

The “Change-Up” in Lectures

Joan Middendorf and Alan Kalish
Teaching Resources Center
Indiana University

Instructors and students often have the same mental image of how a college class works: The professor talks (lectures); the students usually listen and occasionally write something in their notes. But as teaching consultants visiting a great many classes, we’ve found the real picture looks somewhat different.

Listen to a colleague reporting on a recent visit:

I sat in the back of the classroom, observing and taking careful notes as usual. The class had started at one o’clock. The student sitting in front of me took copious notes until 1:20. Then he just nodded off. The student sat motionless, with eyes shut for about a minute and a half, pen still poised. Then he awoke, and continued his rapid note-taking as if he hadn’t missed a beat.

Not infrequently we observe students having lapses of attention. And we’ve found that it’s not enough for us to tell faculty with whom we are working about the problem. They’re often aware of it already. What really makes a difference is for us to be able to offer a little theory, which we will do in this article, and then some concrete suggestions of activities they can use in their classes to break up a particular lecture on a particular day.

One explanation for the lapses in students’ attention is that the

“information transfer” model of the traditional lecture does not match what current cognitive science research tells us of how humans learn. Research tells us that the brain does not record information like a videocassette recorder.

Instead, it handles information by reducing it into meaningful chunks that we call *categories*. Learning consists of fitting this reduced information into already existing categories or, sometimes, of forming new ones. Categorization determines how a concept is acquired, how it is retrieved from memory, and how it is put to work in abstracting or generating inferences.

Examples are a primary means of making connections between old knowledge and new knowledge. Their concreteness allows students to draw connections between the new abstract idea or principle and what they already know.

Once a new concept has been introduced, students need an opportunity to practice thinking in terms of that concept. Right in a lecture class, you can ask students to generate their own example of the concept, summarize it, write an exam question for it, or explain it to someone else. This approach works with the mind’s natural processes, and thus improves learning.

Studies on attention span also shed light on why students have difficulty with the traditional lecture

format. Adult learners can keep tuned in to a lecture for no more than 15 to 20 minutes at a time, and this at the beginning of the class. In 1976, A. H. Johnstone and F. Percival observed students in over 90 lectures, with twelve different lecturers, recording breaks in student attention. They identified a general pattern: After three to five minutes of "settling down" at the start of class, one study found that "the next lapse of attention usually occurred some 10 to 18 minutes later, and as the lecture proceeded the attention span became shorter and often fell to three or four minutes towards the end of a standard lecture." Other studies appear to confirm these findings.

In 1985 Ralph A. Burns asked students to write summaries of presentations and tallied the bits of

"As the lecture proceeded attention spans became shorter and often fell to three or four minutes towards the end of a standard lecture."

information reported by the "half-minute segment of the presentation" in which they occurred. He reports that students recalled the most information from the first five minutes of the presentation. "Impact declined, but was relatively constant for the next two 5-minute portions, and dropped to the lowest level during the 15- to 20-minute interval." Both of these studies note the severe lapse of attention 15 to 20 minutes into a lecture. As researcher P. J. Fensham observes, "During the falls [in attention] the student has, in effect, phased out of attending to the information flow."

Given that students have an attention span of around 15 to 20 minutes and that university classes are scheduled for around 50 or 75 minutes, instructors must do

something to control their students' attention. We recommend building a "change-up" into your class to restart the attention clock. If your main mode of instruction is lecture, clearly the primary activity for most of your students is listening to one person talk; even in whole class discussion, only the student actually speaking at any given time is doing anything other than listening.

Combining what we know about attention span and how the mind works, we suggest that lectures should be punctuated with periodic activities.

Johnstone and Percival report that lecturers who "adopted a varied approach . . . and deliberately and consistently interspersed their lectures with illustrative models or experiments, . . . short problem solving sessions, or some other form of deliberate break . . . usually commanded a better attention span from the class, and these deliberate variations had the effect of postponing or even eliminating the occurrence of an attention break." Many of our colleagues also report that when they intersperse mini-lectures with active engagement for students for as brief a time as two to five minutes, students seem re-energized for the next 15 to 20 minute mini-lecture.

By planning exactly when to insert an activity, you can make sure that your students pay the most attention to the issues which you feel are most important.

Don't do activities for their own sake; they should be integrally related to giving students practice with the most important concepts in that day's class. So, telling jokes about lawyers halfway through a fifty minute economics class will change students' level of attention, but will add little to their learning of cost/benefit analysis.

Varying your approach to teaching also allows you to get your students actively involved in their own learning. The research on the mind gives us the theoretic base for advocating active learning. A large body of literature tells us that when the goal is to foster higher level cognitive or affective learning, teaching methods which encourage

THE NATIONAL TEACHING & LEARNING FORUM

Executive Editor:

James Rhem, Ph.D.
213 Potter St.
Madison, WI 53715-2050

Editorial Advisory Board

Jonathan Fife, Director
ERIC Clearinghouse on Higher Education

Judy Greene, Director
Center for Teaching Effectiveness
University of Delaware

Pat Hutchings
Director, The Teaching Initiative
American Association of Higher Education

Susan Kahn, Director
Undergraduate Teaching Improvement Council
University of Wisconsin System

Wilbert McKeachie
Professor of Psychology, Emeritus
University of Michigan

Edward Neal
Director, Center for Teaching and Learning
University of North Carolina - Chapel Hill

Susan Nummedal
Department of Psychology
California State University
Long Beach

Laura Rendón
Senior Research Associate
National Center for Postsecondary Teaching,
Learning, and Assessment
Arizona State University

Phyllis Steckler, President
The Oryx Press

Editorial correspondence:

James Rhem
213 Potter St.
Madison, WI 53715-2050

Subscription information:

The Oryx Press
4041 North Central #700
Phoenix, Arizona 85012
Phone: 1-800-279-6799

The National Teaching & Learning Forum

is published six times during the academic year by The Oryx Press in conjunction with James Rhem & Associates, Inc. - October, December, February, March, May, September. One-year individual subscription: \$39.

Second class postage paid at Phoenix, AZ.

Postmaster: Send change of address to:

The National Teaching & Learning Forum

4041 North Central #700
Phoenix, Arizona 85012

Copyright © 1996, James Rhem & Associates, Inc. (ISSN 1057-2880)

DUPLICATION BY PHOTOCOPYING OR OTHER MEANS IS STRICTLY FORBIDDEN.

Bulk discount subscription rates available.
(Phone: 1-800-279-6799)

<http://www.oryxpress.com/ntlf.html>
February

Editor's Note:

In the deep of winter, we need humor. We could probably use more of it as a matter of course in academe, but it seems rare. This issue offers two examples, both following (more or less) the popular Top Ten formula made a national institution by television comedian, David Letterman. **Martin Siegel** takes a wry, but not completely unserious look at a seldom mentioned subject at the college level—taking attendance. **Robert Menges** shares the uneasy comedy of faculty members in search of job security.

When I first moved to Wisconsin, I began to understand how badly we need humor, even dumb humor. In subzero weather with drifts of snow blocking the streets, closing the schools, and enforcing “family time” like a prison sentence, humor offers some desperately needed relief. I caught on to the need for humor quickly. It took me a bit longer to learn about activity. For the life of me, I could not understand why people here longed to stand on boards and slide down hills; why they couldn't wait to get out and romp around in the cold and snow. And then I stayed inside a few winters studying for prelims and writing a dissertation.

Inside, in the winter, you brood. It's not good. You read books. You think. You ponder life's meaning. But you can't move around much. You look at the same walls all day long and feel your mind go soggy with the sound of the humidifier. Mentally, you need a “change-up.”

Joan Middendorf and **Alan Kalish** review the research on how our attention habitually lapses after about twenty minutes if we aren't given (or don't give ourselves) some varied stimuli. The implications of this research for effective teaching are clear and relatively easy to make use of, especially since Middendorf and Kalish provide over a dozen “change-up” activities to help faculty design more engaging presentations.

If we go to sleep, zone out, mentally hibernate in an unvaried winter of limited activity, we do something very similar when we get stuck in a rut or swept up in well-meaning but unexamined assumptions about what's good and bad, and what “ought” to work in teaching. In this issue, **Stephen Brookfield**, author of *The Skillful Teacher* and *Becoming a Critically Reflective Teacher*, discusses the importance of continually examining our teaching practice and the assumptions underlying what we do. But that's a cold proposition: constantly throwing off the warm blankets of the familiar in the hope of finding some better warmth. “It's a dilemma that I will go to my grave without solving,” Brookfield said to me. “You are stripping people away from a position of security without offering them an immediate benefit. You're asking them to volunteer for chaos.”

In the next issue of *The National Teaching and Learning Forum*, Barbara Mossberg will explain how chaos may not be so bad after all. But in the meantime, Brookfield recommends avoiding solitary examinations of your teaching soul. Do it in community. Do it with someone you trust, at least a little.

Richard Stull reminds us that a very big world surrounds us, and most of it applies to most of what we do. At least that's the vision he has of teaching, a vision of “the new generalist,” a teacher able to draw connections between music and baseball, between kinesiology and painting. He tells how he does it in class, and leaves readers with the address of a web site where they can view his multimedia lecture for themselves.

Finally, for those who want to get out mentally this winter, but who aren't yet webservers, **Reese McGee** can come to you on video. He's a friendly colleague, someone you can trust who knows an awful lot about teaching large classes. A videotape from Purdue University can put you in community with McGee for some canny insights into one of teaching's biggest challenges.

Stay warm.

— James Rhem

student activity and involvement are preferable to more passive methods.

Active learning lets you give your students opportunities in class to practice with the concepts you want them to learn. Particularly effective for getting students actively engaged in the classroom are collaborative learning techniques. What better way to get students active than to have them explain their new knowledge to one another? By making the classroom a social learning experience instead of a solitary one, instructors can reduce the student passivity through which some students seem to hide out in large classes.

Research confirms that breaking down the walls of anonymity promotes learning.

One colleague, who teaches journalism, told us that he fell into using small groups by accident, but they generated so much energy and interest in class that he now uses them regularly:

“I wanted to show some slides and have the entire class talk about [them], but the slides didn't get processed in time. So I got half a dozen magazine spreads, and I divided the [students] up into six groups. I was really, really shocked, but delighted, to see what a tremendous wave of energy this released in the class. All of a sudden these students who had been sitting there listening very passively got very energetic; they began to talk to each other, and they were actually doing exactly what I wanted them to do.”

When you plan your classes, you will want to decide how often to add a change-up and what activity to use. Use the 20 minute attention span as a rule of thumb: In a 50 minute class, use one change-up in the middle; in a 75 minute class, use two change-ups, at roughly one-third and two-thirds of the way through the class period. But don't follow this slavishly; anything that becomes predictable will have less impact. Variety is a powerful force. Having a handful of activities you can use comfortably will keep the students guessing, wondering what you will do next. Be sure to earmark at least one-third of the time you allow for the activity for debriefing afterwards; this is when most of the substantive

lessons of the activity will be confirmed. Without a wrap-up, students see these activities as amorphous and sometimes confusing; a concluding debriefing helps them understand what was important and what was not. ■■■

A Change-Up Sampler

The list below presents over a dozen “change-up” options. You should be able to find a few here that work for you. On that dark night of the teaching soul, when you have run out of ideas for a change-up, pick something new from this list.

Student Generated Questions:

Write a Question

The simplest of these techniques: instead of saying “Are there any questions?” ask each student to write down one to three they have about the material just covered. Then ask several (volunteers at first) what their questions are and answer them (or get other students to answer them). Having students *write* their questions down gives them all a chance to acknowledge what they really do not know. Seeing the questions in writing helps them feel authorized to ask them.

Exam Questions

Alone, or in pairs, or groups of three, students write an exam question about material just covered in class. (They should follow the format of your actual exams—essay, multiple-choice, etc.) After a brief time for discussion, you select at least four groups to report their questions to the whole class. Write these on the board and ask other students to critique them (give specific criteria). You can collect all of the questions in writing; use the best ones on the exam!

Problem Solving:

Paired Discussions

In three or four minutes, have students discuss something with the person next to them: summarize class so far; react to theory, concepts,

or information being presented; relate today’s material to past learning, etc.

Make your questions as specific as you can.

Think (or Write) - Pair - Share

Pose a question which requires analysis, evaluation, or synthesis. Each student thinks or writes on this question for one minute, then turns to the person seated nearby to compare ideas. Then the pairs share their ideas with some larger group (pairs of pairs, section of the class, or whole group).



Concrete Images

To help students make specific references to the text, go around the room and ask each one to state a concrete image/scene/event/moment that stands out. List these on the board. Follow up by having them find themes or patterns, missing points, etc. Then discussion can move to analysis with a common collection of facts.

Generating Ideas:

Buzz Groups

Give one or two prepared questions to groups of three to five students. Each group records its discussion and reports to the whole class. Then help the class synthesize the groups’ answers.

Truth Statements

Ask several small groups to decide on three things they know to be true about some particular issue. This is

useful when introducing a new topic which students think they know well, but where their assumptions need to be examined.

Kisses and Crackers

To overcome the flagging of attention, when you notice energy and attention diminishing, pass out crackers and Hershey’s kisses. The professor who taught us this technique tells us that research in “accelerated learning” shows that eating about once per hour actually promotes learning. Not only does the food wake students up, the mere

act of passing the bags around changes the activity and refocuses attention. He says that this also helps students feel good about his class and him and overcome science anxiety.

Controversial Topics:

Reaction Sheet

After presenting a controversial topic, pass around several sheets to collect written reactions to these three questions: “What ideas do you question?” “What ideas are new to you?” and “What ideas really hit

home?” Follow up with discussion. Variations are to ask each student to write a sheet or to have small groups do so.

Value Lines

Students line up according to how strongly they agree or disagree with a proposition or how strongly they value something. This gives a visual reading of the continuum of feelings in the group. Next, sort students into heterogeneous groups for discussion by grouping one from either end with two from the middle. Ask students to listen to differing viewpoints in their groups and to paraphrase opposing positions fairly.

Forced Debate

Ask all students who agree with a proposition to sit on one side of the room and all opposed on the other side. Hanging signs describing the propositions helps. It is important that they physically take a position

and that the opposing sides face each other. After they have sorted themselves out, switch the signs and force them to argue for the position with which they disagree. This activity—which pushes “Value Lines” one step further—is one of very few activities that plunge people into temporary ownership of viewpoints in opposition to their own strongly held opinions.

Student Self-Evaluation

Have the students write a brief evaluation of their learning.

After an essay (or project) have them answer the following: Now that you have finished your essay [or project], please answer the following questions. There are no right or wrong answers; I am interested in your analysis of your experience writing this essay [or doing this project].

1. What problems did you face during the writing of this essay?
2. What solutions did you find for those problems?
3. What do you think are the strengths of this essay [project]?
4. What alternative plans for this essay [project] did you consider? Why did you reject them?
5. Imagine you had more time to write this essay [work on this project]. What would you do if you were to continue working on it?

And finally, **varying media** often provides a useful change-up. Slides, overheads, pictures, video clips, music or sound can refocus attention and provide a shared experience which students can then critically “unpack” in discussion. Remember to give context for the new material, to show or play only what you need, and to direct student attention to the aspects of the material you regard as especially important. ■■■

For an expanded list of activities and a fully-referenced copy of Middendorf's and Kalish's article, send a request to

Alan Kalish
Associate Director
Teaching Resources Center
Ballantine Hall 132
Indiana University
Bloomington, IN 47405
Telephone: (812) 855-2635
E-mail: kalish@ucs.indiana.edu

VIEWPOINT

Essentials of Attendance

*Martin Siegel
Associate Professor
Marketing and Sales Technology
Community and Technical College
University of Akron*

College students, like most of us ready to moan about everything, gripe when their instructors take attendance. Hardly a semester passes without the campus newspaper printing blistering articles from the oppressed about this blasphemous practice. In manifesto-like fashion, we hear of youthful principles usurped by this load of indignity, the worst sally usually saved for last, that it is the *old* way of doing things. Taking heart from John Milton's credo that few may know where thousands err, I look favorably upon attendance checks. Indeed, I view them as an *essential* part of college teaching, and hereby list ten reasons why.

1. I tell students that there is only one thing you can do better as you get older, particularly after middle-aged years—and that is to complain. Over fifteen weeks, it's impossible to recall, unaided, the attendance of large numbers of students. I lament the loss of my youth's powerful memory, and go on to say that attendance is part of their record, an added line to the profile, shadow if you will, along with test scores, projects, and participation, that will emerge over the term's length. Further, it can provide a red flag, for low attendance and low grades go hand-in-hand. I've been thanked many times by students for the “pep talks,” given in private discussions, that we've had when things looked shaky. Some have given compelling reasons for their absences, while others have admitted to goofing off. Either way, they got a warning sign. Most heeded it one way or another.

2. Taking attendance provides surprises, particularly with coincidence. I once had two students who were opposites but had the exact

same name, Mary Alice Graham. Another class had a Jamie and an Amy Beans. Beans is an unusual surname, and Jamie could stand for a male or female. I noticed that the two names were always written far apart on the attendance sheets. Pondering this, I concluded they were a married couple in the process of divorce. Of course, I was wrong: The two were girls, unrelated, and never had seen one another before being in the class.

3. Handwriting is interesting. Traditionally, the strongest belongs to average-sized women, while the mightiest football players write in the teeny-weeny cramped style worthy of milksops.

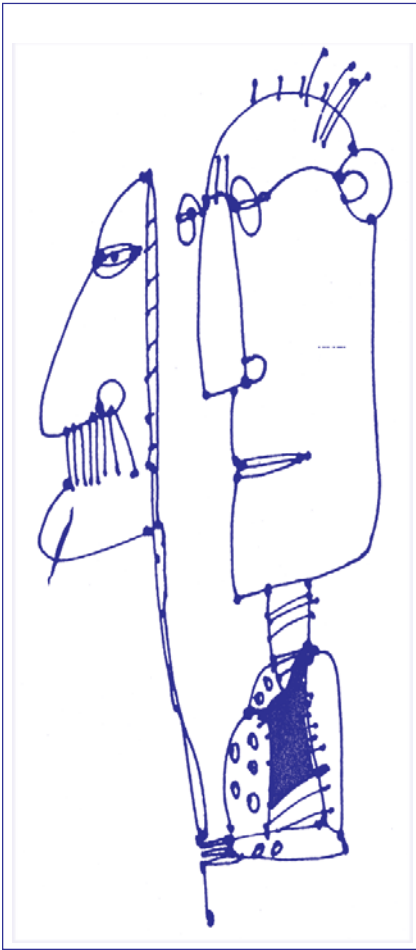
4. Surprisingly, some use the device to say hello (usually newcomers at the semester's beginning when unaware that it's an heretical act). Friendliness, always irresistible, is particularly winsome on a page of scrawls. College profs have feelings too, I tell them.

5. Attendance should be taken **most**, but not all, of the time. When it's omitted, it tends to keep the class a bit off balance. When “Where's the attendance sheet?” is heard, it means that a pattern of accountability has been established. Score one for high morality, ethical responsibility, and profound rectitude ... but perhaps I exaggerate.

6. It's relaxing entering the day's tally into the record book

- a. after several typically useless committee meetings,
- b. when a deadening volume of correspondence needs to be completed,
- c. when you've met writer's block midway through the promising article you were writing,
- d. when the imposing pile of written assignments that must soon be graded appears to be growing taller by the hour.

7. You have to be crazy **not** to take attendance. During the semester, academic progress reports (which always include it as one of the indicators) will be required concerning minorities, freshmen, athletes (several times), cheerleaders, those on probation. Diversity's celebration comes in—what else?—diverse directions.



8. It's the nineties, baby. Attendance checks become data, which is computer-nourishing, to use cyberspeak. Keep computers happy, say I, lest they (or before they) turn on us. There's no accounting for taste, but for me a contented computer, yearning for "Enter," is better than a dog.

9. It enhances two-way communication. There have been occasions when students have looked at me with concern, asking "Why is it we haven't had attendance lately?" as if I were ill or overcome by life's unending challenge. Ergo, taking attendance can relieve anxiety. I do try to please.

10. To end the list with a glow, I have found it provides a channel for young love to cruise into. "Excuse me, I couldn't help but notice what lovely handwriting you have." (Why, I wonder, didn't I ever think of that when I had the chance?)

To wax mathematical, attendance, with discretion factored in, can equal a better teaching experience. ■■■

INTERVIEW

Sorting Out Experience:

Stephen Brookfield On Critically Reflective Teaching

Over the last fifteen years, audiences in search of truly thoughtful comment on the business of teaching have found it in Stephen Brookfield. His keynote address to the POD Network's annual meeting on Cape Cod in October provided a mixture of now-familiar Brookfield ideas along with a sample of new thinking from his most recent book, *Becoming a Critically Reflective Teacher* (Jossey-Bass, 1995). Following his presentation at the POD conference, Brookfield and I entered into a wide-ranging conversation on teaching, expanding on some points in his speech and exploring some others as well. Here are some highlights.

Brookfield specializes in adult education, an orientation that has formed one of the most attractive hallmarks of his approach: He allows himself to observe and learn from his own experiences as an adult learner and applies these observations to his thinking about students' experiences of teaching and learning. Understanding how students experience learning, he's come to feel, far outstrips the value of any particular approach or technique in becoming a better teacher.

Tyrannical Trends

Technique or, rather, uncritical talk of and acceptance of the value of particular techniques, quickly forms what Brookfield has come to call "hegemonic assumptions." Examples? Arranging chairs in a circle is good. Student journals are good. Group work is good. "An assumption becomes hegemonic or begins to exercise a dangerous control over our practice when we accept it uncritically," says Brookfield. In a teaching world where the tide of common conversation reviles the lecture as the most outmoded and ineffective teaching method, Brookfield has developed more and

more respect for the lecture and now feels he sees its uses. Likewise, with group work, he's come to feel it has a dark side and cannot be uncritically accepted.

"Group work is something I think I feel particularly strongly about because it is so uncritically celebrated," Brookfield said in our interview. "People do it because they want to make their classes more empathic and participatory and democratic. Those are all laudable aims, and I would support them. But I think the evangelical rhetoric sometimes overpowers attention to context and masks the fact that groups can be forums where egomaniacs can run wild and where some people's voices become silenced. Teachers can interpret students' talking actively

"The evangelical rhetoric sometimes overpowers attention to context and masks the fact that groups can be forums where egomaniacs can run wild and where some people's voices become silenced."

as by definition good, and I think that while that may be what's happening, it's not necessarily the case.

"One of the unfortunate consequences of the emphasis on 'active voice'—a concept I very much support and use myself—is that, almost implicitly, silence is devalued, and by definition [silence becomes] evidence that teachers are oppressing [the students]. That may be the case, but not necessarily. Silence is absolutely crucial for reflective learning; so if you are interested in developing [reflective learning] in students, you need it."

It's not that he's anti-group work, says Brookfield. "Not at all. What I'm 'anti' is poorly conceived group work which reproduces inequities imported from the outside."



Rules For Learning

The more Brookfield has observed groups in action, the more he has felt the need to create rules to guide their operation. "[In my classes] small groups never happen without students bringing in multiple copies of something to be considered by the small group. We start with students reading what everyone else has written, followed by a period of enforced silence. Then, in the discussion, the ground rule is that you are not allowed to talk about your own work, only others'. You can answer direct questions about your work, but that's it. I feel so strongly about this that sometimes I've appointed umpires whose sole task is to monitor and make sure this rule is respected."

Why does Brookfield feel so strongly? Again, the answer lies in recognizing parallels between how teachers operate as learners and how students operate. "I've just seen, for example, when you put teachers

in small groups, they often produce the most judgmental, undemocratic, ego-ridden discussions. They very quickly fall apart. People stay physically together, but some people opt out while someone else is off on a roll and the rest are just fazed. And so I've come to realize that genuine democratic discourse is not a very frequent thing, and you have to create the conditions under which it happens. That's why I've found that one ground rule has been very important for me. I think it's a mistake to generate 10 - 15 rules: people can't remember them."

But Brookfield would be the first to say what's proven true for him might not prove true for you. What he has found is that teachers who reflect

critically on their practice end up becoming better teachers. They take more "informed actions," he says, "actions which have the consequences you intend them to have and actions which you can give a rationale for."

"So if you want students to be more participatory, and you're setting up groups or team projects

"I've come to realize that genuine democratic discourse is not a very frequent thing, and you have to create the conditions under which it happens."

for that purpose, then you need to examine the assumptions they've been based on. You need to keep researching whether they are having the effect that you think they have, and you need to invite colleagues in to give you their sense of what's going on as well as just having your own solo reading. If you get that information and reflect on it, you will learn a great deal. And maybe you'll find out that, yes, what's happening is exactly what you intended, but you may well find out that you are unwittingly doing things which block students' learning together, which inhibit their participation."

Teaching Is Researching

In a way, Brookfield's focus on teaching has led him to an answer to the ancient dichotomy of teaching versus research. "Teaching basically does boil down to constantly re-researching," he says. "The thing that I find very encouraging in the last few years is the rise of the classroom assessment movement and the whole idea that you need to keep checking assumptions out. You have to research your context and you have to understand the meaning of behavior in the context in which it's happening."

Can teachers be critically reflective from the outset? Brookfield isn't sure. "Since I've begun to take my own advice seriously, I talk to my students much more. In the last ten years I've learned a hell of a lot. I think I'm a much better teacher than I was. Because I listen to them, I started to question so many assumptions, progressive democratic assumptions that I'd accepted. But it took me 15 - 20 years before I felt confident enough really to start questioning them and probing them; so maybe this kind of stance only comes after a period of experience. That's a question I'm really interested in."

One thing seems certain: Like most learning, learning about one's self as a teacher begins with the questions one asks about what one is doing now. For Brookfield's basics, see the accompanying sidebar on the next page. ■■■

Brookfield's Questions

Instead of the One-Minute Paper widely championed in classroom assessment circles, each week Brookfield asks students to complete a "critical incident questionnaire." The answers provide a central part of the feedback reflective practice requires.

The Classroom Critical Incident Questionnaire

Please take about five minutes to respond to each of the questions below about this week's class(es). Don't put your name on the form—your responses are anonymous. When you have finished writing, put one copy of the form on the table by the door and keep the other copy for yourself. At the start of next week's class, I will be sharing the responses with the group. Thanks for taking the time to do this. What you write will help me make the class more responsive to your concerns.

1. At what moment in the class this week did you feel most engaged with what was happening?
2. At what moment in the class this week did you feel most distanced from what was happening?
3. What action that anyone (teacher or student) took in class this week did you find most affirming and helpful?
4. What action that anyone (teacher or student) took in class this week did you find most puzzling or confusing?
5. What about the class this week surprised you the most? (This could be something about your own reactions to what went on, or something that someone did, or anything else that occurs to you.)

(From *Becoming A Critically Reflective Teacher*, chapter 6, page 115.)

Contact:
Stephen D. Brookfield
School of Education
University of St. Thomas
2115 Summit Avenue
St. Paul, MN 55105



Illustrations: Michael David Brown

INNOVATIONS

Finding Interdisciplinary Connections

A Case for Bringing Back the Generalist Approach in University Teaching

*Richard Arlin Stull, Ed.D.
Health and Physical Education
Department
Humboldt State University*

Thirty years ago, in the preface to the second edition of his *Story of Philosophy*, historian Will Durant wrote:

"...the function of the professional teacher was clear. It should have been to

mediate between the specialist and the nation; to learn the specialist's language, as the specialist had learned nature's, in order to break down the barriers between knowledge and need, and find for new truths old terms that all literate people might understand."

Durant also wrote about the "high birthrate" of terminology and the parochialism of individual academic disciplines. Durant was prophetic.

I believe we need a "new" kind of educator in this new environment—one devoted to humanizing the classroom, willing to stand back from narrow, disciplinary foci and show more cross-disciplinary relationships. And, we need to be more entertaining, more fun, in order to marry fact with passion in our teaching. How do we do this? I contend that some of us need to be generalists again, not specialists, especially in teaching undergrad-

duates. We need to be curious about things not limited to our own field. We must challenge ourselves to relate seemingly disparate facts and concepts from different disciplines together in unique ways—and help our students do the same. But doing this implies risk because deep-seated academic prejudices exist against the “generalist,” or worse, the “entertainer.”

The Knowledge Hydra

I have a humanities background with advanced degrees in Physical Education/Kinesiology. I teach at a small state university. I’d like to be this “new” kind of teacher, but like everyone else, I face some serious obstacles. For example, unbeknownst to many both inside and outside academia, the field of Physical Education/Kinesiology has evolved highly specialized subdisciplines. The engineering aspects of the human body and human performance, for example, have spawned the subdiscipline of biomechanics. The adaptive physiological responses to activity and energy systems within the human body evolved the subdiscipline of exercise physiology.

Additional subdisciplines have emerged in conjunction with the social sciences as well—sport psychology and sociology, for example. As a result of these specializations, it has become increasingly difficult for students to develop integrated concepts—to see a truly unified whole with respect to human movement potential—much less how this gestalt relates to other areas in the Arts and Humanities.

The Big Show Has Many Rings

So, how do I approach trying to convey an integrated picture in a standard undergraduate biomechanics class (physics of human performance)? The key for me lies in searching out unusual and dramatic athletic feats and using them as my teaching vehicle. I then not only give analysis with respect to physics, anatomy, and so on, but link this analysis to other disciplines as well, ones which explore the cultural contexts surrounding the events.

The Imaginative Macro View

One of the greatest athletic feats in the last half century was Willie Mays’s famous catch and throw at the Polo Grounds in New York City in the 1954 World Series. The catch and subsequent throw are immortalized by Arnold Hano’s short story “The Catch” in his book *In the Bleachers*. Hano gives a riveting eyewitness account coupled with imaginative speculation about an event that lasted only a few seconds. Yet, that event is still talked about today.

I put the event into historical context by scripting a paragraph about some major news items that occurred during that time period—the McCarthy hearings, the Brown vs. Board of Education Supreme

Deep-seated academic prejudices exist against the “generalist,” or worse, the “entertainer.”

Court decision, the Korean War, the fact that “I Love Lucy” was the number one television show, or that “cool” and “nerd” were introduced into the American lingo in the early 50’s. While reading the script, I play Bill Haley and the Comets’ “Shake, Rattle and Roll,” one of the year’s number one songs. And, I’ll read an excerpt from one of the best selling books that year, Norman Vincent Peale’s *Power of Positive Thinking*, even linking this to the extraordinary events that surrounded the rise of the black athlete in the early 50’s after Jackie Robinson broke the color barrier in 1947.

The Objective Micro View

After this, I play the original radio broadcast of the catch. And finally, I show the video clip. I could have shown the video clip first, saving a lot of time and energy. But then I

would have denied my students imaginative flights and emotional content that I see as essential to learners of any age.

The Pitch

Finally, only after presenting all this context, do I do a scientific analysis of the catch and the throw, applying elements from biomechanics regarding speed, torque, elements from psychomotor disciplines such as reaction time, muscle physiology, and so on. By this point, however, these scientific concepts are no longer mere abstract principles for my students. I have linked them to other disciplines, giving them a variety of contexts.

Colleagues might well object that such presentations take too much work to prepare, especially for every lecture. True enough: You can’t do it with every lecture. But you can do it with your best lectures, and you can learn to add touches that add context and meaning to your daily lectures or discussions.

Beyond Baseball

My focus lies in marrying kinetic concepts to cultural contexts, and I’ve found that I don’t have to stick to sports examples to do it. Examples abound in the fine arts.

We’ve come a long way since photographer Eadweard Muybridge made his remarkable stop-action studies of the human body in motion in the late 19th century. Muybridge’s experiments proved that at some points while a horse runs, all four of its legs are off the ground at the same time, something which was not widely believed. But Muybridge’s studies revealed not only the scientific complexities of human and animal movement, but new ways of appreciating the aesthetics of movement as well. They revolutionized painting.

Today, 120 years later, we are indebted to Muybridge every time we use video analysis in a typical class laboratory. As we frame the facts and the beauty of motion in stop-action, we see, for example, that ballet artist Mikhail Baryshnikov’s vertical leaps in *Don Quixote* would rival the jumps of many NBA basketball stars.

Baryshnikov's grand jetés (specialized vertical leaps across the stage giving the illusion of floating) are similar to the acrobatic slam dunk feats of basketball superstar Michael Jordan. Both give the illusion of floating horizontally in midair by doing the splits with their legs at the apex of the jump.

Becoming A Generalist

Let me push my "generalist" argument one step further, citing how personal enrichment almost always spills over into improved teaching and learning. One of the pleasures of being a faculty member is the access to many different classes on campus. Two years ago, I took a class in American Art. Apart from the pleasure of learning to appreciate some of our great artists, I also realized how I could apply some of what I learned to my own classes. For example, I decided I

**Arthur Rubenstein
played 1,760 notes in
Chopin's *Presto* from
the B-flat Minor
Sonata in 1 minute, 16
seconds (23 notes per
second). This is
extraordinary
athleticism.**

could use the paintings of Thomas Eakins to augment the discussion of kinesiological principles of the human body. Eakin's study of anatomy, optics and mathematics enabled him to paint human and animal forms with a technical brilliance that was, in his day, unsurpassed. Like Leonardo DaVinci's paintings and sketches of the human body, Eakin's paintings endure as technical as well as aesthetic masterpieces.

Sight isn't the only sense through which we can explore other's physical virtuosity. Hearing offers an avenue as well, and many dramatic

examples of physical prowess come from the world of music. For example, the late pianist Arthur Rubenstein played 1,760 notes in Chopin's *Presto* from the B-flat Minor Sonata in 1 minute, 16 seconds (23 notes per second). This is extraordinary athleticism, not to mention the aesthetic virtuosity and passion of Rubenstein's playing.

I let my students know that Rubenstein's contemporary, violinist Jascha Heifetz, was also a magnificent athlete, typically losing two to three pounds during a violin concert without moving his feet. And I point out to them that one reason orchestra conductors live so long may be the relation between upper body exercise—which they get plenty of—and cardiovascular health. It can be amusing and humbling for an otherwise fit young person to try and conduct even ten minutes of music, let alone a three-hour score. Musicians are literally small muscle athletes. The great ones, of course, add the intangibles of emotion, feeling, interpretation or "soul," combining athleticism with art. Seeing athleticism in art opens the equation in reverse. One could argue that Ken Griffey, Jr. or Steffie Graf are artists too, as well as athletes, using their bodies as instruments and the stadium and tennis court as symphony hall and canvas respectively.

One has to search for these types of anecdotal examples. There is no textbook as yet. But to find one is priceless, because it shows connections and excites and enlivens the classroom environment.

I feel fortunate to have read Isaac Asimov, Will Durant, Carl Sagan, Jacob Bronowski, Daniel Boorstin, Steven Jay Gould, James Burke and Lewis Thomas, all of whom were respected specialists during their careers, but also wrote about the sciences and humanities for popular audiences. They were great writers and educators, in large part because of their generalist focus. Their appreciation for and ability to write about the connections between disciplines has made a major impact on my own teaching philosophy.

Education is not about facts. Will Durant said, "a fact is nothing except in relation to desire; it is not

complete except in relation to a purpose and a whole." Add passion and some entertainment value to your teaching recipe, and you stand a good chance of creating a more exciting and stimulating classroom environment where more learning will take place than did before. |||

Contact:

Richard Arlin Stull, Ed.D.
Humboldt State University
Health and Physical Education Department
Arcata, California 95521
Telephone: (707) 826-5944
E-mail: ras2@axe.humboldt.edu

To view a webpage version of this article enhanced with video and audio clips as well as reproductions of paintings by Eakins and photographs by Muybridge, visit Stull's homepage at [http://](http://www.sorrell.humboldt.edu/~bioman)

www.sorrell.humboldt.edu/~bioman

Submitting Manuscripts

We welcome manuscripts on teaching and learning from teachers in all disciplines. Innovations in teaching in one field often inspire new approaches in other, sometimes unrelated, fields. It pays to look over each other's fences.

Articles may address any aspect of teaching and learning, and may be discipline-specific or general in nature. It is important to keep a diverse readership in mind, since faculty from all disciplines and in all 50 states (plus a growing number of foreign countries) now read *The National Teaching and Learning Forum*.

Submissions may not exceed 1500 words (six ordinary typed pages) except in unusual circumstances, and should be shorter whenever possible. Manuscripts may be submitted in typescript, double-spaced, 250 words per 8.5 x 11 page, but submissions in electronic form are highly encouraged. Indeed, submissions through E-mail are especially welcome.

Editorial submissions should be sent directly to:
Dr. James Rhem, Executive Editor
National Teaching and Learning Forum
213 Potter Street
Madison, WI 53715-2050
E-mail: rhem@msn.fullfeed.com or
jrhem@mcimail.com

VIDEO REVIEW

“Handling Hordes: Teaching Large Classes”

Finding an outstanding video on instructional development among the dozens now available isn't easy. *Handling Hordes: Teaching Large Classes* (1991) produced by Purdue University and hosted by Professor Reese McGee offers that welcome and rare exception. Its fifty-five minutes fly by in contrast to many twenty-minute productions that feel like two hours of your neighbor's color slides of his family's camping trip to Yellowstone. What's more, while many of the videos available are designed as discussion catalysts and don't lend themselves to private viewing, *Handling Hordes* works either way. An individual faculty member facing a large-class assignment could derive a lot of benefit from viewing this video at home and it would work just as well as the centerpiece in a workshop for a group of such faculty.

Three things make this video succeed where so many others fail: a vivid and inviting narrative frame, lively and well-organized information (both theoretical and practical), and excellent technical production values.

A billet-doux in a Jiffy Pak would make an absurd impression. The envelope a message comes in counts—just as neatness, spelling, and a shoeshine do. But a great many instructional video producers offer products that model dull teaching, as though the details do not matter so long as the information offered is correct and well-organized. As a result, many such videos have poor production characterized by gain shifts at every video splice and almost moribund narration. Not this one. Voice levels match perfectly throughout and the excellent graphics used to underscore key points do not call attention to themselves.

If you think such technical matters are beside the point, you are already missing a key point of McGee's presentation: Details matter a lot, especially in teaching large classes. McGee understands both the practical details and the larger conceptual issues in teaching large classes, because, he tells us, he's learned them the hard way. When he began teaching large classes—650 students, for example, he came to realize that he was operating out of a misconception. He thought of these meetings as “classes,” but they weren't. As a sociologist, he says, he's surprised he didn't see it sooner. A class is “bounded,” has “shared role expectations,” and “patterned interactions.” What he was teaching wasn't a class, it was an audience and an

What he was teaching wasn't a class, it was an audience and an audience needed a performer.

audience needed a performer. McGee is an excellent performer. It's his energy, enthusiasm, and confident knowledge that carry the video. Not only has he been teaching large classes at Purdue for many years, he's been conducting workshops for faculty on how to do it. The video combines direct, framing narration where McGee speaks directly to the viewers, with footage of him modeling some of the things he's talking about as he conducts one of his workshops on large classes in the same kind of large theater room where they are typically taught.

He begins by acknowledging the pros and cons of large classes. On the negative side, he admits large classes do tend to shoot for lower levels of cognition than smaller classes. They spend more time on definitions and lists, for example, and less on comparisons and contrasts. They tend to foster lower

levels of motivation, he says. And this can be bad for students who need special attention, those who aren't self-starters. On the other hand, large classes can expose a great many students to a department's best teachers, if a department is enlightened enough to staff them that way. They provide excellent labs for training teaching assistants to be future professors. And, though they aren't cheap to run, large classes are cost-effective.

At one point, McGee whips out a voltage tester and demonstrates how he checks out the rooms he's going to teach in. If you plan to plug in an overhead projector (and you should, to show an outline of what you're doing), make sure the outlet is hot before you get to class, he says. (Also have a spare projector bulb handy.)

Indeed, even when it is minutely practical, McGee's advice never loses coherence. He sees large classes as an instructive theater in which the professor must write his own script, assemble her props, manage the stage, and act all the parts as well as deal with unruly audience members at times. He outlines a four-month timeline for preparing to teach a new large class. “The syllabus is a script with stage directions,” he says. “It should tell you what you're going to need to bring to class each day, and it should contain backup plans in case the projector breaks down or the film you ordered does not arrive.”

McGee goes on to discuss the contracts he makes with his classes, the rules he uses, and how to handle problem students—which he classifies as “psychotic,” “illiterate,” or “disorganized.” Some of his advice:

- Don't make a rule you can't enforce.
- Treat all challenges as legitimate.
- Keep to the high ground of civility (never use sarcasm).
- Never back students into an intellectual corner.

For more information, contact:

Self-Directed Learning Programs
Purdue University
1586 Stewart Center
Room 116
West Lafayette, IN 47907-1586
Telephone: (317) 495-2748

Purchase: \$185

Top Ten Signs That I'm in Trouble as a College Teacher

Robert J. Menges
Northwestern University

As a result of years of experience, we college teachers develop acute sensitivity to signs of approaching trouble. Here are ten ever-so-subtle indicators that I am headed for trouble if I don't change my ways.

10. I hear a student say at the end of class, "That was great. He is so clear that I can take good notes without even thinking!"

9. I apply for a grant and receive the following response: "a) Congratulations. Your proposal got the highest recommendations for full funding. b) Congress has just eliminated this agency. c) By the way, are there any openings on your faculty?"

8. From my spouse, I receive a copy of the self-help classic, *Lighten up: Survival Skills for People Under Pressure*.

7. Within a few months of starting my new faculty job, I overhear a senior colleague say with obvious concern, "I *hope* Bob will turn out all right, but you know he does seem to spend an awful lot of time with students."

6. My department chair gives me a copy of the self-help classic, *The Joy of Stress: How to Make Stress Work for You*.

5. I ask a student whom I haven't seen for a while, "Did you come to my last class?" And he says, "I certainly hope so."

4. Students remove their headphones and start listening to me only when I turn off the overhead projector.

3. From a senior colleague whom I regard as my trusted mentor, I receive a copy of the self-help classic, *Bailing out: The Sane Way to Get Out of a Doomed Relationship and Survive With Hope and Self-Respect*.

2. I have a nightmare that I'm trying to teach a class totally unprepared. And when I wake up, I am.

1. And finally the number one sign that I am in trouble as a college teacher: The most favorable comment on my student evaluations says, "This professor should be in a class by himself!"

Robert J. Menges is a professor and Director of the Center for the Teaching Professions at Northwestern University and Senior Researcher with the National Center for Postsecondary Teaching, Learning, and Assessment.

INSIDE:

- **The "Change-Up" In Lectures** — Joan Middendorf and Alan Kalish, Indiana University, p. 1
- **Essentials of Attendance** — Martin Siegel, University of Akron, p. 5
- **INTERVIEW : Stephen Brookfield** — On Critically Reflective Teaching, p. 8
- **Finding Interdisciplinary Connections** — Richard Stull, Humboldt University, p. 8
- **VIDEO REVIEW: "Handling Hordes: Teaching Large Classes,"** Purdue University, p. 11
- **Top Ten Signs That I'm in Trouble as a College Teacher** — Robert Menges, Northwestern University, p. 12

Next Time: Chaos Theory and Teaching • More Video Reviews • Adventures With Case Studies • and more



The National Teaching & Learning Forum
The Oryx Press
4041 North Central #700
Phoenix, Arizona 85012

Second Class

Visit the Forum's homepage at <http://www.oryxpress.com/ntlf.html>
Email the editor at: rhem@msn.fullfeed.com