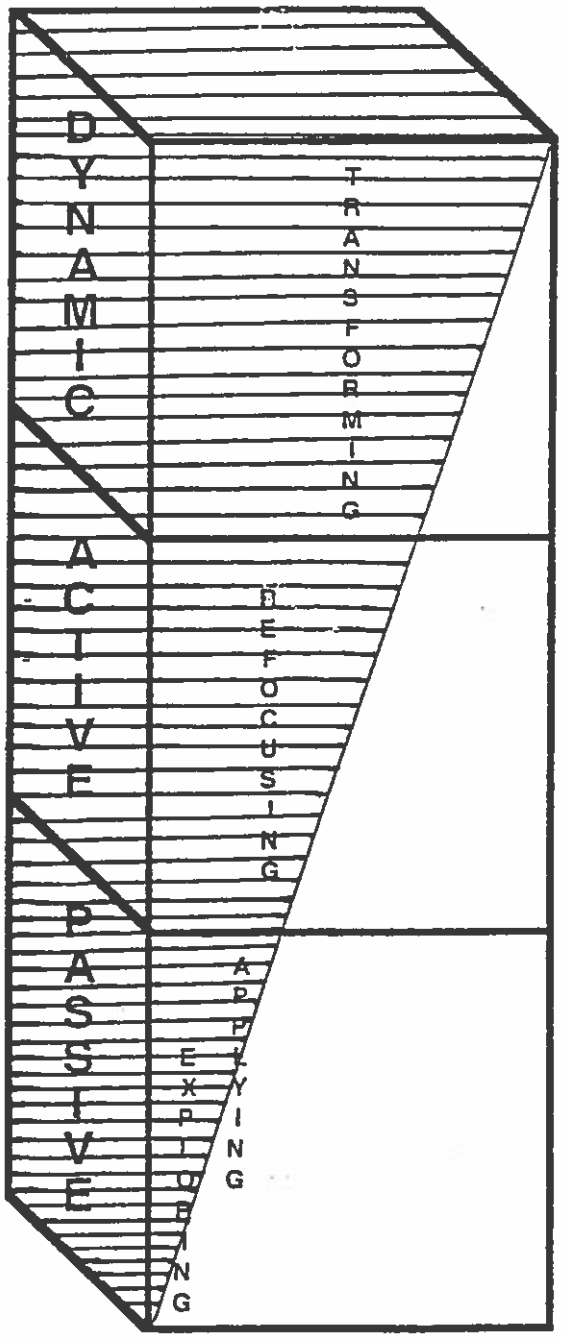


Figure 3. Working Relationships/Intellectual and Social Growth

Table 4. Attributes of Hierarchial, Heterogeneous, and Heterarchial Authority and Power

	Hierarchial	Heterogeneous	Heterarchial
Context:	passive	active	dynamic
Control:	external	external/ internal	internal/ external
Direction:	vertical	vertical/ horizontal	multiple
Dimension:	one	two	multiple
Perspective:	win/lose	win/win	non-game
Discourse:	USUAL	USUAL/ unusual	UNUSUAL/ usual
Relationship:	static distance 'fixedness' dependence	sporadic ambiguity creative tension dependence/ independence	ongoing mutuality flexibility, care independence/ autonomy
Behavior:	competitive	cooperative	collaborative
Culture:	segregative	diverse	pluralistic
Growth:	exploring/ applying	exploring/ applying/ understanding	exploring/ applying/ understanding transforming

Figure 1. Collaborative Authority Settings

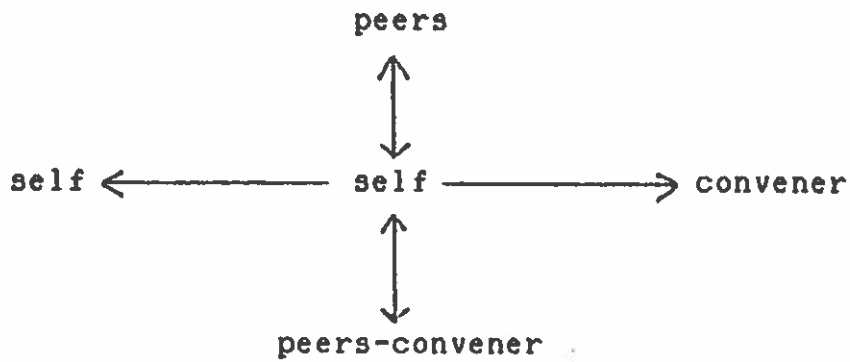


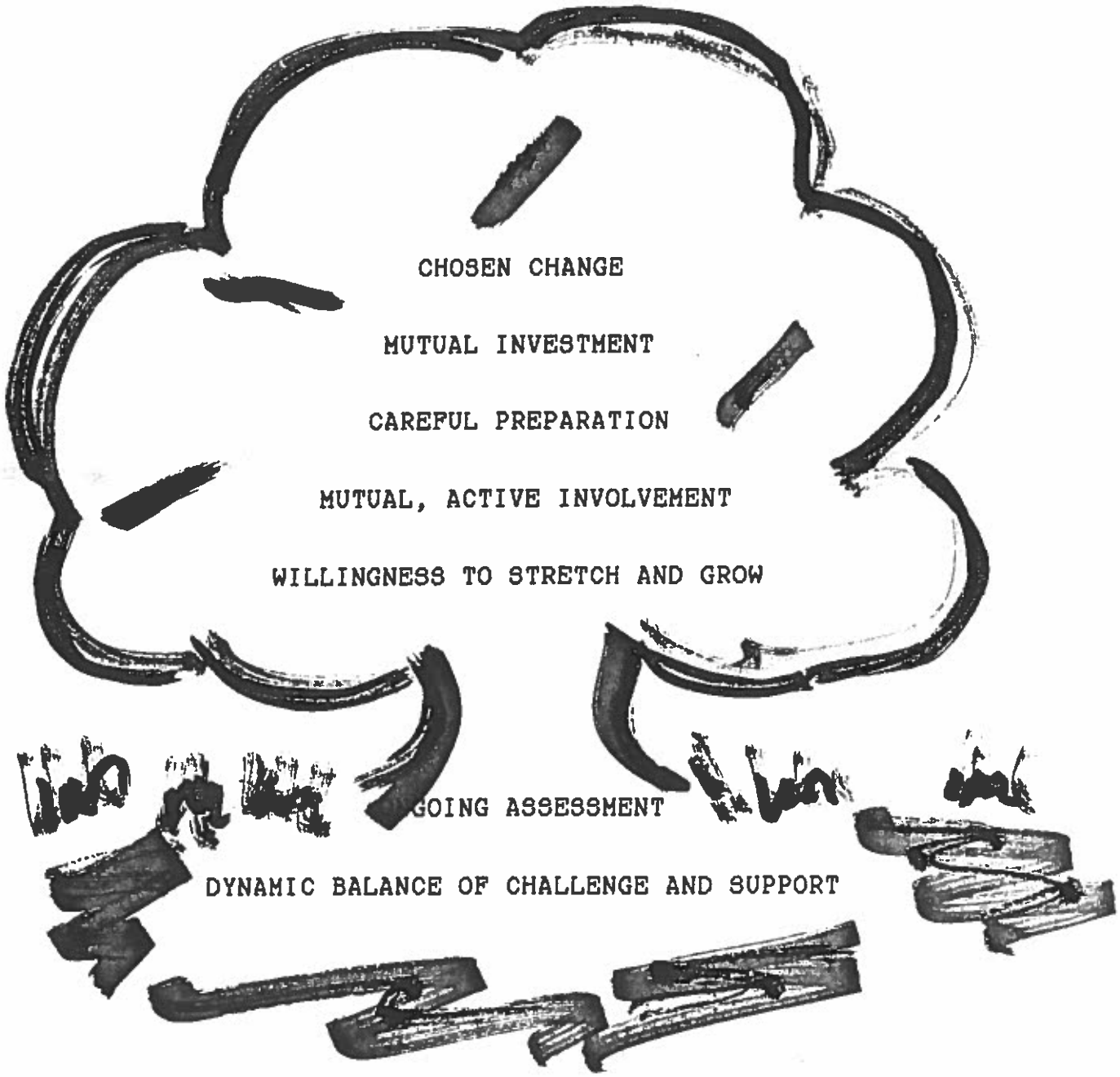
Table 5: Balancing Challenge and Support in the Maturation of a Collaboration: Faculty Roles/Student Locus of Control

Project beginning:	
Faculty:	Supervisor/Facilitator
Student:	Other-dependent, OTHER-directed
Project middle:	
Faculty:	Facilitator/Guardian/Guide
Student:	Other/self-dependent, OTHER/self-directed
Project end:	
Faculty:	Guardian/Guide/Colleague/Mentor
Student:	Self-independent/other interdependent, SELF-directed/other-directed

Vita

Jerri Holland Lindblad received her B.A. in English, music, Spanish, and education from the University of Colorado; her M.A. in literature from The American University; and her Ph.D. in the philosophy and practice of collaborative education from the Pennsylvania State University. As violinist, she taught the Suzuki Method of violin playing and served as principal second of the Millbrook Chamber Orchestra. As professor, she designed and implemented courses such as Advanced Composition; Technical Writing; Black Literature; An Interdisciplinary Course in Rhetoric; Ways of Knowing; and Science, Literature, and Technology: Bridges and Bonds. As administrator, she coordinated the inception and development of Frederick Community College's honors program, obtained and directed a grant for students and faculty to create interdisciplinary courses together, and assisted in the direction of the University of Maryland College Park's honors program and learning community. She currently serves as Chair of the Department of English at Frederick Community College. She has held numerous offices on campus and in professional organizations, including Chair, College Senate; President, Maryland Collegiate Honors Council; and member, National Collegiate Honors Council Executive Board. A published presenter and consultant on collaborative learning and on honors education (Essex Community College, Frostburg State University, Florida Community College at Jacksonville, University of Rhode Island at Kingston, Maricopa Community College District, etc.), her memberships include AAHE, ASHE, MLA, NCTE, NCHC, CUE, SAA, and Phi Kappa Phi.

THE BASICS


CHOSEN CHANGE
MUTUAL INVESTMENT
CAREFUL PREPARATION
MUTUAL, ACTIVE INVOLVEMENT
WILLINGNESS TO STRETCH AND GROW
GOING ASSESSMENT
DYNAMIC BALANCE OF CHALLENGE AND SUPPORT

LEARNING IN GROUPS : PRINCIPLES AND PRACTICES THAT FOSTER SUCCESS

Thomas E. Little, Ed.D.

The search for effective learning and teaching methodologies responsive to the demands of today's community college students has led many faculty to search out the potential of groups in supporting the teaching-learning dynamic. But what faculty discovered was often no respite from the storm. That may be because some of the fundamentals have clearly changed. Today the learners are older, often under-prepared or academically unskilled. Add the effect of inadequate materials and technology or ill-equipped labs and classrooms and it's no wonder that frantic faculty search for hope and help in the midst of the looming academic chaos. And if *we* feel that way, think how the students feel!

We know this much, learning groups are no magic bullet. But, they can give learners and leaders alike new options for success. Where people discover a community characterized by shared respect, compassion and acceptance, there, learning becomes possible. The premise of this presentation is that when agendas, processes and people coalesce into a welcoming, growing, learning community extraordinary events can happen. Paying attention to the potential and opportunities of learning groups will serve us all, especially our learners, in maximizing the potential and opportunities of group-based learning systems.

How we got here

Group learning has proven to be a mainstay in education, especially with adults or non-traditional learners, ever since we have been keeping score on what seems to work. Although almost everyone agrees (at least theoretically) that rote learning has never had a long term positive effective with the adult, the significance of the group's contribution in creating and facilitating personal learning success has been less certain.[1] Yet, overlooking the potential and possibilities implicit in team learning may be denying to ourselves a critical resource for learning. And it may be especially important for the non-traditional learner who cannot meet the "normal" expectations of academic performance, literacy or other academic readiness criteria which are not yet part of the student's repertoire of skills. All too often our students are forced to demonstrate what they cannot do academically. Group-based work offers another, more positive option to the learner. Why focus on the threat when, skillfully managed, learning groups can give both confident and confounded learners an experience base from which to explore their performance potential and create stimulating environments no matter what the learning agenda may be.

As Ramsey and Couch have suggested, "Flexibility, adaptability, responsiveness to change, the ability to deal with ambiguity, complexity and diversity are all increasingly important skills which make significant difference in the ability of the person to engage

creatively in solving problems whether at school or work."[2] Groups have fostered such skills and potential in learners and in the learning environment throughout their years of use. Amy Rose posits that education groups in America have provided not only the chance to develop personal discipline but interpersonal support and proved to be an avenue for socialization of new learners as well. Whether they were part of pre-civil war study circles or the women's groups of the late nineteenth century, learners discovered in groups a passage from the home environment to the new world of learning in a climate of comfort, respect and minimal threat.[3] Is not that same type of transition process needed by modern learners as well?

As Dewey's progressive education sunk a toe-hold in the educational beachhead, activist educators like Eduard Lindeman and Mary Parker Follett adopted the group learning and discussion format as keys to democratic participation and leadership training. Their conscious connection of learning and action set the stage for the modern era of group dynamics which emerged during the 1930s and beyond.[4] The decades preceding the 1960s spurred continuing research on the group as a learning method and benefited from Lewin's field theory as a guide to isolate and identify the variables affecting the effective group experience. As the research of Lewin, Houle, Lippitt, Benne and others[5] discerned the infrastructure of the group experience, participant-learners discovered in their continuing interaction a positive difference in their learning patterns. Yet, like the proverbial fish who are last to discover water, groups and their leaders too often failed to realize the promise and the potential of their enterprise, even as they benefited from it. That is an ignorance in which educators of today's non-traditional learners can no longer afford to indulge.

What we know so far

Cyril Houle (among others) identified some key issues and principles for the creation and sustenance of learning groups. His research indicates an appreciation of the important dimensions of the group experience. Houle took us directly to the bottom line - nothing is automatic. Ultimate success depends on attention to the conditions and concerns which support the effective group. His thought isolated the "critical path" for group processes success. He postulates, and I support, that groups are successful when...

1. Every member understands the group's goal;
2. There is a pleasant social environment;
3. Leaders acknowledge their limitations in facilitating the work of the group;
4. Members attain some feeling of accomplishment in their interaction;
5. Individual learning needs are met;
6. Members' needs and background were accounted for and incorporated in the group's experience. [6]

Together they form the infrastructure for effective learning groups and are the basis for the intentionality of process and agenda which are the hallmark of the effective group. The group that is aware of and attends to both its purpose and process creates the

initiating experience, the higher the resistance the group members may demonstrate in committing to reflection, assessment and action. So how does the facilitator get to the learning ?

Three strategies are essential. First, the group must allow the time necessary to work with the experience and their own agenda with it. Facilitators must recognize that the group's potential for learning is directly related to their ability to gather and examine fully the elements of their reality (including their fears, discomfort, concerns and taboos) in a consistent and thorough exploration of the dynamics and the didactics of the agenda. Taking time gives the group the leverage it needs to explore a significant experience without rushing and without fear.

Second, groups whose reflection processes are successful ultimately must learn to suspend their judgments and their paradigms as they test what they discover against what they know (or think they know) to be true. This testing process is an important step in the learning process. Only when the group has steeled itself to face the edge of its present belief structure will it be able to face the potential or the precipice of its dreams and discoveries. This testing process stretches the paradigms and constricts or confirms the infrastructure by which the group frames reality and confirms its own thinking and acting edge.

The final step in the process is tested in the group's ability to move from reflection and testing to action. Each step that the group takes to re-evaluate, assess and act on its environment is more than an intellectual exercise. It is, in fact, the ultimate purpose of the group learning event. The belief structure of the group is ultimately tested by its action limits. What it allows, sanctions and encourages for its members proves the effect of the learning process.

What we have learned

Tracing the process of learning has always been an approximation at best. Any attempt, including this one, is always a "shot in the dark." But some shots seem to offer more hope and light than others. Here are the conclusions of my exploration.

1. Groups continue to work because people use them (often uncritically and not always effectively) but they do serve and support the purposes of their members.

2. Learning is an individual, not a group event, but the group often mediates, moderates and mentors learners if the process, environment and members are so disposed.

3. Creating an environment suitable for learning is an intentional responsibility of the group and can be managed once members accept both responsibility and accountability for the group's process.

member monitors process as member and as participant-observer whose focus is forming the reflective nature of the group and the questions of the agenda.

Transformative Learning: At this level learners allow the agenda and issues to direct their reflection and revision about their underlying assumptions, expectations or perspectives about what is discovered through the group process. This learning agenda is best focused on by responding to or encountering new situations or concerns based in the experience of the group members. The teacher's role is to focus the group as they encounter new issues or "Meaning Schemes." He or she coaches, encourages sharing of personal exploration and the group engagement of ideas. The teacher helps the individual members to take responsibility for ideas ("I" statements) and encourages change through thought networking and personal comfort in the face of the challenges which the group explores. As the discussion forms the group it also frames the group's responsibility to address the ultimate concerns which flow from the group's discovery process. This learning level is achieved when the teacher resigns any remaining position power and stimulates personal reflection through role plays, simulations and case studies. As they manage conflict, encourage openness to ideas and expect trustworthiness the group members come to accept an expanding personal comfort and a new level of exploration which engages the moral sense of the group and encourages the group from reflection to action and decision making.[8]

Whether in the constructive, collaborative or transformative mode, the agenda, process, membership and learning leadership must work together to achieve the benefits of the team's experience and expertise. Attending to these dimensions fosters success, but only when they are sustained in a process by which each group member discovers the meaning and opportunity in the learning process.

Helping the process work

The basis of learning in any group is always discovered in the experiential learning process. Whatever the agenda or the learning level, the process that supports and fosters the interaction also guides and either guarantees or impedes the group's learning success. The process choice is a critical agenda option from which the group and the facilitator begin their cooperative journey. Learning in the group setting begins with the choice of the group's guiding experience, whatever that initiating experience might be. From the shared experience the process wends its way from the core event through the triumvirate dynamic of reflection, critical assessment of previous learning and committed action. These four process elements, in turn, create and mine the learning potential of an event and makes it increasingly vital and valuable to the group members as they move through the cooperation, collaboration and transformation learning levels.

Getting to the learning - reflection, assessment and action

The learning potential of a group is not limited as much by the agenda it chooses as by the process it allows to guide its journey. The more demanding and challenging the

conditions and environments that facilitate, inspire and promote learning. The key to achieving such intentionality, and perhaps the key to effective groups of any kind, is found in Houle's third principle. The effectiveness which groups achieve depends on the relationship they establish with leader-facilitators who can focus personal energies, abandon selfish power agendas and establish clear and cohesive processes which assist participants in constructing and achieving effective learning outcomes. As they facilitate, such leaders foster members' potential for intentionality, responsibility and accountability for their learning processes and outcomes on both the corporate and personal levels. To understand this potential one needs to examine two specific agendas at stake in any learning interaction: first, the formal learning agenda and then the procedural agendas, both of which affect the group and its learning potential.

Learning agenda models

Mezirow and Habermas[7] have identified three agenda typologies which help the group to articulate a level of discourse and its ultimate learning goals. These agendas suggest that attending to the group's Cooperative, Collaborative, and Transformative learning agendas foster intentionality and facilitate the group's response potential while they support the corporate and individual learning needs of the members. Each agenda has its own specific goals and processes requiring the teacher's appropriate attention and action.

Three Conscious Agendas:

Cooperative Learning: At the first level, cooperative learning goals focus the learners' work on sharing information in order to achieve specific learning tasks through mutual encouragement and support in the group activity. The cooperative learning agenda is completed in the acquisition of instrumental knowledge (objective, rational, definitive and scientific subjects) drawn from the acquisition of a specific subject matter. In this agenda the teacher designs exercises, activities, experiments, and specific problem solving activities for the group. As the primary manager and progress checker the teacher keeps the group on target and on the inquiry track. In this model the faculty expert /consultant controls and ultimately manages the inquiry agenda and process.

Collaborative Learning: The collaborative learning agenda focuses on establishing shared inquiry where individuals work together to construct knowledge and to discover objective truth. Collaborative learning is best achieved when members share understandings of social norms, cultures and values to achieve mutual understanding among individuals within the group. The focus of the group's experience becomes the sharing of perceptions in an exchange which enriches the participants and expands the topic of interest. The teacher's role is to establish a climate and group process design which focuses members capacity to maintain mutual respect while challenging one another to an honest, critical assessment of the issue or concern in question. Such an environment aims at creating questions through a process of full participation. Here the faculty

4. We achieve environments open to learning when the group's process is intentional, monitored and addressed as a serious commitment by the teacher/facilitator.

5. We get what we choose and foster - knowing what we have chosen and what agenda we are fostering frames our future for whatever good (or ill) we might do with it.

The opportunity we face is in learning how to use our own experiences in groups to help foster intentionally and support the potential of all our students as they discover and share the richness of one another in and out of our classes.

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SAVING THE NATION
AND OTHER CHALLENGES OF BEING A TEACHER

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Abstract

It's tempting to think we live in the worst of times, that we face challenges more serious than our historical colleagues have ever faced, that our struggle is more difficult than theirs. Only 150 years ago, however, the nation was edging toward Civil War and our own state of Maryland was deeply divided. During these daunting years, Almira Hart Lincoln Phelps served as the Principal or Headmistress of the Patapsco Female Institute in Ellicotts Mills and led her staff and students using these inspirational rules for teaching: 1. Engage the issues of the day 1. Remember that republics are fragile 2. Be sure the "other" wears a human face 3. Think of your job as a vocation 5. Model the virtues you advocate 6. Balance knowledge with wisdom 7. Cultivate body, mind, and spirit 8. Help your students acquire survival skills 9. Make your students citizens of the world 10. Stimulate imagination.

Is This the Worst of Times?

Chicken Little may have said it best: The sky is falling. Pick up a newspaper, turn on the TV and you are nearly guaranteed a dose of gloom and doom. Johnny can't read or add, has trouble identifying Europe on a world map, and thinks the Declaration of Independence is a subversive document. In addition to cultural illiteracy, we are reminded daily that alcohol and drugs are addling the brains of increasing numbers of our students -- sometimes as they sit in our classrooms -- and that too many children are finding themselves parents. We've lost our core values and our focus as a nation; families are being torn apart; young people don't have the skills or attitudes they need to function in the "real world." And, in the vacuum created by disintegrating communities, society is looking to the schools and challenging teachers to bind up its wounds and direct its youth into a more stable future. Along with teaching our subject matter, we are sometimes challenged to save the nation.

It's tempting to put up our hands and say, "Enough!" We were hired to be teachers, not counselors, therapists or clergy. Let the family and religious institutions solve the values crisis and leave us alone to do what we're paid to do -- teach. We would be entirely justified in limiting our focus and refusing this larger challenge. No one can ask us to save the nation -- it's an unfair and perhaps impossible demand -- and, at the same time, taking on this challenge can re-energize us and our institutions. Let me be clear. We would be foolish to accept sole responsibility for saving the nation. Clearly, the responsibility belongs to all of us, to all citizens. And yet, as teachers we have the opportunity to make a difference in this, our unique historical moment. It can give us a reason for getting up on cold January mornings and insure that we don't bore our students or ourselves while we're collecting our paychecks and waiting for retirement.

150 years ago, 50 miles east of here, the Patapsco Female Institute was attracting the daughters of the southern planter elite for a rigorous boarding school education. The nation was unraveling into sectional conflict and families were divided along fissures that would soon split into armed factions in a Civil War. Especially here in Maryland, sympathies were strong and divided. Part of our state would urge secession while part would remain fiercely committed to the Union. Within families, bitter sentiments led to harsh words and rival loyalties. When war broke out a decade or so later, brothers faced brothers across battle lines and fathers attacked sons. Former friends and comrades-in-arms found themselves on opposite sides of a bitter four year war that tore the nation apart and caused many to question its core values. Civil War is political and social crisis in action.

Even in the late 1840s, people were beginning to worry about the survival of the Union and becoming deeply concerned about what kind of future awaited the nation's young people. Faced with a series of challenges even greater than our own, Almira Hart Lincoln Phelps, the New England born principal or headmistress of the Patapsco Female Institute in Ellicotts Mills from 1841 to 1856 developed a set of ten rules for herself and her teachers to follow in educating the young women placed in their charge. They seem as useful now as they did in 1847 and I offer them as food for thought as we pause at this conference to consider our own work as teachers.

Rule # 1 Engage the Issues of the Day

Our schools and colleges have never existed inside a plastic bubble even if at times we have acted as if they did. During the turbulent 60s and 70s, campuses came alive with protests, sit ins, and demonstrations. The war in Viet Nam, Civil Rights, and liberation for women engaged the intellectual energies of students and teachers. Some read the essays of Marx and Engels with a shock of recognition while others discovered the literature and history of people of color. Women found themselves marginalized in the wider world and within the structure of protest movements and looked to the past for inspiration. Watergate raised questions of ethics and social responsibility and the space program energized the dream of scientific exploration. Today, we are told, our students only want to get a job and they have no time for peripheral issues. I'm not so sure. What I am sure of is this: if we fail to connect our courses with the political, social, economic and moral issues of our day, our classes will be dismissed as at best irrelevant and at worst a necessary evil on the path to graduation. And, we will have missed a great opportunity. Almira Phelps came to the Patapsco Female Institute in 1841 with a strong sense of the historical past. Born and raised in Connecticut, she was descended from the Harts and Hookers of Puritan New England and her father had fought in the Revolution. She grew up on stories of the patriot past and heard the call to be a Republican Mother -- a woman who recognized her responsibility to raise the virtuous citizens on which the fate of the republic would rest. And, she knew a historical moment when she saw one. The young women being sent to her for their education would not have been expected by the wider world to save the nation. Indeed, their own families were probably grooming them to manage households and serve as intelligent companions for their husbands -- in many cases

they were enjoying a brief interlude of freedom before assuming their duties as plantation mistresses. Almira Phelps had other plans for them. To her, they were the Republican Mothers of a new generation whose task it was to soothe sectarian tendencies and raise children who understood the necessity and value of a strong and united country. If national problems manifest themselves in the family and the school, she reasoned, then those are the places where national problems must be addressed and eventually solved.

Rule # 2 Remember that republics are fragile

A monarchy succeeds or fails, depending on the skill and the virtue of the monarch. What makes a republic such an adventure is that it stands or falls on the virtue of its citizens. The American experiment -- not yet 75 years old in 1847 -- required the formation of virtuous citizens if it hoped to be successful. The first line of responsibility clearly rests with the family and Almira Phelps expressed alarm at what she saw as the family's failure to instill the habits of virtue: "How little does the doting parent reflect," she had written in the late 1830s, "when tenderly nurturing a beloved child, that he may be administering a slow poison, which will infuse itself through the whole moral system, and, in future years, render this child imbecile and degraded." Luxury, she strongly believed, corrupted and she looked to history to buttress her case. The Romans had been virtuous "until the spoils of vanquished nations" made them rich. And, in America, the patriots of the Revolution showed themselves "capable of high and noble actions" before the benefits of trade, commerce, and manufacturing threatened the moral fiber of the country. Where the family had failed, it was the teacher who could yet put the young person on the path of virtue. As the headmistress of a school of young women, she was particularly eager to impress on them their future responsibility as mothers, the first and best teachers of the young in the home. Phelps was convinced that it was time for the nation to return to the virtues of the past. Republics are no less fragile in 1997 than they were in 1847. Intelligent engagement with the questions of the day, a willingness to put country above narrow sectarian interest, a commitment to political virtue -- these are still the qualities required of citizens. If our students are too apathetic to vote and too cynical to care which candidate is elected, we, too, must fear for the fate of our republic. In 1847 Almira Phelps confronted intensity of feeling rather than apathy. As sectional feelings grew stronger, and she began to fear secession, Phelps sought to use her student body, her little microcosm of the increasingly divided North and South, to shore up the Union. Beginning in 1847 she used her Annual Report to underscore the unique status of the Institute: "The North and South here meet," she wrote, "and friendships lasting as life, between those from the extreme bounds of the Republic, are formed and cemented." This idealistic scenario may have been more hope than fact but it captures the vision that sustained her in her work and earned the trust of parents. She was not just educating the daughters of a privileged class -- she was shoring up the Republic. As the millennium closes, our classrooms are becoming multicultural. When we study the historical experience of Asian Americans or the literary voices of African Americans, it is increasingly likely that there will be someone to affirm or deny what the textbook writer has said. In a formal discussion, or later over coffee,

today's community college students can hear about lives very different from their own and, if we do our job well, they will leave our classes better acquainted with the diversity that can strengthen our fragile republic as well as tear it apart.

Rule # 3 Be sure the "other" wears a human face

In a border state that remained in the Union but divided sharply during the war, the Patapsco Female Institute offered antebellum southern families one of the few safe havens to which their daughters might prudently be sent -- a place where the South would not be ridiculed and where Yankee values would not undercut the southern way of life. Almira Phelps saw the classroom as a place in which stereotyping and prejudice would fall as one human being met another and friendships formed. It was a narrow kind of inclusion -- making peace among white, Anglo Saxon, protestant girls -- and it never escaped the polite racism and classism of 19th century upper middle class America. Still, the rancor between North and South had reached an emotional pitch and each region had learned to vilify the "other" as a demonized enemy. If we keep in mind that these were the years immediately preceding a fratricidal war that tore the nation apart, Almira Phelps's self-appointed role as promoter of cultural diversity assumes greater significance. She was confident that stereotypes about Yankees and Rebels would melt away as young women came to know each other as friends and, in her favorite fantasy, the brothers of these young women would marry across the Mason-Dixon line. If a Massachusetts girl welcomed her South Carolina school chum into the home as sister-in-law, surely the nation's divisions might begin to heal. Her poem "Historical Sketch" describes her dream of a healthy pluralism. In a granite temple of learning (not unlike the PFI) she imagined "daughters of the North and of the South" meeting "as sisters" and being "taught to love the common country which protects their homes." Happily, the poem continues, friendships have formed across regional lines: "South Carolina loves full well her Massachusetts sister -- thinking not that enemies their brothers e'er will be." Instead they think of meeting, after school days are past, in some beautiful spot:

> At Niagara, it may be, or perchance
> Newport, Philadelphia, or New York.
> "My brother rare, you know he'll soon be free
> From college rules, (he graduates at Yale)
> You sure must see him -- and as you have taste
> And he has eyes, why -- what will happen then?

It was, she thought, the teacher's calling to affirm our common humanity and celebrate the value of pluralism. Learning to accept the "other" as a fellow human being is a necessary first step toward dialogue and eventual reconciliation. Despite their differences, Phelps believed, all citizens share a stake in their nation's future health and the teacher must call all her students to a larger vision. In our own classrooms, too, racial, religious, ethnic, and gender stereotypes as well as assumptions about what gay people or welfare mothers are like can weaken and even dissolve in the presence of the actual human beings who refuse to embody their stereotypes.

Rule # 4 Think of your job as a vocation

We've all heard the story of the traveler who approached each of three workers to ask what they were doing. The first replied, "I'm cutting stone," the second, "I'm shaping a corner stone," and the third, "I'm building a cathedral." Phelps thought she was building a cathedral and was convinced a teacher must always have some larger purpose in mind. "The world is a school," she told the 1846 graduates, "too often it proves a bad one." Phelps saw her own calling in quasi-religious terms: "The warfare with evil example and evil passions can never be fully accomplished in this life; -- but the educator of the young, laboring faithfully may be sustained by the consciousness of occupying, by God's appointment, a most difficult and arduous post of duty." She was convinced that every teacher is first and most importantly a molder of future citizens. Whether we teach math, or English, science, or philosophy, our most basic task is to model and instill what Aristotle called the "habits of virtue" so that when students leave our schools and go out into the world they know how to sustain the republic and pass it on to the next generation. "If every American woman were at heart a patriot," Phelps wrote, "and would frown indignantly upon all attempts to sunder the chain of Union which connects in one vast nation our States and Territories, soon would the voice of disunion cease to resound hoarsely through the land. Let patriotic women of the Northern and Southern states seek to allay angry passion and bitter prejudice, and to soothe the agitated spirit of fathers, husbands, and brothers; this done, our country is safe." The plans for the cathedral had been drawn.

Rule # 5 Model the virtues you advocate

It's a cliche to note that character is caught not taught. And, like all cliches, this one captures an essential truth. In a recent issue of The Teaching Professor, Joe P. Dunn of Converse College in SC observes: "Teaching isn't what we do. It's what we are, a way of life, a lifestyle. Professor Dunn remembers being told by his college president, "This isn't a job; it's a way of life." Like it or not, we become the representatives, even the embodiments of the subjects we teach, gaining or losing potential disciples for our disciplines depending on how effectively we model ways of living. Consciously or unconsciously, Professor Dunn points out, our students view us as models or texts of various ways of living a human life. No one of us is **the** model, of course, but our "various philosophical, political, religious, social and lifestyle perspectives present options. Our lives, actions, and practices speak as loudly as the words we utter and may have a more lasting effect." Almira Phelps took this challenge seriously. As a Northern woman with sympathies toward the Southern way of life, she made sure all her students were treated with tolerance and respect. She led an active life, intellectually and culturally aware of political and social currents in her own country and in the world. She expected her students to do the same. As a quasi-diocesan school of the Episcopal church in Maryland, Patapsco attracted a wide variety of students from as far west as California and representing over half the states in the union. One of Almira Phelps's quarrels with Bishop William Whittingham touched on just this point. He preferred that the students all be Episcopalians -- she that they be drawn to the church by inspirational example. Since Patapsco was chartered as a

secular institution, Phelps was sensitive to maintaining its non-sectarian character and favored a more subtle approach -- one that would "invite rather than repel others" and bring into the Church "those who would not be prepared at once to avow themselves Episcopalians." As today's public figures become ever more adept at revealing their feet of clay, our students move closer to cynicism. It may seem to them that public mudslinging is part of the way things are done these days. If we disagree, the classroom is our laboratory. Showing respect for our students and insisting they extend the same courtesy to each other can be our candle against the darkness. Whatever values we espouse -- a commitment to intellectual curiosity, a desire to hear both sides of a question before thoughtfully comparing them, a preference for diversity -- we may be more successful modeling them than preaching them.

Rule # 6 Balance knowledge with wisdom

Her strong commitment to moral values led Almira Phelps to guard against pedantry among her students. Without virtue, she feared her students might acquire only book learning and feel superior to others lacking similar advantages. On a practical level, this would make them unmarriageable and in the larger scheme of things it would ill equip them to be models of virtue in their own homes and communities. Phelps was committed to giving her students a rigorous education that included mental and moral philosophy, logic and rhetoric, Latin and romance languages, biology, physics, and chemistry as well as trigonometry, geography, history and political economy. This was emphatically not a finishing school and she used as her standard the education being offered young men in colleges. At the same time Phelps was ever vigilant against creating a merely intellectual woman -- one who would use her knowledge only to impress. "Man was made for improvement," she wrote in 1839, "Woman has the same intellectual nature as man; she too says, 'give me knowledge, it is the food which my mind craves, and without which it cannot rest satisfied.'" With a balanced education -- one that stressed both intellectual and moral accomplishment -- each person would see his or her "true dignity as associated with the performance of duty" and would view no task as "mean or vulgar." If we believe in the common good, we must hold out moral ideals along with intellectual ones -- responsibilities as well as rights, duty along with privilege. In our classes it must be clear that knowledge cannot be used as a club and that the truly educated person has a moral center. The real goal of Patapsco's curriculum was a balance between knowledge and wisdom -- a sense of accomplishment balanced with a healthy dose of intellectual humility.

Rule # 7 Cultivate body, mind, and spirit

It is tempting to live the life of the mind exclusively -- to become so wrapped up in ideas that we forget both our physical well being and a moral framework for our knowledge. Warned by medical texts that higher education was too rigorous for young women and would draw blood away from their reproductive organs to make them sterile, headmistresses like Phelps took great pains to safeguard the physical and moral health of their students while they were educating them. In the catalogue, Phelps

prefigured today's real estate agents in emphasizing location, location, location. "The Institution," she wrote in 1853, "offers advantages for the Education of Young Ladies seldom found united; among these are the following: -- Its location in the mountainous region of Elkridge, and overlooking the Patapsco River and surrounding country, is **eminently healthful** and combines in a high degree the beautiful and picturesque in scenery." Physical exercises were included with care of health in the Patapsco catalogue and touted as a remedy for the sedentary habits which often prove injurious to the members of literary institutions. Mary Stone of Port Tobacco, MD wrote her mother glowingly of some structured exercise in June 1847: "After the regular study hour on Saturday, the officer Miss Lee took the girls to walk. It was a delightful morning and we enjoyed ourselves very much ascending the lofty hills and gathering the beautiful flowers which grow in great abundance." In winter and during inclement weather, Phelps offered calisthenic and gymnastic exercise and dancing. Students at Patapsco also had required daily chapel and religious instruction that would clearly be inappropriate in our public, secular colleges. Still, we might connect with Phelps's mission if we think of helping our students to cultivate the life of the spirit. Making time to be alone, to experience the infinite variety of nature, to contemplate what it is we really value -- these are all part of what best selling author Thomas Moore calls Care of the Soul. In ancient China the cultural ideal was the scholar warrior who excelled at poetry, painting, calligraphy, horsemanship, swordsmanship, and philosophy as well as battle strategy. And the Greeks captured the same notion with "A sound mind in a sound body." We can help our students understand the necessity of a balanced life in which body, mind, and spirit are all honored and each has a place.

Rule # 8 Help your students acquire survival skills

For Phelps this meant accepting responsibility for earning your own living and being able to manage basic domestic chores. Having married twice for love and been twice widowed, Phelps knew very well that no woman should look to her father or her husband for financial security over a lifetime. "How many females who once cherished the expectation of filling a splendid station in life," Phelps wrote in the 1844 catalogue, "have been reduced to the necessity of exerting their talents to gain a subsistence!" -- a thinly veiled warning to fathers that they might not always be around to provide for the financial needs of their daughters. And, she saw clearly 150 years ago that a woman without the means to support herself might be forced to marry in order to survive. All her young women would be trained as teachers so that if they chose to remain single they could do so with financial security and dignity. No woman, she wrote tersely, should marry for "mere maintenance." In novels she wrote to be read a chapter at a time (soap opera fashion) to her students at weekly assembly, Phelps used her characters to represent moral virtues and teach highly didactic lessons. Among a group of young women who learn from the trails of their lives and end up as exemplary wives and mothers, is Julia Selby, a bluestocking who enjoys intellectual friendships with men and vows never to marry. "I love my freedom," Julia writes, "am devoted to study and find no room in my heart for any absorbing affection ... Yes, I might have married; -- I might have been Mrs. Dick Snobbs, or Mrs. Mortimer de Courtney; -- the shadow of a name might have rescued Julia Selby from the

opprobrium of old maidism; but ... I assert the right of every woman to marry, or not to marry; and if she decides on the latter, I protest against her being considered as a victim to be commiserated." Often, Julia observed, it was the "suffering ill treated wife," not the single woman, "who in her servitude loses all power to feel, much less to assert that she has any rights." Even a good marriage might end with death, as Phelps well understood. She spent a good portion of her adult life as a single mother supporting four children. In addition to expecting the responsibility for economic self-sufficiency, Phelps believed all adults should know how to make a bed, clean a room, and do survival cooking. Many of the young women at Patapsco were the daughters of the planter elite who could look forward to directing the work of servants. And, yet, life offers no guarantees. Some of these pampered young women, no doubt, found their homes and way of life destroyed in the brutality of Civil War. Her message of survival was meant as a bulwark against whatever contingencies the world might present. We need to prepare our students for the world of work and suggest to them that domestic survival is part of a self-reliant adulthood.

Rule # 9 Make your students citizens of the world

In travel and correspondence Almira Phelps touched a wider world and translated it for her students. She invited Hungarian revolutionaries, Cuban patriots, and supporters of Greek independence to her home and made sure the great issues of the day were part of the curriculum. In the 1830s she and her more famous sister Emma Willard took up the Greek cause. Comparing the sufferings of the Greeks under Turkish domination with those of the American colonists before the Revolution, Almira Phelps served as Corresponding Secretary of a female benevolent association, established to aid the Greek cause, and used her writing ability to raise $2500 and influence national opinion. The most pressing need, she and Emma agreed, was for education and they envisioned a teacher training school for girls in Athens. In 1848 she identified herself with the plight of Hungary in its revolt against Austria. Thousands of refugees fled to the United States after the republic fell and one of them Captain Szemelenyi, formerly of the general staff of the Hungarian Army, became a music teacher at Patapsco. Szemelenyi set Phelps's poem "The Hungarian Exile" to music and Patapsco students probably sang these words:

> Nobly we urged the unequal fight
> Where darkly rolls stern Danube's wave,
> But treach'ry black as darkest night,
> Betray'd the Magyar troops so brave

As sympathy for the Hungarian cause built in the United States, Phelps wrote Baltimore businessman John Pendleton Kennedy to ask his support for a musical concert to benefit Hungarian exiles. Twenty years later, she wrote Kennedy again, this time to urge his support for Cuban independence. And in a series of articles written for a Baltimore paper The Saturday Night she strongly criticized both President Grant and Senator Charles Sumner for their failure to condemn slave-holding Spain with the same rhetoric they had used against the slave-holding American South. Always

willing to assist freedom fighters, whom she no doubt identified with her own patriot ancestors, Phelps was comfortable with republican causes so long as they were distant and did not disrupt the social order at home. She believed her students could not remain unaware or unconcerned about "trouble spots" around the world. Their reasoned responses and charitable work would aid the cause of freedom and women, properly fortified with an intellectual and moral education, could speak and act in response to the political questions of the day, even if they could not vote. The spectre of women without this intellectual and moral fortification appears in this tirade Phelps wrote concerning women who took part in the Paris Commune of 1848:

"Let us look at France, misguided, bleeding France: we see in the streets a procession of women, clamoring for their rights, threatening to destroy property and lives; and not merely threatening, but performing horrid deeds of cruelty, with blasphemy on their tongues and murder in their hearts."

Action that lacked an intellectual and moral foundation was very far from what Phelps had in mind. Her partisanship seems inappropriate in a world as complex as our own, but her commitment to making her students citizens of the world is still worth emulating. The news of the day can find its way into any subject and, beginning with geography, we can make our contribution to cultural and geopolitical literacy. Being informed about national and international events is the first and most essential step in intelligent citizenship.

Rule # 10 Stimulate imagination

On the road to creating citizens of the world, Phelps was careful not to short change the development of her students' imaginations. Her didactic novels and plays invited identification and stimulated literary imagination. She had learned 150 years before television the power of the image and the necessity of enlisting the imagination in the process of education. Sallie Warfield of Glenwood MD was a student at the Patapsco Female Institute from 1843-47. These are the titles of some of the essays in her copy book: "Tour to England," "View of Mont Blanc at Sunset," and even "A Trip in a Balloon to Visit the Moon". The first step is knowing that places like England, France, and even the moon exist and being able to locate them on a map or star chart. If our students cannot identify Asia or the United States on a map, they will be ill equipped to think or vote intelligently on issues of war and peace. But, the second step is being able to imagine ourselves into a larger world. If getting a job is our only objective we may miss the best part of being alive -- a passionate response to life with all its personal and social challenges. Making the questions of contemporary life a part of our subject matter gives new life to both and bridges the gap between the classroom and the world. If we aren't building a cathedral, our work will drain our energy and deaden our spirits. Almira Phelps was sending her students off to change the world. If most of their influence would be in the home rather than the public square, this did nothing to dampen her enthusiasm. Listen to her stirring parting words to the 1854 graduates:

"Representatives from more than half the States of our Republic, may you ever love our common country, and cherish with a conservative spirit that sacred Union which binds it together as one great consolidated nation. In your own homes will be your proper sphere of effort; make their inmates happy and virtuous, and you confer a blessing on society. The future citizens and statesmen of our Republic may owe to you, as wives and mothers, a loftier patriotism and a purer morality."

Almira Phelps had her blind spots. She never fully grasped the horror of slavery and was bound by the assumptions of her race and social class. She understood very well that agreeing with cultural assumptions and then expanding them to fit your own purposes can be more effective than challenging them. As a consummate pragmatist, she agreed that a woman's calling is to work within the sphere of the home and then she broadened that sphere to include the boarding school with herself as CEO. Woman's role might be the traditional one -- as teacher to her children -- but in Phelps's translation that role was the crucial one in saving the nation. If every mother saw herself as a teacher and every teacher saw herself as responsible for forming virtuous citizens, perhaps the fragile republic her father had fought a revolution to establish might survive. At the same time Almira Phelps was the consummate idealist. Through personal tragedy and professional betrayal, she kept her sense of purpose and it sustained her. It's easy to become overwhelmed, frustrated, and cynical. And it's more satisfying to build a cathedral. If you decide to undertake such a project, keep in mind the ten rules of teaching that sustained Almira Hart Lincoln Phelps throughout her long and productive life:

- o ENGAGE THE ISSUES OF THE DAY
- o REMEMBER THAT REPUBLICS ARE FRAGILE
- o BE SURE THE "OTHER" WEARS A HUMAN FACE
- o THINK OF YOUR JOB AS A VOCATION
- o MODEL THE VIRTUES YOU ADVOCATE
- o BALANCE KNOWLEDGE WITH WISDOM
- o CULTIVATE BODY, MIND, AND SPIRIT
- o HELP YOUR STUDENTS ACQUIRE SURVIVAL SKILLS
- o MAKE YOUR STUDENTS CITIZENS OF THE WORLD
- o STIMULATE IMAGINATION

Helen Buss Mitchell, Associate Professor of Philosophy and Director of Women's Studies, Howard Community College, Columbia, MD 21044

THE GREAT CHOCOLATE CHIP COOKIE TASTE OFF
OR EATING YOUR WAY TO CORRELATION & LINEAR REGRESSION

Mary Mogan-Vallon

Abstract

I use this lesson within an Elementary Statistics class to help my students gain an intuitive understanding of what correlation and linear regression are and where in the real world these tools can be used. You will need a software package and/or graphing calculator to perform the linear regression and run the correlation test on your students' data. I happened to use the statistical software package STATDISK™ along with the book Elementary Statistics both by Mario F. Triola but any basic statistics book and software package will do. My first objective for this lesson is to get my students to feel, taste and smell statistics. It's a lot of fun. My second objective is to get them talking about their data and their graphs - what is their data telling them? How good are their conclusions? What did our tests miss? My third objective is to get them to tackle the problem (correlation and linear regression) and the software *independent* of me. There's lots of sound pedagogical reasons about student-solo versus student-enhanced and multi-sensory learning for all my objectives of which you are no doubt already aware so I'll skip that part of the lecture and get down to the real stuff.

Here's what I do.

1. I go out and buy 10 to 12 brands of chocolate chip cookies keeping track of the price per pound of each brand as I buy them. (I get a lot of funny looks at the checkout line.) This will run you around $30. Luckily, the cookies last a long time, and the students don't eat many. Also, I buy paper plates, napkins and cups.

2. On class day, I label the paper plates with 1 through 10, one plate for each brand of cookie. I distribute cookies to the plates breaking the cookies into bite-size pieces. I label the bags of cookies with the corresponding plate number as I go. I do all the preparation in a room out of sight of the students.

3. I place the plates of cookies in the classroom along with some pitchers of water, napkins and paper cups.

4. I hand out "Sheet 1: Cookie Test Rating Sheet" (See attached.) to each student. I tell the students to taste and rate each cookie being sure to mark their ratings in the correct box on their sheet. I tell them to take only a small bite of each type as they will be eating 10 types in all. It is highly recommended that they take a drink of water between each test to try to eliminate cross-over. They can start on any cookie provided they eventually taste all ten.

5. The students then amble about the room eating cookies, sometimes spilling water and chiding each other about their various ratings. ("You like those? I can't stand them.") For diabetic students or students with just plain good taste who do not want to eat 10 pieces of cookie, I tell them to collect and mark several other people's rankings but to be careful to label each complete set by student name.

6. When everyone has eaten their fill, fire up your computers or graphing calculators. Step through the data entry, where x = their rating, y = the price per pound. (Later graphs can be run with x = their rating, y = percent of fat.) Each student should enter his or her

data in a separate data file or list and select the "correlation" and "linear regression" options of the package. I often do not tell my students how to do this and actually let them blunder through on their own but always in pairs and in groups. They accept this because I present the scenario that follows with the comment "This is a true story. Only the names have been changed to protect the guilty."

The Welcome-to-the-Real-World-Where-Your-Boss-Is-Driving-You-Nuts Scenario.

Mr. Keen, your boss, strolls into your office with his hands full of sheets of paper and a computer disk. You're the "college kid" so he asks **you**, "Didn't I see a statistics course listed on your transcripts?" You - being the honest, FCC-graduate that you are - reply, "Yeah." "GOOD!" he says. "Tell me what all this (expletive deleted) from corporate is all about. They sent me some test data about our cookies. Here's the software we've got. It's called 'Joe's Statistical Software Stuff.' See if you can get it to work, too, while you're at it." You take the data sheets and the software, pull out your old stat book and get to work. Oh, yes, did Mr. Keen forget to tell you? They lost the manual to the software, but he'll look around for it. Maybe those clowns over in accounting stole it.

Your final report for class will be: How can you explain what correlation and linear regression are to the boss? The boss hates long meetings, but he really likes colored slides. You will loose him after 10 minutes. So remember KISS - "Keep It Simple and Stupid" - when it comes time to explain it all.

7. We discuss the problems they encounter as they come up. Printing each student's data, descriptive statistics and graphs is important. If we do not have print capabilities, the students copy their graph and descriptive statistics into their notebooks.

An aside: One thing that amazed me when I first tried this cookie test out on my class is that they were amazed when they all did *not* get the same "answer!" They knew that their ratings were all different - they even chided each other about having lousy taste in cookies while they were eating them - but when the data was entered and the linear regression run, *many* were amazed that everyone got a different line! My "A" students leaped in to explain - and I become pretty unnecessary - "Of course the lines are different! The data is different, and the line comes from *your* data!" But what did it mean if a line went down? What if it went up? What if it was flat - am I dead?

8. At about this point, we usually run out of time. (It's a 75 minute class.) Discussion picks up during the next class with the Student Worksheet. We often run a correlation on percent of fat content and ratings during the next class . We have gotten into a whole range of discussions: how to test a product, how to test for the effects of advertising on consumers' choices, how studies in medicine and nutrition are run. (My nursing students get off on this last one.)

9. The last thing I do is to return to the book and formally take up the study of correlation and linear regression, problem sets, equations, and all. The final reports are a lot of fun because I get to play the boss, Mr. Keen who really isn't, and they get to play my beleaguered R&D staff complete with data, overheads and graphs.

Attached:

Sheet 1:	Cookie Test Rating Sheet
Sheet 2:	Cookie Data, January, 1997
Sheet 3:	Student Worksheet

Sheet 1: Cookie Test Rating Sheet

Rating guide: Rate the cookie from 1 to 10 with 10 excellent, 5 average, 1 lousy. Score in-between as you taste the cookies.

Cookie Number	Your Rating	Price per Pound	Fat/Total (by Weight)	Fat/Total (in Calorie)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

Sheet 2: Cookie Data from January, 1997

Test Num	Brand Name	Price per pound	Weight Fat to Total	Calories Fat to Total
1.	Keebler Chips Deluxe	$2.98	4.5/15	40/80
2.	Keebler Chips Deluxe Reduced Fat	3.35	3/16	30/70
3.	Rippin' Good	1.59	7/32	60/150
4.	Super G Premium Chocolate Cookies	3.32	9/38	80/170
5.	Nantucket	5.50	7/26	60/130
6.	Soft Baked	5.14	6/26	50/130
7.	Super G Chocolate Cookies	2.39	9/35	80/180
8.	Chips Ahoy	3.01	8/32	70/160
9.	Snackwell's Reduced Fat	5.10	3.5/29	30/130
10.	Giant Self Serve	1.99	9/35	80/180
11.	Chips Ahoy Reduced Fat	3.39	6/32	50/150

The above values from the Weight and Calories columns were taken directly from the packages. However, nutritionists commonly use the following formulas when converting weight in grams to calories.

To convert grams to calories, use formula 1 for fat and formula 2 for protein and carbohydrates:

1. For fat: $grams \times {}^{9\,cal}/_{gram} = Fat\ Calories$

2. For $\begin{bmatrix} Protein \\ Carbohydrate \end{bmatrix}$: $grams \times {}^{4\,cal}/_{gram} = \begin{bmatrix} Protein \\ Carbohydrate \end{bmatrix} Calories$

Sheet 3: Student Worksheet

Part I: Data Entry and Program Execution

Enter your data and run a correlation test and a linear regression on it. What did you get? Compare your graph to other class members' graphs. What does it all mean?

Part II: Brainstorming with Your Team

1. List all the factors you think influenced **your** ratings.
2. List all the factors you think might have influenced the **other** testers.
3. List **any** factors at all that you think might influence testers on any given day that this taste test would be run.
4. Share your answers to #1, 2, & 3 with your team. Add new answers as they occur to you.
5. Is there a significant difference in the fat calories as reported on the packages versus the fat calories derived via the formula from Sheet 2? This raises the question of "significance." How different do two measurements have to be before we judge this difference to be significant?

Part III: Test Design

You are in charge of product testing for a cookie manufacturer.

1. What faults would you site with this particular cookie test? How would you change the design of the test?
2. After your tests were completed, what further data would you seek to collect?
3. How would you analyze the data collected?
4. What other factors, other than taste and price, might influence a shopper's decision on which cookie to buy? And, how could you test for the influence of these factors?

Part IV: Team and Independent Research

Use your book (Elementary Statistics by Mario Triola) to look up the following terms from the screen on STATDISK™. Write a definition in your own words for each:

1. Linear correlation coefficient p. 476
2. Coefficient of determination p. 509
3. Standard error of estimate p. 511
4. Explained variation p. 508, 509
5. Unexplained variation p. 508
6. Total variation p. 509
7. Level of significance p. 289
8. Test statistic p. 343
9. Critical value p 290 & p. 343
10. What is an "Equation of linear regression?" p. 493
11. What is a "Rank correlation test?" p. 691
12. Explain the statements "Reject the claim of no significant correlation," and "Failure to reject the claim of no significant correlation."
13. Look up and explain in your own words, what is "marginal change?" (p. 497)
14. Look up the formula for r (the linear correlation coefficient) on p. 477. What drives this formula?

Part V: Final Report

As a class, every one will now get a copy of everyone else's rating sheet. These sheets constitute our fictitious Mr. Keen's data sheets from corporate headquarters. Prepare your final report for Mr. Keen based on them. What recommendations can you make regarding the way we should test **our** cookies? What does all the data mean? A lot? A little? Nothing at all? Be able to explain linear regression and correlation and make your recommendations based on your analysis of the data and the testing approach taken.

References

Elementary Statistics by Mario F. Triola, Sixth Edition, Addison-Wesley Publishing Company, Reading, Massachusetts, 1995

Mary Mogan-Vallon, Mathematics Coordinator for the Egyptian Education Reform Project, University of Maryland Baltimore County, Department of Education, 5401 Wilkens Avenue, Baltimore, MD 21228-5398

---------- Rank correlation test ----------
Level of significance ..... = .05
Test statistic is ..... r = .939394

Critical value is ..... r = .648

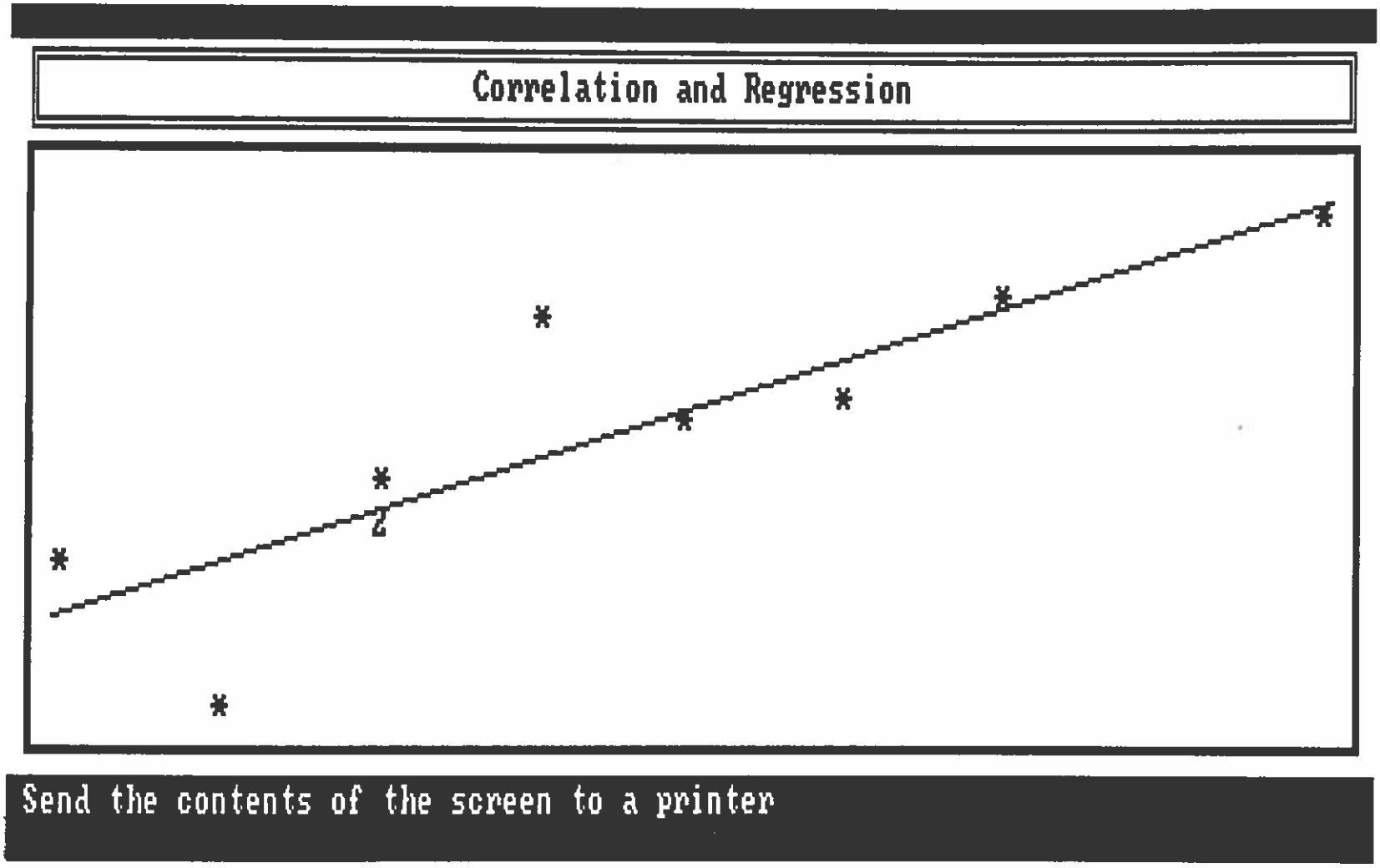
REJECT the claim of no significant correlation

```
                 Correlation and Regression

Linear correlation coefficient ....... r =  .874112
Coefficient of determination ........... =  .764071
Standard error of estimate ............. =  .76616

Explained variation .................... =  15.208352
Unexplained variation .................. =  4.696008
Total variation ........................ =  19.90436

Equation of regression line .. y =  .971922 + .530203 x

------------- Test for linear correlation --------------
Level of significance .................. =  .05
Test statistic is .................... r =  .874112
Critical value is .................... r =  .632259

 REJECT the claim of no significant linear correlation

Send the contents of the screen to a printer
```

Cookie Test Rating Sheet

Rating guide: Rate the cookie from 1 to 10 with 10 excellent, 5 average, 1 lousy. Score in-between as you taste the cookies.

Cookie Number	Your Rating	Price per Pound	Fat/Total (by Weight)	Fat/Total (in Calorie)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				



X = RATING

Y = PRICE PER POUND

A FLEXIBLE SEMINAR COURSE FORMAT FOR TEACHING FOCUSED SCIENCE TOPICS USING JOURNAL ARTICLES

Judith N. Peisen, PhD.

Abstract

This presentation describes a flexible, single-topic seminar course for mixed majors/non-majors organized around four/five review articles from *Scientific American.* Topics developed for four successful offerings of this course (Role of Calcium in Cell Physiology, Neuroendocrinology, Neuroscience and Pharmacology) are used to present: 1) Course objectives and the syllabi of course content based on these course objectives; 2) the criteria for selection of articles, 3) the format used to structure each class session, 4) the guidelines and expectations for student presentations of published material from primary research journals, and 5) the logistics of a field trip to the National Library of Medicine and National Institutes of Health.

Introduction

The seminar is certainly not a novel format for a college course. However, it is most common for upper level or graduate courses where seasoned students do a lot of self-teaching using periodicals rather than texts. This course was designed to introduce teacher-dependent students with limited backgrounds to the seminar format so they can experience the way in which scientific knowledge evolves instead of science as the polished *fait accompli* presented in textbooks. This is accomplished by the use of a series of review articles and guiding the self-teaching process with assignments, quizzes, and teacher-student interactions. A primary theme of the course is to insure that students (with a wide range of backgrounds) emerge from this experience with a realization that they have whatever it takes to learn complex material independently and from each other.

General Format

This seminar was developed as a 1 credit course for both majors and non-majors with a special interest in science and medical topics who have taken at least one laboratory course in biology or chemistry (4 credits). The classes meet once per week for 1.5 hr and provide background and support so students can understand and discuss both research and review articles from scientific journals. Each spring a new topic is chosen and the course content is organized around four/five *Scientific American* articles. Four topics have been offered since 1993: The Role of Calcium in Cell Physiology, Topics in Neuroendocrinology, Topics in Neuroscience, and Topics in Pharmacology. The format will work for many other topics in science (genetics, immunology, virology, stress, nutrition/obesity, for example) or for topics in other disciplines (with appropriate sources substituted for *Scientific American.*). A primary research article is selected by each student for an oral presentation. A field trip (optional) to the National Library of Medicine and a lab involved in research related to the course content is taken during Spring Break. Students are graded on the basis of:

1) Class participation in discussions, 30%;
2) Weekly quizzes on reading, 40%; and
3) An oral presentation based on published primary research, 30%

Course Objectives

The general course objectives are independent of the specific course topic. The course content serves as a vehicle for the achievement of the general objectives (see below). The content objectives vary each time the course is offered with a different focus. In general, the articles chosen will determine the course content. The content objectives for the Neuroscience seminar offered in 1995 are provided below as an example.

General objectives:

- This course will help students to develop:

1. Skills and confidence needed to read scientific literature at both review and primary research levels;
2. An awareness of the process of hypothesis testing which is the foundation of scientific inquiry;
3. The ability to interpret specific research data from primary research literature;

- This course should provide students with opportunities to

4. Apply the basic concepts of the course topic to specific examples and disorders of nterest; (ex. apply the basic concepts of neurophysiology to specific neurological disorders such as epilepsy, Alzheimers, etc).
5. Develop a sense of their own personal resources for understanding complex material;
6. Visit the National Library of Medicine and observe the federal committment that is available for research including on-line databases and a research lab.
7. Develop and deliver a short presentation of research data from a published study;
8. Experience the development of a topic from the research perspective rather than the completely developed model presented in textbooks; and
9. Evaluate career options in scientific research and science-related fields.

Content Objectives: (Neuroscience, Spring 1995)

- At the end of this coursestudents should have a basic understanding of

1. The major neuroanatomical landmarks and their neuronal circuitry in the brain;
2. Membrane potential and the effect of changes in ion concentrations and membrane permeability;
3. Synaptic transmission and its effect on synaptic strength and plasticity;
4. Receptor pharmacology;
5. Research methods used in neurophysiology including the voltage clamp and pharmacological agents;
6. Receptor-mediated second messenger systems including cAMP, IP_3/DAG/Ca^{+2}, and nitric oxide (NO); and
7. G-protein mediation of long-range effects on neurotransmission.

Development of Course Content Around the Topic

Selection of Journal Articles

With one exception, *Scientific American* has been the source of all review articles used for this course. The articles must be relevant to the topic and well organized without a lot of distracting complexity. The article should include methodology and some historical development of a concept or mechanism. It is difficult to find a journal which does this better than *Scientific American*. Its sister publication, *SCIENCE & MEDICINE*, meets these criteria but the vocabulary and complexity levels are much higher and such an article

must be used later in the course. The course objectives directed at experimental design and hypothesis testing are met primarily through the use of articles from primary research journals such as *Science*. These articles are used for the development of student oral presentations and are discussed later. There are several approaches to identifying appropriate *Scientific American* articles:

1) The most informal approach involves working through several years of issues from a personal/library collection of journals. This sounds tedious but is actually entertaining but goes quickly because the entire articles, rather than abstracts, are available for evaluation.

2) The SciDex 2.0 is a computerized index to *Scientific American* (ISBN: 0-89454-025-4) available in both CD-ROM and discs for Macintosh and PC (around $36.00). The recently updated second edition of these disks is available in early 1997 and indexes all articles in *Scientific American* from 1948-1996;

3) *Scientific American* articles are also indexed in the Readers' Guide and Science and Technology Index which are included in the computer database indices available in most libraries;

4) Finally, information on *Scientific American* resources can be requested electronically at the following e-mail address: info@sciam.com.

Permission to Copy

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Organizing the Syllabus

Once the articles have been chosen, they are put into a sequence in which the earliest articles provide the background for the later articles. We generally spend about 4 weeks per article and may or may not have covered everything in each article before we move on to the next. Articles used for the seminars which have been taught at HJC to date are as follows:

Role of Calcium in Cell Physiology [1, 4, 9, 11]
Topics in Neuroendocriology [2, 8, 12, 13, 15]
Topics in Neuroscience [1, 5, 6, 8, 14]
Topics in Pharmacology [1, 5, 7, 10, 3]

Sample syllabi* of topics for the Neuroscience and Pharmacology Seminars follow:

Neuroscience Syllabus

Date		Lecture Topic	Reading Assignment
1 Jan 17	LX1	Overview of Neuroscience	Fishbach[6]
2 Jan 24	LX2,Q1	Neuroanatomy	
3 Jan 31	LX3, Q2	Neurotransmission	
4 Feb 7	LX4, Q3	General Receptor Studies	Changeaux[5]
5 Feb 14	LX5,Q4	Acetylcholine Receptor	
6 Feb 21	LX6,Q5	Superfamilies of Related Receptors	
7 Feb 28	LX7,Q6	Receptor Regulation	Berridge[1]
8 Mar 7	LX8,Q7	Overview of Second Messengers	
Mar 14		**SPRING BREAK *FIELD TRIP***	**NLM and NIH**
9 Mar 21	LX9, Q8	cAMP Pathways	
10 Mar 28	LX10, Q9	Membrane Lipids/IP_3 and DAG	
11 Apr 4	LX11, Q10	Ca^{+2} and Prolonged Responses	Linder and Gilman[8]
12 Apr 11	LX12, Q11	Background: G-Proteins	
13 Apr 18	LX13, Q12	G_s and G_i	Snyder and Bredt[14]
14 Apr 25	LX14, Q13	The Latest 2nd Messenger: Nitric Oxide	
15 May 2	LX15, Q14	Glutamate and Nitric Oxide	
May 8-13		EXAM WEEK	

Pharmacology Syllabus

Date		Lecture Topic	Reading Assignment
1 Jan 20	LX1	Overview of Pharmacology	Changeux[5]
2 Jan 27	LX2,Q1	Neuropharmacology	
3 Feb 3	LX3, Q2	Acetylcholine Receptor Studies	
4 Feb 10	LX4, Q3	Receptor Regulation	Berridge[1]
5 Feb 17	LX5,Q4	Second Messengers	
6 Feb 24	LX6,Q5	cAMP pathways	
7 Mar 3	LX7,Q6	IP_3 pathways	
8 Mar 10	LX8,Q7	Mechanisms of gene expression	Halloway[7]
Mar 17		**SPRING BREAK *FIELD TRIP***	**NLM and NIH**
9 Mar 24	LX9, Q8	Mechanisms of Drug Abuse / Addiction	
Mar 31		Easter Monday	
10 Apr 7	LX10, Q9	Role of Neuronal Circuitry /DA Hypothesis	
11 Apr 14	LX11, Q10	Steroid Molecules	Osborne, *et al*[10]
12 Apr 21	LX12, Q11	Transcription Factors	
13 Apr 28	LX13, Q12	Drug Development strategies	Bugg *et. al.*[3]
14 May 5	LX14, Q13	Enzyme Inhibitors	
May 12		EXAM WEEK	

**Materials for the Neuroendocrinology and Calcium Seminars available upon request*

Format for Each Class Session

Each class session begins with a short quiz developed from the assignment questions of the previous week. Students usually arrive about fifteen minutes early and there is a lot of informal discussion about the questions and the reading. I am available and willing to review points that have everyone confused. The quiz is designed to take about 10 minutes followed by an immediate discussion of answers providing prompt feedback

and background/focus for the formal part each session. Students are usually thoroughly engaged by this time.

The formal class is an organized interactive presentation of background material which facilitates the understanding of the content of the articles, reviews diagrams in the articles, and assists students in the integration of the content in the article assigned for the week. After about 5 weeks, each session will also include a student presentation. A sample of a seminar session outline (Neuroscience, Week 12) with assignment and quiz (for the following week) follow:

BIO115LX12 **Background: G Proteins**

I. Quiz 11 *(15-20 minutes including discussion of answers)*

Questions 1-5 (not shown here) based on previous article (M. Berridge[1]) which had been discussed for 4 weeks. Questions 6-8 based on reading assignment (Linder and Gilman[8]).

6. Describe the sub-units of G proteins
7. Why are G proteins called G proteins?
8. What were the *cyc-* cells which led to the discovery of G proteins?

II. Review of G-protein mediated signal transduction model *(10 min)*

A. Sequence of molecules in simplest pathway (relate to Berridge model in the previous article)
B. Use of *cyc-* cells to identify the presence of G-proteins in cAMP production by AC

III. G Protein Mechanisms *(30 min)*

A. Resting state G protein structure
B. Receptor-ligand binding
   1. α-sub-unit releases GDP/binds GTP and activates G protein
   2. α-sub-unit dissociates and moves within phospholipids to bind to effector/amplifier
   3. GTPase activity in the α-sub-unit
C. Highly conserved mechanism = important survival mechanism for cells/organisms
   1. amplification of ligand signal
   2. G-protein terminates cell response to ligand binding
D. Input/Output diversity results in enormous number of activities that are mediated by G-protein mechanisms

IV. Student Presentation *(20 minutes)*

Ichinose, M., N. Nakajima, T. Takahashi, H. Yamauchi, H. Inoue, T. Takishima. 1992. Protection against bradykinin-induced bronchoconstriction in asthmatic patients by neurokinin receptor antagonist. *The Lancet*. 340:1248-51.

V. Assignment (informal written answers recommended but not collected)

1. What is hydrolysis? How does it act as a switch during signal transduction?
2. What is the ras gene and how is it different from the ras protein? How is the ras protein related to G proteins? How does the ras gene contribute to uncontrolled cell proliferation?
3. What is the difference between G_s and G_i?
4. Explain the specific role of G proteins in the modulation of contractility in heart muscle by:
   a. norepinephrine
   b. acetylcholine via the sub-unit exchange hypothesis
   c. acetylcholine via hyperpolarization of the muscle cell by K+ channels
5. What evidence do researchers use to support the argument that the receptors linked to G proteins are imbedded in the membrane but the G proteins themselves are NOT embedded in the membrane but only anchored to the membrane.

-cont'd-

6. Trace the signal in liver cells from the binding of the first messenger (glucacgon) to the release of glucose from the cell. Do not forget the phosphorylase.
7. How does the cholera toxin cause diarrhea by interferring with signal transduction in the gut?
8. How does pertussus toxin cause the persistent stimulation of the cough reflex diagnostic of whooping cough by interferring with signal transduction in the airways

From student presentation:

9. What is the relationship between FK-224, bradykinins, and bronchoconstriction?
10. What are two neuropeptides that cause inflammation? Which one of these also causes mucus secretion?

QUIZ questions* for the following week based on the assignment above:

1. Write an equation for the hydrolysis of GTP?
2. Name the enzyme which catalyzes this reaction.
3. How is the *ras* protein related to G proteins?
4. How is the ras gene related to the ras protein?
5. How do G_s and G_i mediate opposite effects in a cell?
6. Describe two alternative mechanisms (which involve G proteins) for the inhibition of heart muscle contractions by acetylcholine.
7. What is the significance of myristic acid and isoprenoids to G proteins?
8. What is the role of phosphorylase in the signal transduction pathway leading to glucose release by the liver?
9. How does pertussus toxin cause the persistent stimulation of the cough reflex diagnostic of whooping cough by interferring with signal transduction in the airways.

10. a. What is bronchoconstriction?
    b. How is it related to neuropeptides called tachykinins?
    c. How did FK-224 work to modulate bronchoconstriction?

** Be careful to use questions that are based only on understanding of the reading assignment and do not require a background which some students in this type of class will not have.*

Grading of Quizzes

Each answer on the quiz is assigned a value of 1-3 points. The total possible points on this quiz was 16 which exceeded the number required for 100% (15). Grades are not calculated by % of total points. Instead a range is determined for each 10%ile. For this quiz, 13-15 = 90-100; 9-12 = 80-89; 6-8 = 70-79; 4-5 = 60-69. Most students score 80 or higher. Non-majors with weak backgrounds may score lower on the first quiz or two, but it evens out as they gain confidence.

Student Presentations

Each student is expected to prepare and deliver an oral presentation based on material from a published research article. This is designed as a learning experience for the presenter first and the audience second. Some students are more effective than others at transferring content to the class but the preparation and delivery of the presentation is almost transforming to those who may be the least effective. Most students find their own articles based on personal interest in some application of a topic covered in the *Scientific American* articles. I do not hesitate to find an appropriate article for students who are having difficulty with finding one on their own.

National Library of Medicine

The campus of the National Institutes of Health (NIH) with its impressive National Library of Medicine (NLM) is a resource that few of our students realize is open to the public. Arrangements are easily made for tours and programs at both the library and research laboratories. For the NLM, 1-800-272-4787 connects to a menu of options including the Public Information Office which organizes tours of the NLM and provides information about parking, library cards, and group programs. Regularly scheduled tours are given M-F at 1 p.m. from the Lister Hill Center (Bldg.38A). Since 1 p.m. is never convenient for our trip, we usually schedule a special tour in the morning with the Director of Public Information, Bob Maynard at 1-301-496-6308. He presents a video program on the history of the library, a demonstration of the various computer database search technologies, a walking tour of the library itself, and an opportunity to get individual libary cards. Lunch is available in a large cafeteria on the campus which is near the NIH bookstore. Transportation to the cafeteria is by walking (about 10 minutes) or by shuttle bus from the library. Our students always enjoy this stop.

National Institutes of Health Research Labs

We like to combine this trip to the NLM with a visit to a research lab which is actually using some fo the technologies that we have talked about during our seminar. This can be arranged through personal contacts with NIH researchers or through the NIH Visitors Information Center (1-301-496-1776) which can identify an appropriate lab (describe what you want to see) and arrange for a visit by small groups of students. They ask for at least 2 weeks to make the arrangements. We try to get copies of a publication from the lab to be visited so we can review their work and get some background on their methodology in advance of the visit. This visit is usually only about an hour. We try to leave for home by 2:30 p.m.before the rush hour.

Summary and Course Evaluation

The course is reminiscent of Journal Clubs at many institutions. Presenting it as a credit course discourages dropping out when the going gets tough. Most students elect to take the class because it "sounds interesting" and is only one credit (hence not expensive). Enrollments are usually modest and require recruiting from our science classes. Additionally, the counselors are given flyers and asked to suggest the course to students who might be interested. Students also recruit each other and recommend it to their friends.

Since there is no final exam during the scheduled final exam period, students are given a copy of the course objectives and asked to evaluate how well the course achieved each objective for them. They are also asked to suggest changes in the organization or format of the class. Feedback has always been very positive. The first time the course was offered, the sessions were scheduled for 1 hour and we noticed most students (those without a class conflict) extended their discussions longer than 1 hour. It was suggested that the sessions be scheduled for 1.5 hours and the change was implemented the following year. The longer session relieves some of the time pressure, especially when a student presentation is included in the class.

Identification of Appropriate Research Articles

Students are encouraged to use the CD-ROM databases in the HJC Library (Reader's Guide) or the on-line services available through the NLM. These on-line services can be accessed over the internet at HTTP://IGM.NLM.NIH.GOV to any person with a **user id code** and **password.** Applications for *Student* Training Access Codes can be obtained at no charge through the MEDLARS Service Desk (1-800-638-8480). To shorten the 2 week period involved in application by mail and fax, arrangements for these codes can be given over phone by calling 1-800-338-7657. MEDLARS has several excellent programs to make their Grateful Med online services available to students at no cost and our students have taken advantage of this. Obtaining a hard copy of the chosen article may require a trip off campus or an interlibrary loan because the HJC Library does not carry any research periodicals besides *Science*. Several students have taken advantage of the field trip to the NLM to get what they need.

Selection Criteria for Research Articles

An appropriate article for an oral presentation must: 1) begin with an abstract which is comprehensible; 2) be relevant to a topic covered in the course with respect to subject matter, vocabulary and methodology; 3) have a hypothesis which can be identified and used to explain the experimental design; and 4) include graphical representation of data which can be explained during the presentation. The presentation should not include everything in the article. Part of the assignment is for students to pick and choose from material included in the article to keep within the time limit and class attention span.

Organization of the Presentation

The presentations must adhere to a strict time limit of 20 minutes and students are encouraged to rehearse. I am available for one rehearsal. The presentation is organized around several transparencies prepared by the student. These should include: 1) the abstract, 2) the hypothesis for which the experiment(s) were designed, 3) an overview of all the experiments described, 4) graphs of the results, and 5) the conclusions. The presenter should have a single-page handout prepared which includes a copy of the abstract, and vocabulary terms or background material that the class would find helpful. Assignment questions based on the presentation must be given to the instructor for inclusion in the assignment for the quiz next week.

Evaluation of the Presentation

Each member of the class is given a peer evaluation form to complete for each presentation. The criteria included on this form include: 1) Clarity of explanation of experimental design; 2) Integration of the presentation with the topic of the course; 3) Preparation of transparencies and handout; 4) Explanation of the results; 5) Delivery. The instructor completes the same form and assigns a grade.

Field Trip

Since the course has always been scheduled in the Spring semester, a field trip to Bethesda, MD is scheduled during spring break. Participation is optional because an occasional student may have a work (or vacation) schedule that will not permit their participation. By the time spring break comes along, most students are committed to the class and try to work around their schedules. No penalty is incurred for not participating in this trip.

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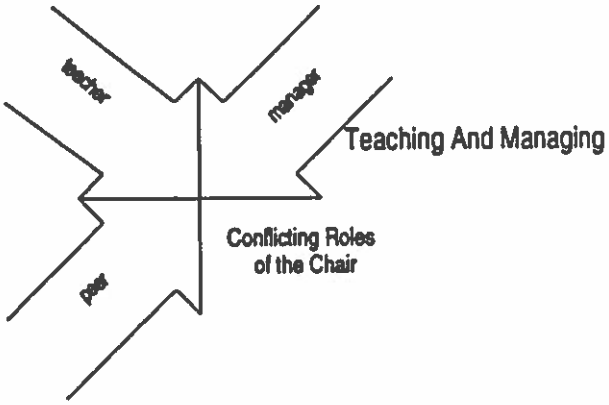


TEACHING AND MANAGING: CONFLICTING ROLES OF THE DEPARTMENT CHAIR

Nathan Starr

presenters: Susan Hoffman,
Matt Schulte, Don Smith, Nathan Starr

This workshop will focus attention on the role confusion and role strain inherent in the peer chair position. Department chairs are to be colleagues/peers, managers and teachers. How might a peer chair resolve these conflicts? Are they resolvable? Can they be prioritized? This workshop will involve a group activity and discussion of possible solutions to dilemmas. This workshop will not prove beneficial to peer chairs who do not experience role conflict, a fortunate and rare situation.

An Unofficial Definition of the Peer Chair's Role

As chartered agencies of government, community colleges have governing documents that outline the duties and responsibilities of all employees. Included in these documents is a description of the peer chair's position (the terms *peer chair* and *department chair* are used interchangeably in this paper). Reading these documents (at Montgomery College this document is called THE POLICIES AND PROCEDURES MANUAL), we can get a "sense" of the duties and responsibilities associated with the position. However, the job is usually far more complex and demanding than any college document can convey to unsuspecting new chairs.

Faculty at community colleges are citizen soldiers waiting for the call to serve their department and institution. They are advocates for faculty. Chairs are responsible for facilitating teaching and learning. At many colleges, the chair is appointed in consultation with the department faculty. The department faculty may hold an election to decide whom they wish to recommend as chair to the appropriate administrator. The position may rotate, with most department members expected to take a turn. If we think of a chair in the university model, the position calls up "images" of prestige and

authority. Frequently, "prestige and authority" are not the reality for community college chairs. When colleagues elect a leader, since peers have chosen them, an aura of respect is conveyed.

Well, that is the glorified version. Chairs can be elected, sometimes repeatedly, because no one else wants the job. Although the job must be done, it usually comes with very little real authority in the scheme of general operating conditions at a community college. It can be a thankless job but a job that must be done. Chairs recognize the need to provide representation and leadership for departments in carrying out their academic, programmatic and fiscal responsibilities. Chairs represent the viewpoint of the faculty, who are in the academic trenches, to administration, boards of trustees, students and the community--their constituencies. Chairs must also report back to their department colleagues the viewpoints of those constituencies. An effective chair must understand the needs and priorities of the department so that appropriate planning and budgeting can be implemented.

Definition of the Chair's Conflicts

For purposes of this paper we shall define role conflict as the conflicts and contradictions one feels between roles, because the expectations of one role are incompatible with the expectations of another role. Role conflict may cause chairs to feel pulled or torn between different demands or expectations to which she/he must respond. Chairs wear multiple hats in the performance of this complex job. Chairs may be expected to participate in the budget development process of an instructional area or institution, which include the department the chair represents. Role conflict and/or role strain can arise especially in times of financial crises in trying to balance the interests of the department against the needs of the institution at-large. It should be noted that seldom does the ultimate responsibility for budget rest with a chair. Instead, budget responsibility is under the authority of an institutional dean, or other administrator, ranked higher in the institutional hierarchy. This crisis may be alleviated somewhat if a department has strong enrollment and high student/faculty ratios.

Department chairs are responsible for the construction of course schedules. Role conflict or role strain can develop trying to balance the needs of students and the institution against the schedule preferences of colleagues.

Department chairs serve as liaison between faculty and administration. This role requires the chair to represent the viewpoints and needs of the department faculty and associated academic programs. It also requires the chair to present the administrative "point-of-view" to the faculty. Since these perspectives are rarely the same, a chair can feel as though her/his head has been placed on the chopping block. Role strain results when trying to balance the responsibilities of the chair with the role expectations of faculty peers with whom one must work. This conflict will probably compromise the chairs' authority and will surely exacerbate the problem of having responsibility without power.

Chairs must advise students, colleagues and, frequently, administrators in conflict resolution. Suffice it to say, these different groups usually have conflicting perspectives, responsibilities and objectives in performing their respective roles in the college.

Chairs are money managers without being able to actually control money. At present, the institution we represent allows chairs to control only instructional supplies--paper, transparencies, pencils, etc. (This may be seen as a real indicator of the extent of chairs' power.) Money being the blood of an institution can be an emotional topic for all constituencies in the institution. Financial realities can quickly conflict with faculty wants, student and program needs, administrative expectations and demands, versus what funding is actually available to operate an institution.

Peer chairs are also personnel managers. Often, chairs must manage the health issues, religious issues, personalities, and personality conflicts and different teaching styles of their colleagues. Generally, chairs are peers of the faculty and, eventually, will "go back" to the full-time faculty.

A dilemma facing department chairs involves trying to balance the conflicting roles of colleague/peer, manager and teacher. Most community college chairs are members of the faculty teaching for more than 60% of their expected workload. Often there is the question of balancing time commitments to the various roles. How much time should one put into teaching and preparation? How can this be balanced against the time chairing a department requires? Are office hours for meeting students or, can we squeeze in a little chair work? As members of the faculty, chairs must keep current in their fields of study. Finally, they must read and grade papers and develop evaluation instruments for students.

Lastly, chairs must be public relations experts interacting with the constituent communities and representing the department and college in an authoritative manner. This role may include serving as expert to local newspapers and other media, problem solving to resolve grievances with community and students, always representing the college in the most positive light.

Adding to these issues is the reality that few community college chairs are trained for the position, and there are few on-the-job training opportunities. This is a job where most learn by doing and that can be very challenging.

Is it any wonder department chairs may sometimes feel like pulling out their hair? In all fairness, the job can be very rewarding when chairs are successful in accomplishing their goals while resolving these role conflicts.

Why Do Peer Chairs Wear Out?:

Role conflict is inherent in the job of a peer chair. A person in that position actively involved in the resolution of that conflict is very likely to wear out. In most

Additional Ambiguities: As a peer chair, how do you ...

- ... meet the challenge to serve equitably and fairly, with limited resources, departments of varying sizes and/or multiple disciplines?

- ... confront problems in a collegial manner without sacrificing personal values? How is the role of collegiality in faculty/chairs relations, especially in times of conflict, to be defined?

- ... walk the line between fairness and impartiality in student complaints, especially when the student is right?

- ... resolve the conflict between chair's perception of authority and the administration's interpretation?

- ... resolve 50/50 splits in department faculty members' views towards "change versus no change"? How do you resolve inertia? When change is needed and, there is a split in faculty attitudes regarding change, how do you initiate the process of change?

- ... facilitate technological advances in teaching and learning when as many as half of the faculty resist change in support of mediocrity and the status quo?

- ... cope with the various personalities of department personnel, some of which may be difficult, in an honest and directive manner?

- ... define "accountable" when holding people accountable? In what ways can a chair hold faculty/staff accountable?

- ... address hidden agendas?

- ... set boundaries to the life of a chair? What are "chair hours"? Are they different from "office hours"? When are you <u>not</u> a chair?

- ... define your first constituency? (Everyone seems to think they should come first.)

- ... determine when you need support? How much can you get?

Resolution of the Chair's Role Conflict and Role Strain:

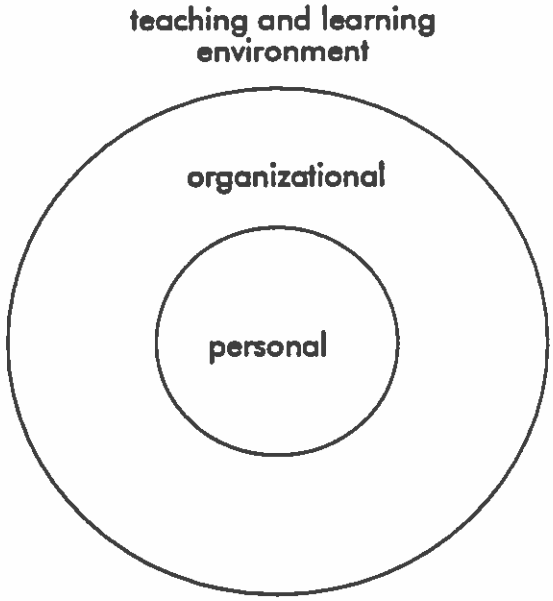
There are no sure fire formulas for resolution of these dilemmas facing chairs, unless the college turns over massive amounts of authority to said chairs--ha ha. Realistically, chairs must be prepared to cope with these ambiguities and learn to think on their feet to confront problems as they arise.

organizational structures, the position is placed where it can absorb conflict, to serve as a bearing between the sometimes conflicting imperatives of the organization and the classroom. Such a buffer often allows the organization to move forward while protecting the instructional integrity of the academic programs. But this wear and tear can lead to some very real consequences for chairs and the institution--personal and health problems for the chair, functional difficulties in the institution and, ultimately, deterioration of the teaching/learning environment.

Personal and health problems manifest themselves in the effects of unrelieved stress. Physical symptoms and illness may accompany or result from chair stress. A chair may lose time away from home, family and other personal support systems they were able to access in the past. This may wear severely on the quality of these neglected relationships. These problems can lead to burnout extending beyond this one individual.

Organization problems may manifest themselves in poor decision making and/or in poorly developed priorities. An inertia resulting from personal effects of conflict could prevent work from getting done. Further compounding organizational problems, there may be difficulty in focusing on goals and priorities affecting the department and the college. Avoidance of problems and decision making can produce poor work performance as well as affect student learning.

One of the more immediate effects on the chair/teacher and, other teachers, is subjecting students to bad teaching. The educational environment can impair student learning (though some will learn anyway).



Ripple Effect of Chair Burnout

Outcomes and Recommendations:

1. As a source of support, develop chair networks.
2. Survey department faculty for input.
3. Cover yourself--leave a paper trail.
4. Perform, and share with department faculty, serious constructive evaluations. Where appropriate write letters to personnel files.
5. Nothing says you must decide "on the spot."
6. Manage your time well. Good time management skills are called for in this role.
7. Let go of it! Leave office problems at the office. Remember the other roles you play in life--family member, community member, et cetera.

The chair's position is vital for the benefit of students' academic success and the smooth operation of the institution. When done well, the position is very rewarding. You can facilitate the smooth operation of the department, the college and students' achievement of their respective goals. Because of these rewards, it is a job worth doing.

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MARYLAND COMMUNITY COLLEGE SKILLS ASSESSMENT PROJECT

Sandra Tomlinson

Abstract

Writing, reading and math faculty discussed the progress of the Maryland Community College Skills Assessment Project, which is aimed at adopting not more than three standardized placement instruments across Maryland. Dundalk's Dean Mary Hines, Frederick's Vice-President Suzanne Beal and Harford's Acting Vice-President Carl Henderson convened the faculty groups to consider the instruments and the placement criteria. The discipline groups elected chairs Thea Prettyman of Essex for math, Jerri Lindblad of Frederick for writing, and Gene Loflin of Catonsville for reading. All three disciplines are now considering Compass and its pencil/paper Companion, Accuplacer and its pencil/paper version Asset, and DTLS/DTMS. Additionally, writing faculty are considering a writing sample and have requested a consultant to provide training on holistic scoring. Reading has requested professional development in portfolio assessment. The reports are due to the project coordinator, Sandy Tomlinson, by the end of April.

Psychological Technology at AFACCT
Thursday and Friday, January 16 and 17, 1997

Presented by Dr. Stephan Y. Werba
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A display and demonstration of available multimedia technology was presented at Frederick Community College's computer lab by using videodiscs, compact multimedia discs, and computer software.

Computer software, a more established technology, has provided examples for our use. These uses were to further explain psychology principles, to replace psychology text's studyguides, and to provide an interactive studyguide. Also, software provided psychology simulated experiments (for example conditioning animals) including progress reported to the students professor, and even one to assist students in evaluating their own personality development.

The coordination of software and CD's on a LAN at Frederick Community College was beneficial since many of these technologies were on individual computers and provided hands-on experience. A follow-up will be presented in the future.

I wish to thank the excellent support given by the computer personnel at Frederick Community College, especially Mr. Joel Younkins, Lab Director.

Wellness Approach to Stress Management

Edward Baker, Ph.D.
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One of the first steps to control stress and tension in your life is to understand the Wellness concept. There are five components of Wellness:

Spiritual—that which enhances the quality of life. Find a meaning, a purpose and direction for your existence.

Social—the ability to interact successfully with people. Express your thoughts and feeling without infringing on another's rights. Listening is a great skill in this area as is the ability to engage the thoughts and feelings of others in a conversation.

Emotional—the ability to express and control one's feelings. Assertiveness and stress management are key elements in this area.

Intellectual—the process of learning and utilizing what you learn on a regular basis.

Physical—There a five elements that must be assessed for you to abe considered physically fit: muscular strength, muscular endurance, flexibility, body composition and cardiorespiratory efficiency. Aerobic and anaerobic exercise, nutrition, and stretching are several approaches to this component.

Stress Management—one of the more difficult tasks to do is to identify specifically those aspects in your life that initiate a positive or negative reaction and response.

According to stress management research, a stimuli initiates eustress (a positive reaction) and a stressor initiates distress (a negative reaction) . Make a list of your stimuli and stressors and then prioritize them. The first in each category should be the person, event, job, etc., which initiates the highest degree, the longest duration, and the most frequent response of reaction. Total elimination is the purest form of stress management for a stressor. If the stimulus list is short, it is up to you to extend it, for *you are in charge of you.*

Because you cannot in most, in most cases, control the stressors that come in and out of your life, you must focus control on how you react and respond to them. *No one can upset you but you*. This maxim is the heart and soul of stress management.
When you are out of control, one of the first signs or symptoms is emotional arousal. Various forms of progressive muscle relaxation such as meditation, autogenic training, visualization or imagery shoiuld be practiced on a daily basis.

Physical arousal usually follows emotional arousal. Exercise is a great intervention, providing you enjoy it as a form of stress management.

If you continue to be out of control, numerous severe negative consequences can develop, such as heart attack, cancer, stroke, etc. Because most of us are survivors, we must go back and indentify the major stressors, and this time eliminate them.

In conclusion, you should evaluate your life situation to include any aspect that can help or hinder our wellness approach. Stay in control, create positive aspects and emphasize them over the negative ones.