

Reflections on *Teaching Psychology*

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Fall 2016 marks the sixth year I have taught this course on “Teaching Psychology” (Psychology 375). I did it for five years when I was Head Graduate Advisor (2000-2004), and then this current year. I don’t claim to be a better teacher than anyone else, though I think I’m better than some, and I do take the teaching function more seriously than others. But over the years I’ve had a lot of experience teaching in lots of different contexts.

- I was an undergraduate at a small liberal-arts college, Colgate, where there were no graduate students standing between students and faculty (and where faculty, by necessity, did all their own grading of term papers and exams).
- At Penn, I served as a teaching assistant for the introductory course (where I held sections), and also for a course in developmental psychology (where all I did was grade exams). I also had my first real teaching experiences at Penn. First, as a kind of baptism by fire, when I had to substitute for the instructor on the very first day of class. Second, as a fourth-year graduate student, when another graduate student (Susan Mineka, who was later a colleague at Wisconsin) and I were chosen to teach, all by ourselves, a senior seminar on experimental psychopathology. And third, in Penn’s Summer Session, as I was completing my clinical internship and on my way to Harvard, I taught in the evening the mid-level survey course on personality.
- At Harvard, my principal teaching responsibility was at the graduate level: David McClelland and I taught a two-semester course on personality assessment, mostly for the students in the Personality and Developmental Studies program, some of whom – despite Harvard’s lack of a formal clinical training program -- were headed toward careers in clinical practice rather than research. At the undergraduate level, I taught an advanced course on “Altered States of Consciousness”.
- At Wisconsin, I taught the introductory course in the Fall, and the mid-level survey course on personality in the Spring. At the time, Wisconsin offered four sections of intro every semester, each one enrolling about 400 students, and each one taught by a tenure-track faculty member. Only the “honors” section of the course had discussion sections run by teaching assistants. We also taught the personality course every semester.
- At Arizona, my assignments were the same, intro and personality, with three tenure-track faculty members taking turns with intro. No discussion sections – only teaching assistants to help with the grading.
- At Yale, my undergraduate teaching was limited to the introductory course.

- Here at Berkeley, I've taught the introductory course in the Fall, and advanced courses on "Scientific Approaches to Consciousness" and "Social Cognition" (in alternating years) in the Spring.

That's 45 years of teaching, more or less, during which time I think I've seen almost everything. These reflections, organized around the chapters of Will McKeachie's classic *Teaching Tips* (14th edition), are a way of sharing those experiences for what they are worth to the next generation of college teachers.

Remarks on *Teaching Tips*

McKeachie's *Teaching Tips* is a genuine classic, having begun life as a mimeographed (don't ask -- you don't want to know) document distributed to his teaching assistants when he joined the faculty at the University of Michigan in 1949 (he also took his PhD from Michigan, and retired from teaching at the tender age of 85, having meanwhile served as president of the American Psychological Association). The first edition appeared in 1950, and the book has been in print continually since that time. Everybody who teaches college students should have it on their shelves.

Preface

Svinicki & McKeachie refer to *Scholarship Reconsidered* (1990), a book by Ernest Boyer, then the president of the Carnegie Foundation for the Advancement Teaching, which sought to return teaching to its rightful place among the elements of academic life. Boyer argued that "scholarship" had come to be defined too narrowly as basic research, and fed into the debate over "teaching versus research".

[Link to a PDF of Boyer's book \(Chapter 2\).](#)  

Instead, Boyer argued for four (4) types of scholarship:

1. **Scholarship of Discovery**, such as what's published in *JEP*, *JPSP*, or *Psychological Science*.
2. **Scholarship of Integration**, such as what's published in *Psych Bulletin*, *Current Directions in Psychological Science*, or textbooks and other scholarly monographs.
3. **Scholarship of Application**, such as what's published in the *Journal of Applied Psychology* or the *Journal of Educational Psychology*.
4. **Scholarship of Teaching**, such as what's published in *Psychology of Teaching* and... and....

And that's Boyer's point. These days, teaching isn't often given credit as scholarship -- it's thought of as a separate activity. But Boyer reminds us that teaching is first and foremost a scholarly enterprise, in which teachers are "widely read and intellectually engaged" with their subject matter, acquire a new understanding of the subject from their efforts, carefully plan pedagogy to communicate what they know to their students, and refine their understanding based on instructional activities. Teaching doesn't just transmit knowledge. Through teaching we acquire, organize, and refine knowledge.

Which is one reason why I encourage people to document their teaching. At the very least, by posting their PowerPoint presentations, sometimes by doing more. For example, I've prepared illustrated "Lecture Supplements" for each of my primary undergraduate courses, including written versions of my lectures, but going beyond the lectures themselves to explore topics in greater breadth and depth than is possible in two or three 50-minute periods. The result is the sort of textbook I might write if I were going to write a textbook -- expressing my own take on the various fields -- the introductory course, consciousness, social cognition, memory, and personality -- without having to bend to a publisher's concerns for marketability. I also find them enormously useful for expanding my own understanding of these fields -- writing is for thinking, after all. But I admit that maintaining these supplements is an enormous time-suck. Don't start doing something like this before you have tenure!

These remarks on McKeachie's *Teaching Tips*, in their own way, document my teaching of this course.

Chapter 1, Introduction

"What is important is learning, not teaching", "Most student learning occurs outside the classroom", and "Students can learn more in talking to one another than in listening to us". All three statements are true, to some extent, though I'd argue that the last statement is the least true; but that should not absolve teachers of their responsibilities to *teach*: to master the material of their course, organize it in a coherent way, and present it effectively to students.

Chapter 2, Course Preparation

This chapter is geared more toward course instructors than towards teaching assistants. But many of you will have the opportunity to construct your own sections, so this material is still relevant, although on a smaller scope and shorter timescale. Take a look at your instructor's syllabus, and page through the textbook (there usually is one), and try to get a sense of how your own interests and expertise fit into the course. That will give you a sense of what your own teaching contribution will be. At the same time, try to get a sense of what you can learn from the course. If your instructors are doing

their jobs, they'll teaching *you* something you didn't know before; or at least organize what you know in a somewhat different way. Remember: *teaching is for learning*.

Even if your instructor doesn't require it, give some thought to preparing a syllabus for your section. It'll give your students the sense that you have a plan for your sections (even if you modify those plans later); and it'll help you find your own way through the course material.

Also, if you're planning to use PowerPoint or other audio-visual materials, check out the resources available to you before making commitments. The Department has a small supply of video screens, projectors, DVD players and the like, maybe even a laptop or two that can be checked out for instructional purposes. Some courses make use of machine-scored multiple-choice exams, and in a couple of weeks you'll be getting some instruction on our "Scantron" machine.

Chapter 3, Meeting a Class for the First Time

This chapter is one of the most highly relevant to you as new GSIs. We're going to talk about this in the first meeting of *our* class, but because of the way the schedule works, by that time some of you might have already met your class for the first time, and others might be doing so that very same week. Accordingly, I've prepared some notes that I hope will tide you over until we actually get to meet as a class.

All of what follows is repeated from the Announcement I sent out earlier, and will resend before classes begin.

First, talk to your instructor to find out what s/he wants you to do. Sometimes instructors have specific topics that GSIs should cover in sections, supplementing the lectures. And wherever your instructor's instructions contradicts this advice, do what s/he says to do!

Typically, sections won't meet until after the first lecture, but sometimes you will meet with a section before the first lecture. In either case, you can get through the first day by focusing on introductions.

Begin with yourself: who you are, what area of psychology you're specializing in, a little bit about the research you're doing. Tell them where you went to college, how you got interested in psychology, and what brought you to Berkeley. Nothing personal, just about you and psychology.

Then go around the room. Each student should introduce him/herself, what year they're in, hometown, high school (someone else in the section may have had the same Latin or geometry teacher). Ask them why they're taking the course they're taking, and how it

fits into their academic and career plans (maybe they're taking the course because they're just interested).

Pass around an attendance signup sheet. This is a good thing to do every section, so as to forestall any disputes, later (like at grade time), about whether a student had a good attendance record. Remind them that attendance at sections is required. Discussion sections are a scarce resource, and if students don't want to attend, there are other students who would like their seats.

Identify those students who are registered for the course, and who's waitlisted. If students are waitlisted, they are generally told to attend the section for which they're waitlisted, as enrollment can take a week or two to shake out. As a general rule, enrollment in a course is through sections: if you can't enroll in a section, you can't enroll in the course. And enrollment in sections is pretty strictly limited by two factors: the contract with the GSIs, which limits GSI workload; and the Fire Marshall, who limits the number of people a classroom can accommodate. Although there are exceptions, the Psychology Department's policy is to limit GSIs to about 70 students, total (usually, 3 sections of 20-25 students each).

Sometimes students are enrolled in 1 section but want to transfer to another. The Student Services Office has worked out procedures for "section swapping". This can take a week or so to work out. Make no promises. If your section is limited to 25 students, there's a reason for this, and you shouldn't enroll more unless someone drops out. If a student complains, blame the system.

That's 20-30 minutes gone right there.

Assuming that lecture has met for the first time, go over the syllabus, asking students if they have any questions about the organization of the course, various policies and procedures, etc. If you don't know the answer, promise to get an answer by the next time the section meets. And do it.

Finally, ask the class whether there are any specific course-relevant topics they'd like to discuss in section. Make some notes, and then try to bring these topics into the discussion in later weeks.

And then, assuming that your instructor hasn't given you anything specific to do, you're done. You can dismiss the first class early. But don't make a habit of it: students have a right to expect that their faculty, and that includes you as Graduate Student Instructors, will show up on time and not leave early.

Most of you will be meeting with multiple sections. Even if they're scheduled back-to-back (a practice that seems logical but which I don't recommend), try to take a breath, identify anything that could have gone better in the class just concluded, and see what you can do to improve things for the next one.

Chapter 4: Reading as Active Learning

Many students don't know how to read. Yes, they can decode words, phrases, and sentences, but they've not always been taught how to read in the service of lasting learning. For that purpose, they should be taught the PQ4R method (as it's been named by John Anderson, a cognitive psychologist at Carnegie-Mellon University). PQ4R is hands-down the best practical method for studying and learning. Originally formulated by Thomas and Robinson (1972), it's also called the SQ3R method (Anderson added the fourth "R").

- **Preview** -- Before reading, *survey* (that's where the **S** comes from in **SQ3R**) the material you're trying to learn. Look at the section headings, note any new terms that are in bold face. Get yourself ready to learn and remember by establishing an appropriate schema.
- **Query** -- Based on your survey, make a list of questions that you want answered by the text, so that you can read the text with those questions in mind.
- **Read** -- Read *carefully*. Don't skim -- you already did that in your preview. Read with the intent of answering the questions you formulated.
- **Reflect** -- After you've read the chapter (or, better yet, a smaller section of that chapter), think about how what you've read relates to the questions you formulated (this is the fourth **R**, added by Anderson to the standard SQ3R). Go over any examples used. Think about how the material relates to what you already know.
- **Recite** -- Now put the text aside and try to recall the material that you've read by answering the questions you formulated earlier.
- **Review** -- Go back and compare your recall to what you read, and see if there are any discrepancies that need correction.

To which we can add a fifth **R**:

- **Repeat** -- Now go back and do it again, perhaps after reading the *next* chapter or section. Students tend to think that if they've read some material once, that's enough. It isn't. There's a reason that we say that they should spend at least two, maybe three, hours outside class for every hour they spend inside class. For a student taking 12 credits (assuming that one isn't volleyball, but even if it is), that means 24-36 hours of study per week outside of class.

The PQ4R method places great weight on *questions* -- both asking them and answering them. In a seminal study by Frase (1975), a group of subjects read a text with an instruction to generate questions based on it. A second group were given the questions generated by the first group, and instructed to read the text with the goal of answering them. A third group just read the text. Later, all subjects were given a test on which some of the items were relevant to the text, and others were not. Subjects in the two groups did much better on this test than did those in the control group.

The PQ4R method should be taught to all students in their first college courses, and reinforced in all subsequent ones. Especially in the natural and social sciences, which rely heavily on textbooks.

Intended for reading, PQ4R also works for lectures – if we let it. If we distribute our slide presentations in advance, for example, students have the opportunity to preview the material, and formulate some questions. If we post the presentation afterwards, at least, they have the opportunity to reflect, recite, and review.

Chapter 5, Facilitating Discussion

You may or may not be doing any formal presentations in your discussion sections (I hope you do, because it's good practice in a low-demand situation), but you'll be leading plenty of discussions. The problem is, many students don't speak up in class, often because, by virtue of personality or culture, they're somewhat shy. And a few students can try to dominate discussions, crowding other students out.

I had a colleague once, a very senior faculty member, who had a well-deserved reputation as a pretty poor lecturer, and so was assigned only very small, seminar-like, undergraduate classes. (Don't try this yourself, as a way to get out of teaching larger classes. These days, especially for people in the junior ranks, you'd be sent to someplace like the faculty equivalent of the GSI Teaching & Resource Center for remediation!) The first real class meeting, he asked the students to comment on the assigned reading, and it turned out that *none* of the students had done it. Apparently, in a kind of diffusion of responsibility, each of them assumed that *someone else* would have done the reading, and would carry the discussion. Whereupon the instructor gathered his materials, stood up, and walked out the door, telling the students not to come back unless they did the reading.

The point of this, I guess, is that students often clamor for discussion sections, but they don't always participate in them once they get in. So one thing that has to be conveyed to them is that, especially in large schools like Berkeley, even with large numbers of graduate students employed as teaching assistants, discussion sections are a scarce resource. If students don't want to discuss the course material, perhaps they should make room for someone who does.

Of course, in the UCB Psychology Department, discussion sections aren't really optional for students. They're built into most of our classes, which offer 3 credits in return for 2 hours of lecture and 1 hour of discussion per week. Students don't have a choice about registering for discussion sections. This isn't always the case. On some campuses, large lecture classes don't have any discussion sections at all.

Discussion sections are scarce resources, but they're also expensive. As a rough rule of thumb, we have to hire 1 GSI for every 3 discussion sections of 25 students each.

And because the supply of GSIs is limited, that puts limits on class size, which perforce limits student access to classes they want to take – which, in turn, may delay students' progress toward graduation. When I taught intro on campus (as opposed to online), the class was held in Wheeler Auditorium, which has more than 700 seats. But because of the scarcity of GSIs, which constrained the number of sections we could offer, we only filled about 500 of those seats. That left more than 200 seats empty – or, put another way, 200 students who couldn't take intro – one of the courses that almost every student comes to college wanting to take. For that reason, I've argued that we should offer discussion sections as an option for a fourth credit. For example, we could offer intro as a 3-credit course, offering 3 hours of standup lecture, to as many students who could fit in the room; and an hour of discussion, for an additional 4th credit, to as many students as we could accommodate in section. So far, no takers. But I digress.

Discussion sections are great, but they present two problems. First, some students are shy, and don't actively participate (or they're really not interested in discussion). Second, some students are so eager that they monopolize the proceedings.

And there's a third problem, which is how to get the discussion going. That's one reason why I suggest that GSIs begin each section with a minilecture, which can set the stage for subsequent discussion. The GSI stands and delivers, or perhaps shows a video, and then can ask the students to react to it – if nothing else, by asking questions for clarification.

But however you start out, at some point the students have to chime in, or you're going to have a lot of dead air. If you keep going all by yourself, the students may well just sit back and let you do all the work, which isn't the point of a *discussion* section!

You may have to resort to calling on individual students. If so, keep a record so that you don't call on the same student repeatedly.

What about students who monopolize the discussion? It helps to establish some ground rules at the very beginning. First, that you expect students to *discuss*, and that, to this end, you'll feel free to call upon students. Second, that whether they initiate a discussion or react to your probing, they're supposed to take their turn and then let someone else have theirs. Some Native American tribes, and other aboriginal cultures, used the "talking stick" or "speaker's staff" to regulate discussions. You could speak so long as you held the stick, *but you were also supposed to pass it on*. Sometimes I've toyed with the idea of actually creating a talking stick, like out of Tinkertoys.

If you watch the lectures presented on CSPAN over the weekend, when Congress is not in session (and I recommend it – watching CSPAN, that is!), you'll see another good trick. When the floor opens up for questions, speakers are admonished that they will get one turn at the microphone, and that it's supposed to end with a question mark. If someone has a question or makes a comment, before answering yourself, consider asking some other student to respond. That gets the second student involved, so you're not just in dialogue with the monopolizer.

If you've got a discussion-monopolizer, it may be useful to take control as soon as you can. Instead of waiting for another student to respond (which they may not do in the face of a monopolizer), in which case the monopolizer will likely continue to monopolize, respond yourself, and then quickly turn to some other student.

Chapter 6, Making Lectures More Effective

Aside from whatever "mini-lectures" you prepare for section, lecturing is mostly going to be in the hands of the instructor of your course. Some instructors will ask GSIs to deliver a lecture or two to the whole class, perhaps when they're away for a conference or a colloquium. But even if you're not asked to lecture to the entire class, it's a good idea to give yourself some experience lecturing in a low-stakes situation -- which is why we have the mini-lecture component to Psych 375, and why I encourage GSIs to begin each section meeting with some kind of formal presentation.

Of course, different people define lecturing differently.

By "lecturing", I mean a stand-and-deliver formal presentation, from notes (some super. Not something that you read to a class (there's a place for reading a lecture, but the classroom isn't it). In college, I had an African History teacher who read to us, three times a week, from a book he was writing. At another place where I taught, there was an assistant professor, assigned to teach the introductory course, who simply read to students the textbook chapters on material with which he was unfamiliar.

My favorite sinner along these lines was a teacher of mine in graduate school, who spend an entire proseminar reading to us from long essays by Jane Loevinger and by Paul Meehl on construct validity. He never asked us a single question or solicited any comment. He did the same when teaching undergraduates. In a course on personality, he read to the students the entirety of Claude Levi-Strauss's *The Raw and the Cooked*. When he finished the book, and without missing a beat, he picked up *From Honey to Ashes* and began reading from *that*, as well. Whereupon the entire class, *en masse*, walked out and occupied the office of the Department chair. He got a reprimand, but he had tenure, and his reply to the chair was "I just want you know that I can outlast you" -- which, in fact, he did. Don't try this at home, either.

A lot of ink has been spilled lately over the vices of the lecture -- that students are too passive, that "active learning" is better, etc. Students *are* too passive, sometimes, and active learning does sometimes lead to deeper understanding (and better retention). But lecturing still holds a time-honored place in academic life, for very good reasons.

First, for all the virtues of active learning, the academic lecture is the most efficient means of transmitting knowledge and understanding from one person to others. If I give students enough time, they'll figure out the principles of linear perspective, and the other optical cues to depth perception, all by themselves. But it will take a long time. It took

thousands of years before Brunelleschi, Donatello, and Masaccio figured it out, in the quattrocento. On the other hand, I can demonstrate those same cues, as well as the ocular cues that they *can't* figure out by themselves, in roughly 15 minutes (I know this because I do it every year in intro).

For this reason, to quote a letter to the editor of the *Chronicle of Higher Education* by Likwan Cheng, who teaches physical science at the City College of Chicago, “the lecture may be irreplaceable after all”. To quote from his letter (03/27/2012):

Before rushing toward the unproven idea of dismantling this time-tested way of teaching, we need to clarify the rule of the lecture in learning and examine whether there are alternatives to it.

The lecture is indeed a process “in which students passively receive information,” but passive transfer of knowledge is an essential and foundational step in the student’s overall learning experiences. In subsequent steps, the complementary processes of active and interactive inquiries will have their chances, typically in settings such as small-group discussions, lab exercises, case studies, field trips, research participation, expository writing, and so on. We ought to recognize the limited role and purpose of the lecture in the overall scheme and goal of learning as a whole.

Even if we argue that the lecture is outdated, we still must ask if there are realistic, viable alternatives ready to replace it. Technologies certainly offer novelty and better effectiveness for learning, but technological platforms are in general not feasible for massive, unlimited deployment for both economic and technical reasons. History offers lessons: Movies are great ways to tell stories, but they haven’t replaced books. Similarly, learning technologies are unlikely to replace traditional lectures.

For delivering a message to a sizable audience, the lecture may not always be the most effective means, but it is very often the most efficient; it may not be exciting or entertaining in action, but it is both generally adoptable in all subjects and highly adaptable to various personal styles of communication. We need to think in a systemic way. It is this great contextual feasibility for delivering education within the reality of economic and technical constraints that makes the lecture, at least for now and maybe forever, irreplaceable.

Second, and more important, the lecture is a prime example of what Boyer calls “the scholarship of teaching”. A good lecturer doesn’t just regurgitate material from a textbook. Good lecturers put their own stamp on the material, focusing on what is important and what is not, highlighting what particularly interests them, putting their own organization on the material, and connecting it up to other things. Preparing and delivering a lecture is itself an act of scholarship.

The best lectures are self-contained: they have a beginning, a middle, and an end. It's likely that you will overprepare, but after giving a couple of lectures, you'll figure out what is right for you. When I teach the "biology" session of the introductory course, my notes for 3 days of lectures went to 14 pages, and about 50 slides, of which the following is a sample.

Biological Bases of Mind and Behavior

Slide 1.

Slide 2.

in 19th century, William James defined psychology as the science of mental life
understand cognitive, emotional, and motivational processes
underlying experience, thought, and action
because the brain is the physical basis of mind
begin the course by examining
the biological foundations of our mental lives
in brain and rest of nervous system

Organization of the Nervous System

Slide 3.

nervous system is a biological structure
like all biological structures, organized hierarchically
cells smallest units that can function independently
tissues groups of cells of a particular kind
organs groups of tissues that perform particular function
system groups of organs that perform related functions
organism
living individual
 composed of separate, mutually dependent systems

Slide 4.

nervous system is one such system
allows various organs and tissues to communicate with, influence each other
communication accomplished by means of electrical discharges

Slide 5.

basic unit is neuron
come in three types
afferent, transmits impulses from sensory receptors
efferent, transmits impulses to skeletal musculature
interneurons, connect afferent and efferent neurons

Each lecture should tell a story. It should have a beginning, a middle, and an end -- and perhaps lead logically to the next lecture in the syllabus.

My lectures tend to be somewhat slide-heavy. Some slides illustrate some point, and I point to them while I lecture. Others are just bullet points, intended to provide students with the spellings of vocabulary terms, etc.

They also go fast. So much material, so little time (especially with only 2 hours of lecture per week). But they're organized, and they flow from one idea to another.

How many slides is too many? If you've got 30 slides, and a 50-minute lecture hour, that's a slide every two minutes. About 40 slides, max, is probably about all you can do.

When I lecture, I make a point to stop and call on the first student who raises his or her hand. That legitimizes question-raising from the students. If the hand goes up at an inopportune time, I'll acknowledge the student and say "I'll get to you in a moment". *And then I do it.*

At some point, though, you have to stop taking questions, or you'll never finish your lecture, and you'll soon fall behind in the syllabus. For that reason, now that we have course websites, I always set up a "Queries and Comments" board where students can post questions. I monitor this board daily, and always answer any student posting within 1 business day – much sooner, if at all possible.

Chapter 7: Assessing, Testing, and Evaluating

McKeachie is certainly right that testing (the generic term for assessments of all kinds) is not just for grading.

- Testing is for giving students feedback about how their learning is going (we know from research on "judgments of learning" that people are not always good at monitoring how much they have learned).
- And testing is for learning, as we know from research showing that the act of testing itself constitutes a learning experience.

But testing *is also* for grading. We have to assign grades to students based on their performance. Those grades have to have some rational basis. Testing is one such base, and by far the most efficient. And, done right, it can accomplish the other goals of providing feedback and enhancing learning.

What balance to achieve between formal testing and other kinds of assessments, such as papers and discussion postings? My rule of thumb is that testing – meaning midterm and final exams, I don't give quizzes, much less "pop" quizzes – should constitute a portion of the grade roughly equivalent to the number of credits accounted for by lectures. Here in Psychology, most courses are offered for three credits, including two hours of lecture and one hour of discussion. Therefore, about two-thirds of a student's grade is derived from exams. Actually, once you add in points for discussion section attendance and participation, it turns out to be a little less than two-thirds – but still enough that students have to take the exams seriously.

What kind of tests? Here there are two general principles.

- The type of exam should be pitched to the level and size of the course. Introductory courses, with their large enrollments, and their focus on basic concepts and principles, almost demand multiple-choice tests. More open-ended exams, involving essays, may be appropriate for advanced courses – though even here there is a case to be made, based on the second principle, for more objective testing.
- *Any exam you write is an exam you (or someone else) has to grade.* Essay exams are easy to write and hard to grade, while objective exams are harder to write and easy to grade. I opt for the latter. If students raise objections, I tell them the truth: that objective exams can be graded more quickly and reliably than essay exams, and I ask them how they would rather I spend my time (and the GSIs theirs): preparing lectures and responding to questions and comments, or grading (and regrading) essay exams.

So I give multiple-choice exams (essentially recognition tests) in the high-enrollment introductory course, and more cognitively demanding short-answer exams (essentially cued-recall tests) in my lower-enrollment (but still large) advanced courses on “Consciousness” and “Social Cognition”. I don’t give essay exams at any level. They’re too hard to grade reliably, and too susceptible to requests for regrading (“But that’s what I *meant* to say!”).

I do an in-class review before each exam. However, to save time, I also post to bCourses a written “narrative review” that covers the high points of both lectures and readings. Then the in-class review can be devoted to dealing with specific questions raised by the students. (There’s no in-class review for my online Psych 1 course, because there’s no “class”!) For all my courses, I also create an exam-specific discussion board where students can post their questions; this board closes at noon on the day before the exam, and I guarantee a response, by the end of the day, to any question posted before that deadline.

Chapter 8: Testing: The Details

We’re psychologists: the one thing we’re good at is measuring the mind. So it’s important that we employ good psychometric principles in test construction and grading. That means that our tests should be both reliable and valid indicators of students’ command of the course material.

In psychometric theory, we talk of four kinds of validity: face, content, empirical, and construct.

- Face validity is something we can take for granted. If you’re writing a test for a course on personality theory, there shouldn’t be questions about sensation and perception -- unless, of course, the theory in question makes predictions about sensation and perception.

- Content validity simply means that a test adequately samples the universe of content covered by the course. There should be questions drawn from every chapter of the textbook, and every lecture in the course.
- Empirical validity means that test scores predict student achievement outside the exam itself. Empirical validity is guaranteed, so long as test scores enter into the calculation of students' final grades!
- Construct validity, however, has to be measured. Provided that test items have face and content validity, the usual approach to construct validity is to demonstrate that every item samples the domain covered by the test as a whole. This is accomplished by ensuring that each item correlates with the total score on the test (eliminating the item itself from the total). Or, put another way, that a single general factor runs through the test, and that each item has a significant loading on it.

To insure face and content validity, I try to have a representative sample of the textbook and lecture material. Accordingly, I make sure that there are test items drawn from every major section of the textbook, and every set of corresponding lectures. In the introductory course, for example, the textbook chapter on sensation and perception might have three major sections (e.g., one on vision, another on the other senses, and a third on perception); so there should be four questions. And I might devote three lectures to this topic (e.g., one on sensory mechanisms, another on psychophysics and signal detection, and a third on approaches to perception); so that's three more questions. To make test-construction even easier, I draw about half of the multiple-choice questions from a test-item file accompanying the textbook (all introductory text publishers provide this -- if they didn't, nobody would adopt their book!).

How long should a multiple-choice test be? A useful heuristic is that students should be able to handle one question per minute. So that means 50 questions for a midterm exam. For a final exam, I double that length, to 100 questions (more on final exams later).

Short-answer exams require more thought, and more writing, so there have to be fewer of them. By "short-answer" I mean a question that can be answered reasonably well in 3-4 sentences. Over the years, I've found that about 10-12 questions is about the limit for a midterm exam; final exams can be twice that length. This means that you can't cover every major section of every textbook chapter, nor even every lecture, but you can still write questions that constitute a reasonable sample of the material. Just remember that *any exam you write is an exam you have to read and grade.*

On a historical note, one of my teachers in college, George Estabrooks, lays fair claim to having invented the short-answer test (*Journal of Genetic Psychology*, 1927). To be precise, Esty was retired before I matriculated, but he was a prominent figure on campus, and an important early figure in hypnosis research, so I spent a fair amount of time with him. Here's his description of a three-hour final exam:

The examination consists of two parts. In a three-hour examination the first part consists of two hundred questions answered by a word or a sentence each. This takes about two hours and generally leaves room for a couple of five-minute recess periods. The last hour is devoted to ten essays of five minutes each.... This is not nearly as formidable as it sounds.

Maybe not to him. But I suspect that, if these days, I presented students with such an exam, I'd have a riot on my hands – and it would be led by the GSIs!

During the exam itself, I allow students to ask questions of me and the GSIs who are proctoring the exam. Sometimes these questions will reveal a badly written item, which can be corrected on the fly. In other cases, I try to lead students (gently) toward the correct answer. Otherwise, I leave them alone.

Whatever kind of exam, ask your instructor to provide you with a scoring key. (There are instructors who write exams but leave it to GSIs to figure out what the answers are.) This includes short-answer and essay exams. Ask your instructor to provide specimens of acceptable answers to each question. And when you're a faculty member yourself, do this for your GSIs. I post these "scoring guides" to bCourses, so that students can use them for review – and also to get an idea of what my exams are like, so nobody is surprised.

Objective exams aren't just easier to grade (a non-trivial feature from the point of view of those grading them). They're also more reliable, and less susceptible to the sort of "grade-grubbing" that is all too familiar a feature of present-day academic life. Since I began editing my exams retrospectively (see below), and posting the scoring guides, I have rarely had a request for regrading.

Objective exams are also easier to edit retrospectively. If I write a bad item, I can identify it, eliminate it retrospectively, and regrade the exam accordingly. By doing so, I make my exams "fair" by definition. Difficult, perhaps, but fair. Here's how.

My multiple-choice exams are scored by the Scantron, which provides a detailed item analysis, including overall test reliability, which readily identifies any item which may have been inadvertently miskeyed. In addition, I rescore correct for all responses any item which less than 50% of the class gets correct *and* has an item-to-total correlation (r_{pb}) less than .20. An item with a pass % < .50 is not necessarily too hard (every test should have some difficult items), but a difficult item with a low item-to-total correlation probably doesn't have construct validity. "Bad items", identified in this manner, are rescored correct for all responses.

I do something similar with my short-answer questions. Students' scores on each individual item are put into an Excel spreadsheet, which I then import into a statistical package. I then calculate the mean score for each item, as a percentage of available points (i.e., a question worth 5 points, which has a mean score of 4.5, would get a mean

percentage score of 90%). This puts all test items on the same scale. An item with a percentage score less than 50% is a candidate for rescoring. I then import the spreadsheet into SPSS to perform the item analysis (any statistical package will do). Following the rubric described above, I identify any “bad items” which have a percentage score less than 50% *and* an item-to-total correlation less than .20, and give all students full credit for any bad items.

One way or the other, then, I produce exams that are, in the final analysis, statistically “fair”. Psychometrically, the best tests have a 50% pass rate, which allows plenty of room above and below the mean for individual differences in test performance to express themselves. Eliminating some items with a pass-rate below 50% virtually guarantees that the mean test score will be above 50%; my multiple-choice tests in intro usually end up with a mean score between 65-70%; if, on occasion, my mean slips below that, I add “free points” to everyone’s score to bring the mean up to that range (I truncate the scores of students with high initial scores, if necessary, so that no student gets a score of more than 100%).

Also, of course, you want the overall reliability of the test to be high; usually, my coefficient alphas are in the low to mid .80s, which is just fine.

In the introductory course, I do two midterms and a cumulative final exam. This seems to break up the material into manageable bites. For upper-division courses, I do one midterm and a cumulative final.

No quizzes, not in class, not in discussion sections. It’s just more exams for (someone) to write and grade.

And I always do a cumulative final. One of the cardinal principles of pedagogy is that spaced learning is better than massed learning. If you don’t give a cumulative final exam, it’s likely that students will forget what they’ve learned for each midterm as soon as it’s over.

- In my lower-division introductory course, the final includes a noncumulative portion testing material covered since the last midterm, about 1/3 of the 100 questions, with the cumulative portion of the exam comprised of questions that sample the entire course (including the new material).
- In my upper-division courses, the final includes a noncumulative portion testing material since the (lone) midterm, with the cumulative portion devoted to questions that give the students the opportunity to put the entire course together (“What is the nature of unconscious mental life?” “How would we know whether someone is in an altered state of consciousness?” “How much of social cognition is unconscious and automatic?” “What is the role of rationality in social cognition?”).

Remember: Whether it’s a midterm or a final, multiple-choice or essay, *whatever exam you write is an exam that you (or someone) has to grade*. And the industry standard is

that exams should be graded within 96 hours. This is especially true for final exams. If you don't have your grades in within 4 days of the end of Final Exam Week, the registrar, your students, your department chair, and your dean will make your life miserable.

What to do about cheating? The fact of the matter is that there is currently an epidemic of cheating by college students these days, raising all sorts of issues about what can be done about it, and what the penalties are for engaging in it (and getting caught). UCB has an honor code, which is pretty plain-vanilla. I like Stanford's better (at least as it was when I was there on sabbatical): students pledge not to cheat, but faculty also pledge not to put students in a position that encourages cheating. That means, for example, no take-home exams.

Here I will simply say that I am a coward when it comes to cheating.

- No, not a *coward*, but I do refuse the role of policeman. I proctor exams only lightly. Students put their books, laptops, and phones down on the floor or out of sight. I do not compare students to identify any who might have sat together and given identical answers.
- No, not a coward, but someone who has learned from (vicarious) experience. I once had a colleague, a brand-new assistant professor, who caught a student cheating red-handed. There was no question about what he had done. She reported him to the proper authorities. But his parents showed up with a lawyer, and the University refused to back her. I just won't put myself in such a position.

So students may cheat on my exams, just as they may cheat in other classes – though, frankly, with average exam scores hovering in the 65-70% range, I don't think too much cheating goes on. And in my online course, the correlation between scores on the midterm exams (administered online, with more opportunity to cheat) and the final exam (proctored in person, with less opportunity to cheat) is typically in the mid-to-high .70s, almost as high as the reliability of my exam. So I think that not too much cheating goes on.

Anyway, I just can't care. All I can do is make sure that cheating doesn't harm the grades of other students. This I do by not grading on a curve. A cheater may score 80-90% on my exams, and thus get an undeserved A or a B, but that doesn't prevent non-cheaters from getting the As and Bs that they truly deserve.

What about students who miss an exam? I have a strict policy of *no makeups*, and *no incompletes*. Life's too short to be giving exams to students who missed them the first time. And if, like me, you post the scoring guide immediately after the exam (because that's the best time for feedback), you have to create a whole new exam. Instead, I give students an estimated grade for the missed exam, based on the weighted average of the exams they *do* take. So, for example, a student who missed Midterm 1 but got a 40 on Midterm 2 and an 89 on the Final would get an estimated grade for Midterm 1 of $((40+89)/3)$, or 43. I justify this by the high correlation between midterm and final exam

scores. And because students don't have to take a make-up exam, they can keep moving forward through the course. (For how I handle incompletes, see below.)

Chapter 9: Written Feedback

I had a senior colleague once who routinely assigned big term papers to his students, on which their grades were heavily dependent. But when the students returned the next semester to collect their papers, all they ever found was a little checkmark in the upper-right corner. We ought to do better than this!

Students deserve (and need) feedback on their writing – both their ideas and their expression of them. But you don't have to go overboard. Whether it is done in “red pen” on a sheet of paper, or in the editing and comments utilities in Word, there are both little and big things we can do, all of which go far beyond a checkmark in the upper-right corner.

- Correct the occasional misspelling or grammatical error.
- Fix the occasional infelicity of prose.
- Suggest a paper for the student to read.
- Point out where an idea is unclear, or doesn't logically follow from what has gone before.
- If the student makes a good point, say so.
- Chime in with an idea of your own.
- Assign the grade.
- And then repeat for the next paper.

You don't have to fill each page with red ink. You don't even have to comment on everything. Just do *something* that will give students the sense that someone, somewhere, took their writing seriously.

“Grading rubrics” are all the rage these days, and it would be nice if course instructors developed them for their writing assignments. If your instructor hasn't provided a writing rubric, you might consider developing one on your own. This will facilitate consistent (reliable) grading of papers. And if they're provided in advance of the deadline, they will actually help students write better. Think of it as *feedforward*, not feedback.

Sometimes the feedback process can be “outsourced” to other students in the class, by having them read and comment on each other's papers. This can work: and it certainly relieves the instructor or GSI of a substantial burden, and may be a good exercise for the students themselves; but the final responsibility of assigning a grade still falls on you.

Once you've returned a paper, students may ask if they can revise the paper in order to raise their grade. Unless you're teaching in a writing-intensive class, I advise against

this. Revising is good, and you'll spend the rest of your careers revising and resubmitting papers for publication (because, after outright rejection, this is the default decision of most editors these days). But once you permit revisions, there's no end to it. A "B" paper, once revised, might warrant a B+ -- at which point the student may well ask to revise the paper *again*, in quest of an A- or A. The student is spending time redoing old work that should be spent keeping up with new work – and so are you. So, again, unless you're in a particular kind of class (like an honors seminar where students are writing and revising drafts of a thesis), students should get one shot at each assignment.

Chapter 10: Assigning Grades

We have to assign grades. When it was founded in 1965, the faculty at UC Santa Cruz, devoted to progressive undergraduate education and innovative pedagogy, was absolutely determined not to assign conventional letter grades. Except in the sciences, where students could opt for letter grades, students were graded only on a Pass/Fail basis, with narrative evaluations by faculty. That lasted for 35 years, but in the end the faculty broke down and required all students to take their courses for letter grades (with the usual Pass/Fail options, but still accompanied by narrative evaluations).

Letter grades have to have a rational basis.

Some institutions, such as the University of Chicago and many law and business schools, mandate a "forced curve", such that the average (or median, or modal) grade is some kind of C. This always struck me as unfair, because students who do well in a course ought to be able to get an A, regardless of how many other students do well. Put another way, every student ought to be able to get an A. Moreover, because a forced curve is effectively a zero-sum game, a student who gets an A by cheating effectively deprives another student of getting a high grade through diligent work.

Forced curves do have their place, though.

- They can be curbs on grade inflation (another rampant problem at American colleges). For example, the faculty at Princeton a few years ago mandated that no more than 35% of students in any class could get an "A". But, they soon reversed themselves, because such a policy meant that most students couldn't get an A no matter how well they did in the course, and that didn't seem fair (actually, appearances were irrelevant: the policy *was* unfair on the face of it!).
- In cases where there are multiple sections of the same course (e.g., Psych 1), it is desirable to have all sections graded according to the same standards, so that students' grades are not determined by the accident of choosing a professor who is a strict or lenient grader. In some places, such a scheme is a matter of departmental policy.

So, I very much prefer a variant on what might be called the “industry standard”.

Consider, for example, a course that has 340 points available to students from midterm and final exams, writing assignments, lab exercises, and discussion section attendance, and participation.

- A+, 97% (at least 329 points)
 - A stricter standard for A+ would be 100%, or 340 points
- A , 93% (at least 316 points)
- A- , 90% (306 points)
- B+, 87% (295 points)
- B , 83% (282 points)
- B- , 80% (272 points)
- C+, 77% (261 points)
- C , 73% (248 points)
- C- , 70% (238 points)
- D+, 67% (227 points)
- D , 63% (214 points)
- D- , 60% (204 points)

And, continuing down the scale (you’ll see why in a minute):

- F+, 57% (193 points)
- F , 53% (180 points)
- F-, 50% (170 points)

Standards like this mean that, in principle, everyone in the class could get an A. That rarely happens, but it could happen, and standards like this seem infinitely fairer than a forced curve. So that's the standard I follow, with some provisos.

- I don't give grades of A+, even to students with perfect scores (it just ratchets up grade competition, and contributes to grade inflation).
- My standard for a C-, the minimum passing grade, is lower than traditional: 50%+ 1 (171 points). This encourages students to take intellectual risks. If they're not prepared for the course, or life gets in the way, their transcript won't be too tarnished.
 - According to UCB policy, C- is the minimum standard for a “Pass” in the “Pass/No Pass” system (why we don't say “Fail”, which would at least be grammatical, is beyond me).
- For the same reason, my standard for a D-, is 25% +1 (86 points).
- So in order to get an F, a student would have to accumulate less than 86 points.

Actually, in more than 40 years of I've never given a grade of F. Most students who accumulate fewer than 25% of available points are simply not attending, but haven't formally dropped the course. When I taught at Harvard, I had a student who totally blew my course off, and actually dared me to give him the F he so richly deserved. At the

time, Harvard's policy was that students who received an F could drop the course from their transcripts and simply take another course to replace it, and he told me that was what he intended to do. So I gave him a D, which stuck to his transcript like Gorilla Glue, forever.

I try not to contribute to grade inflation. To this end, I try to keep my grade distribution for Psych W1 close to that for all lower- or upper division courses (depending on the course) in the Divisions of Biological and Social Sciences. According to records available on [CalAnswers](http://calanswers.berkeley.edu/) (<http://calanswers.berkeley.edu/>), that means about 39% As (A+, A, A-) and about 27% Bs (B+, B, B-), with the rest of the grades mostly Cs or Ps.

Actually, when I apply the industry standard, my distribution of letter grades has a lot fewer As and Bs than the UCB norm, so grade inflation isn't something I personally worry about. However, I do promise students that the average student in my courses will get approximately the same grade as the average student in other courses here at UCB. That is, I apply the industry standards in such a manner as to roughly approximate local standards.

I can come close to this goal by ratcheting the cutpoints down one or two notches.

- Ratcheting down one notch, grades of A- become As, B+ become A-, and so on down the scale until F+ becomes D- (this is why I extend the industry standard to include F+ and F-).
- If that's not enough, I'll ratchet down one more notch, so that grades of B+ become As, B become A-, and so on down the scale until F becomes D-.
- Remember, I guarantee "some kind of C" to anyone who accumulates more than 50% of available points.

This usually yields a distribution of letter grades that roughly corresponds to campus norms. But if it doesn't, I don't ratchet down any further. An "A" has to mean something, and so does a "B". Call it my own little resistance to grade inflation.

About Pass/No Pass (P/NP). Again, this is a policy intended to allow students to take intellectual risks, and to soften the consequences if life gets in the way of their studies – or if they've just gotten in over their heads. It's a good policy, and I've benefitted from it myself. I have vivid memories of taking a genetics class Pass/Fail as an undergraduate, where I was definitely in over my head. As I visibly struggled during the final exam, the instructor, Bill Oostenink, looked my way and mouthed the words: "You'll pass". It was a great relief.

But P/NP does something funny to published grade distributions. If you look closely at Cal Answers, you'll see that it actually shows a rather high percentage of students getting As – as many as 50%, depending on where you look. This is the percentage of students *taking the course for a grade* who received "some kind of A". But of course, many students may be taking the course P/NP, which inflates the percentage

considerably. If you look at the actual count of letter grades, as a percentage of all students taking the course, the percentage is closer to 31%. So, you have to adjust.

Actually, you don't have to adjust. I just play it straight, and establish my cutpoints based on percentages of *all* students, not just those taking the course for a grade. This tamps down grade inflation. I make it a policy not to know who is taking my course P/NP until *after* I have determined letter grades. Then, if I am about to give a C- to a student, and I discover that he's taking the course P/NP, I give him a P instead.

One advantage of this system is that it's possible to easily determine what letter grade students *would* have gotten, if they had taken the course for a letter grade. This is very helpful, as it occasionally happens that a student will successfully petition to reverse their status, and receive a letter grade instead. You can't do this simply because you would have received an A instead of a P (this happens more than you would think). But it can happen when, for example, a student takes Psych 1 P/NP, and subsequently decides to major in Psychology instead of Biochemistry or Comparative Literature. In order to major in Psychology, you have to have taken Psych 1 for a letter grade. When you receive such a petition, it's easy to look up what the student's letter grade might have been.

But the most important reason for establishing cutpoints based on all students is that it reduced grade inflation. Just watch out to make sure that your denominator is right: all students in the course, or just those taking the course for a letter grade.

What about Incompletes? My policy is clear and firm: I don't give them. When I'm finished with a course I'm *finished* with it, and so are the students. Instead of Incompletes, I gave grades based on work completed. If a student missed a discussion assignment or stopped attending sections, they get zeros for those grades. If a student missed the Final Exam (which is usually what happens, and usually because of a flare-up of illness or a problem at home or work), I give an estimated grade based on the midterms.

Once posted, UCB policy forbids changing a grade for any reason other than to correct a clerical error. Most student requests for grade changes are not of this sort. Instead, most requests are for "just one more point" so a student can move into the next-higher grade category. I routinely deny such requests, because there's no end to it. If you lower the cutpoint for one student, you have to do it for everyone else in the class who has the same numerical score. And that just creates another group of students who will want "just one more point".

On the other hand, occasionally a student could really use a break. Accordingly, I ask my GSIs, who are closer to individual students' situations than I am, to nominate a couple of students, nor more than one per section, who should be moved into the next-higher grade category, no questions asked. And I feel free take one or two "mulligans" myself.

No matter what their source – exam, writing assignment, lab exercise, I give students 1 business day to register any request for re-grading. The complaint has to be in writing, and document, for example, that the student’s answer was as good as or better than the one in the answer key or scoring guide. When the request has to be in writing, you get very few such requests.

Chapter 11: Motivation in the College Classroom

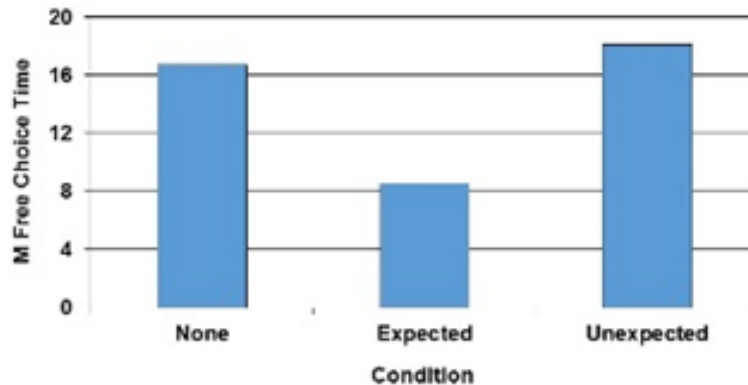
Teaching and learning, as they involve the transmission of knowledge, are obvious topics for cognitive psychology. And, indeed, there is a considerable body of basic and applied cognitive psychology that bears directly on these activities. I summarize much of this material in my talk on [“How Students Learn – and How We Can Help Them”](#). At the same time, it’s long been known that motivation is important for learning. It’s not just that people learn under conditions of reinforcement – they do, but – as E.C. Tolman pointed out in his classic work on latent learning -- they also learn in the absence of reinforcement. Accordingly, non-cognitive factors are also important determinants of the learning process (I also discuss much of this work in the above-referenced talk). As I like to put it: learning isn’t just for cognitive psychologists anymore. There are contributions to be made by personality and social psychologists as well.

One important consideration pertains to students’ (and, for that matter, teachers’) implicit theories of competence. Carol Dweck (at Stanford) has distinguished between *entitativity* and *incrementalism*. Entity theorists believe that competence is a fixed quantity, innate or acquired. If you’ve got it, you’ll keep it, and if you don’t have it, you’re not going to get it. Incrementalists, by contrast, view competence as something that can be changed with one’s own efforts. The distinction is especially important, perhaps, in math and other STEM disciplines (Science, Technology, Engineering, and Math). Students who think they “just can’t get math” aren’t going to do well in math (or statistics) classes. For that matter, nor will students whose *teachers* think that they “just can’t get it”. Best, then for student and teacher alike to embrace incrementalism (or what’s school *for?*).

Much has been made of the relation between extrinsic and extrinsic motivation, and the finding of research on “The Hidden Costs of Reward” -- the title of Mark Lepper’s 1978 book on the subject. To make a long story short, Lepper (who is at Stanford) found that rewarding an activity could undermine subjects’ intrinsic motivation to perform that activity. However, what’s not generally recognized is that reward didn’t always undermine intrinsic motivation, even in Lepper’s original experiment. Intrinsic motivation was undermined in a condition where preschoolers were promised a reward if they would perform the target activity, but not in a condition where the preschoolers received the same reward unexpectedly.

The “Hidden Costs” of Reward

Lepper, Greene, & Nisbett (1973)



A series of experiments by Judy Harackiewicz (now at Wisconsin) and others have clearly demonstrated that rewards can *enhance* intrinsic motivation as well (her cleverest demonstration of this involved college students playing pinball: it’s on my very short list of “Faustian” experiments, which I would have sold my soul to have done myself; you can read it in *JPSP* for 1984). What’s important is not reward in general but rather the *structure* of reward.

- *Task-contingent* rewards depend only on whether a person engages in some activity, and they do tend to undermine intrinsic motivation (Lepper’s rewards were of this type).
- But *performance-contingent* rewards, which depend on the person meeting some standard of performance, can maintain or even enhance intrinsic motivation.
- Performance-contingent rewards necessarily provide feedback about performance, but this feedback can also be provided in the absence of actual reward.
- *Evaluative contingency* is also important: does the person expect to receive the reward at the outset?
- The *delivery mode* can be relevant: rewards can be tangible, like a trophy, or they can have *symbolic cue value*.
- Some rewards are *controlling*, while others are strictly *informational*. Lepper’s rewards were definitely controlling, and not at all informational.

The bottom line is that rewards that are perceived as informational can maintain or enhance intrinsic motivation – provided that the subject cares about them – which brings us to the next topic.

More recently, Harackiewicz has focused on developing interventions that can be used in and around actual classrooms to enhance achievement motivation - particularly in STEM subjects, and particularly in first-generation college students and other under-represented groups. These interventions come in two broad types:

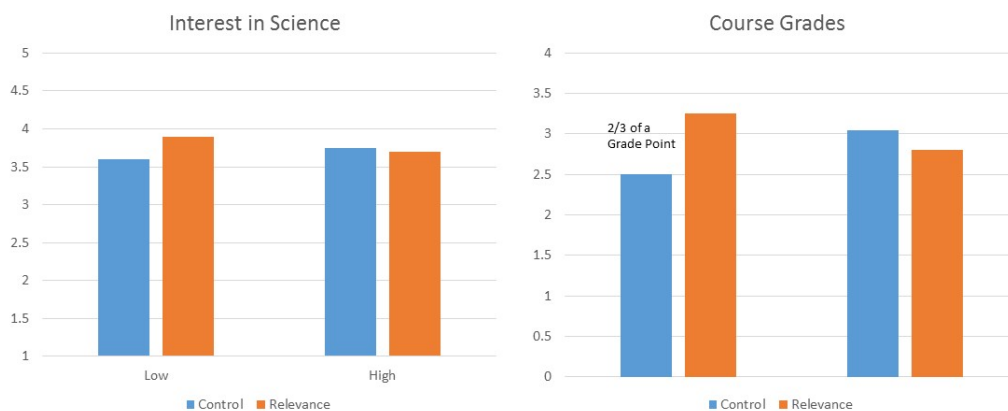
- **utility** interventions, which focus on the relevance of course material to students' academic and career aspirations;
- **values** interventions, which in which students reaffirm core values, whatever they might be.

For the most part, these studies are exemplary instances of applied educational research, involving random assignment to conditions and double-blind testing, usually coupled with parallel laboratory studies (Harackiewicz moves effortlessly between lab and field research). (Full disclosure: Harackiewicz was my first graduate advisee, at Harvard.)

To take a relevant example, Hulleman and Harackiewicz (*Science*, 2009; he is now at George Mason University) studied the effects of a utility intervention in high-school students taking one of several science classes. Before the intervention, they assessed the students' interest in science and their expectations for success in their current course. Then the students were asked to write a brief essay discussing the usefulness of the course material in their own lives; students in the control group simply wrote out a summary of the course material. The intervention targeted students who had low expectations of success in their current course. This group showed a significant increase in interest in science, and a substantial improvement in course grades, compared to controls.

Effects of Relevance Intervention

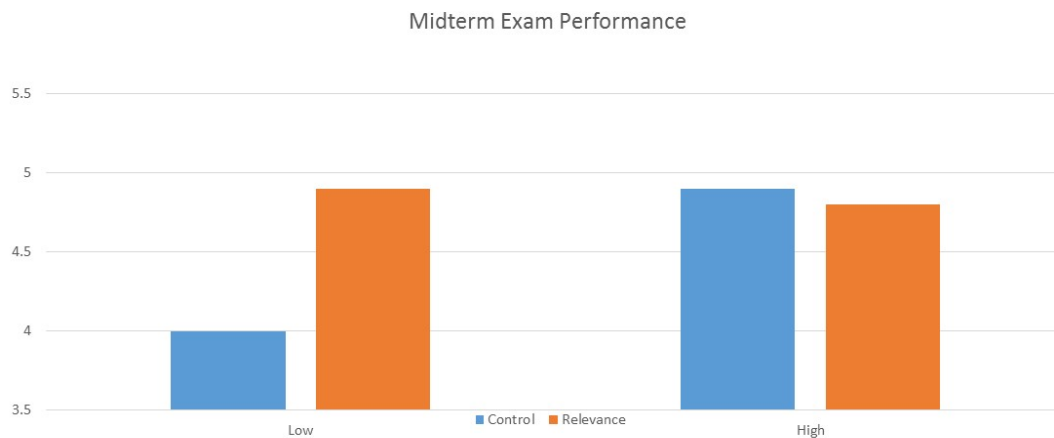
Hulleman & Harackiewicz (2009)



Hulleman and Harackiewicz conducted a similar in Wisconsin's introductory psychology course (Hulleman et al., *J. Educ. Psych.*, 2009). (Incidentally, this paper is a beautiful example of the pairing of a laboratory study with a field study.) Most college students, upon matriculation, intend to take a psychology course (perhaps to understand themselves better; perhaps to better understand their roommate's psychopathology; perhaps to be more successful networking or getting dates), if not to major in psychology. But by the time of the first midterm, covering the methods and statistics, the biology of mind and behavior, learning theory, and maybe sensation and perception), their interest tends to diminish. The students were asked to write a short letter to someone they knew about the relevance of some course topic (e.g., sleep disorders) to that person; or to find two media reports (e.g., Time magazine articles) relevant to that topic; students in the control condition prepared an outline summary of the topic or searched the PsychInfo database for two relevant papers. Students who did poorly on the first two midterm exams showed increased interest in the course following this "relevance" intervention". But

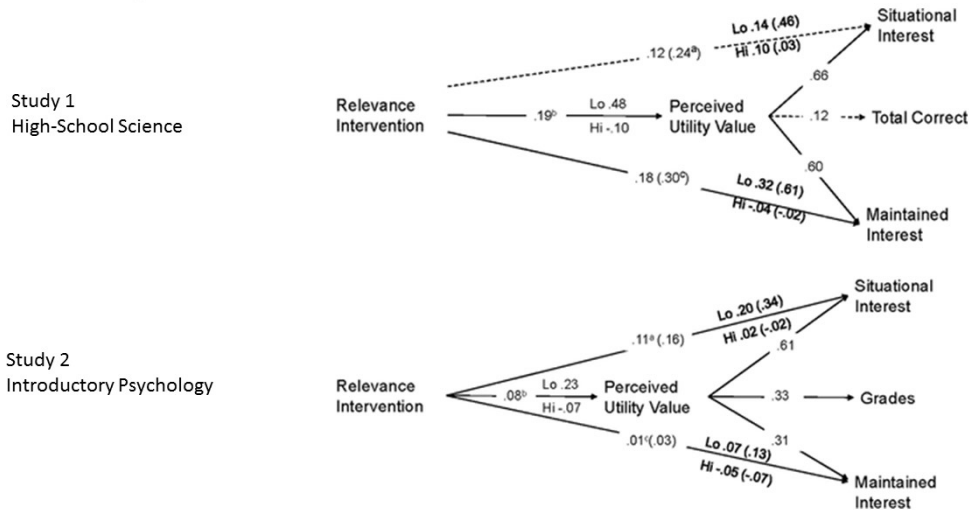
Effect on Situational Interest

Hulleman et al. (2010)



But wait... there's more! A mediation analysis showed that the intervention also had other effects. The intervention also increased the perceived utility value of the course – that is, it's relevance to the students' own lives. This not only enhanced students' interest in the course itself, but also improved their final grade in the course, as well as their interest in taking further psychology courses. Similar findings were obtained in the lab study, which involved subjects learning a novel strategy for solving certain "mental math" problems.

Carryover Effects of Situational Interest

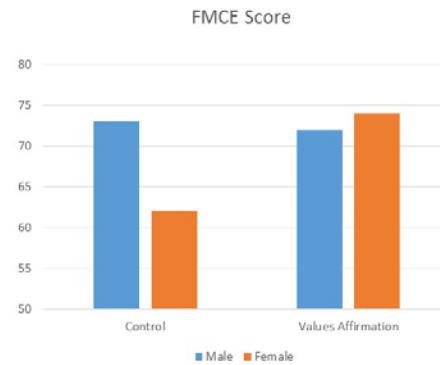
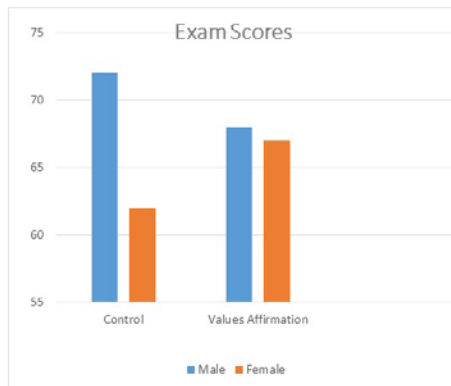


Other research demonstrates the effects of “values” intervention. Sometimes, students do poorly in a course because it challenges their self-esteem. In such a threatening environment, students may experience performance deficits attributable to stereotype threat (“Women can’t do math”) or cultural mismatch (“African-Americans don’t major in STEM subjects”). Under these circumstances, simply affirming important personal values – in effect, reminding students who they are – can have salutary effects.

A pioneering study by Akira Miyake et al. (*Science*, 2010) focused on women taking an introductory college physics course. Students who received the “values affirmation” intervention were asked to review a list of common personal values (e.g., being good at art, or belonging to a social group), none of which had anything to do with physics or science in general; select two or three of these that were most important to them; and write a short essay explaining their importance. A control group was asked to select the two or three *least* important values, and write a short essay explaining why they *weren’t* important. Women who received the values intervention got much higher scores on the course exams than those who did not (interestingly, the values intervention *decreased* exam scores for the men!). Perhaps even more important, the women who received the values intervention obtained higher scores on a standardized test of their conceptual understanding of important principles of physics (the intervention had no significant effect on the men’s scores).

Performance in Introductory Physics

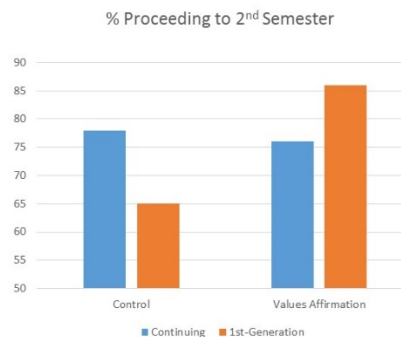
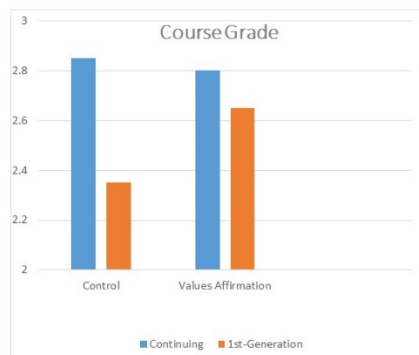
Miyake et al. (2010)



In subsequent study by Harackiewicz et al. (*J. Educ. Psych.* 2014), this same “values affirmation” worked with “first-generation” college students who were enrolled in the first term of a two-semester introductory biology course. These students are the first in their families to go to college, and often feel threatened and out of place in this unfamiliar environment. The experiment followed the same general design as Miyake (2010), except that the controls wrote essays on why the selected values were important to *someone else*. Students who got the values intervention got higher course grades than those who did not – and, of equal importance, were more likely to take the second semester of the course.

Performance in Introductory Biology

Harackiewicz et al. (2014)



In reviews of this literature intended for policy-makers (*Policy Insights Soc. Brain Sci.*, 2016; *CBE—Life Sci. Education*, in press), Harackiewicz and her colleagues emphasize that there is “no magic bullet” for enhancing students’ interest in STEM courses, but

they do argue strongly that, when it comes to under-represented groups in “gateway” introductory courses, these and similar social-psychological interventions can deliver major bang for the buck -- increasing students’ motivation to achieve in the course they’re taking, and for the subject in general. Who knows? They might even enhance the motivation of students already inclined toward STEM subjects to take, excel in, and major in the social sciences, humanities, and arts!

Chapter 12: Teaching Culturally Diverse Students

Cultural diversity is a challenge in college (and elementary and secondary) teaching, but it’s not a challenge that is going to go away, ever. The days when mostly white men taught mostly white students are over, and that’s a good thing. Nowadays, the student bodies of even private colleges and universities increasingly reflect the diversity of American society, and that’s also a good thing. The faculty, however, not so much, which is not a good thing. As important as it is to have critical mass of African-Americans, Hispanics, and Asian-Americans in the student body, it’s also important to have the same critical mass in the faculty. The student body should look like America, and the faculty should look like the student body. We’re getting there, but it’s a struggle.

Interestingly, achieving diversity is less of a struggle for private colleges than for public ones. This is because state legislatures often put restrictions on what public institutions can do by way of affirmative action in admissions (or, for that matter, faculty hiring), and the privates generally are less constrained in this regard. For example, California’s Proposition 209 amended the state constitution to prohibit state agencies, including UC, CSU, and the public community college system, from considering race, sex, or ethnicity in their actions, including admissions. Given various disparities in pre-college preparation, standardized test scores, and the like, such a provision makes it difficult to insure that a “critical mass” of African-Americans, Hispanics, etc. gain admission to college. Instead, public institutions like UC have to rely on proxies for race and ethnicity – for example, by conducting a “holistic review” of applications that considers extracurricular activities, community service, and “unusual circumstances or hardships” (like growing up in Compton or Watts). Private colleges, by contrast, find it easier to identify minority-group members in their applicant pool.

Anyway, the question addressed by McKeachie is whether, and to what extent, we should alter our teaching styles to take account of cultural diversity. Why should we do so?

- McKeachie suggests, for example, that African-Americans, Asian-Americans, Mexican-Americans, and Native Americans are reluctant to make eye contact with teachers, and may be uncomfortable with a teaching style (e.g., “Socratic”) that involves face-to-face interactions between teacher and student.
- And that Asian-Americans are reluctant to raise questions in class, out of a fear of showing disrespect for the teacher, or a desire not to stand out in class.

- And African-Americans might be unresponsive because they mistrust the motives of the teacher asking the question.
- And Asian-Americans may prefer group activities rather than individual ones.
- And Asian-Americans may think non-linearly, in contrast to the “linear” thinking of European-Americans.
- And African-Americans and Mexican-Americans, being well-known targets of affirmative action, may feel what Claude Steele has called “stereotype threat”, or suffer from what McKeachie calls the “imposter syndrome”.
- And first-generation college students, regardless of race, sex, or ethnicity, may find themselves simply “at sea” in an unfamiliar, and vaguely threatening, environment.

You get the idea. There’s research backing up all of these concerns, and more like them. At the same time, I think there are some issues with the idea that we should adjust our teaching practices to accommodate cultural differences.

In the first place, practical considerations militate against it. If you’re teaching a class of 150, or even 15, it’s just not possible to personalize your approach to every student. If you want to use the Socratic Method in your classroom, you’re going to have to call on students; and if you’re going to call on students, you have to call on *every* student in his or her turn; and if you call on each and every student, each and every one of them is going to have to respond.

In the second place, such adjustments may not be to the student’s advantage. “Culturally diverse” students are going to leave college for a world which is likely to be less accommodating, and the sooner they start grappling with this issue, the better (perhaps). At the same time, college teachers don’t have to make the process *harder* for such students.

The biggest problem, however, and the reason I listed the bullet-points above, is that the whole idea strikes me as verging on stereotyping, and raises the prospect of creating self-fulfilling prophecies of all sorts. African-Americans, Asian-Americans, Mexican-Americans, and Native-Americans are, after all, *Americans*, and it’s not at all clear that, for example, an Asian-American kid raised in the San Fernando Valley really needs faculty to take account of cultural diversity. Paradoxically, acknowledging cultural diversity may be a pathway to prejudice and discrimination.

While it’s important to be aware of pedagogical issues that might be raised by cultural diversity, it’s also important to not try to solve problems that don’t exist – much less to create problems that aren’t there to begin with.

Chapter 13: Different Students, Different Challenges

There's more to diversity on campus than *cultural* diversity. The days when campuses were overwhelmingly populated by 18-22-year-olds are over. That age group, entering college still out of high school, still dominates, but -- especially at public universities, and especially at the UC -- there are other constituencies in the student body -- for example:

- Entering freshmen who have taken a "gap year" (or two) between high school and college.
- Returning veterans, including those who have deployed to various fields of combat, such as Afghanistan and Iraq.
- Women and men who left college to start families, or just to earn money, and are returning to complete their degrees, often part-time.
- Retirees who miss their college experience, or never had one, and who are now using the University (quite appropriately, I might add) as a vehicle for "adult education".

They also enrich the educational experience for students and faculty alike.

Considering differences in learning styles between cultures leads to a consideration of individual differences in learning styles *within* cultures. This is the age-old claim that learning is better (quicker, deeper, lasts longer) when the style of teaching matches the style of learning. One reason for my skepticism about taking cultural diversity into account is that *there is not now, and never has been, any good evidence for the pedagogical benefits of matching "teaching style" to learning style.*

The concern about individual differences in learning styles goes way back, at least to Jung's classification of "psychological types" (sensing, intuiting, etc.), and the psychoanalytic ego-psychologists' discussion of "cognitive styles" (field independence-dependence, leveling-sharpening, etc.). Learning styles garnered additional attention after Lee Cronbach's (1957) discussion of "aptitude-by-treatment interactions" (ATIs) -- itself an early expression of the Doctrine of Interactionism in personality psychology. The literature on ATIs never worked out, really (which doesn't impeach interactionism, which really isn't about statistical interactions, but rather the ways that persons create the situations to which they respond). The whole story of ATIs is told by Hal Pashler (of UCSD) and his colleagues, in an extensive paper that appeared in *Perspectives on Psychological Science* (2008). I discuss this paper at some length in my talk on ["How Students Learn -- and How We Can Help Them"](#).

Perhaps the most vexing "diversity" issue in higher education today has to do with social activism and political correctness. It is well known that college faculty tend toward the liberal end of the political spectrum, and sometimes we inject our political views into our teaching. I've sinned in this manner myself. As a graduate student, at the height of the Vietnam War, I, apropos of absolutely nothing relevant, spelled *America* with three Ks. And in the run-up to the First Iraq War (the good one, waged by Bush 41), I lectured my introductory psychology class about the need to avoid prejudice and stereotyping

directed against Arabs and Muslims in general. Both were mistakes, and I wouldn't repeat them again. In fact, if relevant subjects come up, I now try to maintain a stance as an equal-opportunity President-basher (the fact of the matter is that the last President I really liked was Dwight D. Eisenhower, and I have had problems with him, too).

Stanley Fish, a literature scholar (and former UCB professor), puts his advice to faculty succinctly in the title of his 2008 book: *Save the world on Your Own Time* (an essay with the same title appeared in the *Chronicle of Higher Education*, 01/23/2003). Fish goes so far as to argue that "it is immoral for academics or for academic institutions to proclaim moral views". Professors are paid to teach and engage in scholarship, to publish papers and grade exams. We can take moral and political stances as individual citizens, but we should not do so as professors and we should not do it in classrooms. Otherwise, the university may come to be regarded as a political entity, not an educational one, and subject to all sorts of political pressures.

More recently, in an Op-Ed piece in the *New York Times* (07/15/2016), criticized the "hubris" of a group of historians who had published a statement opposing the presidential candidacy of Donald J. Trump. In his view, their expertise as historians qualified them to answer "discipline-specific" questions concerning historical fact and interpretation, they had no more political wisdom, by virtue of their advanced academic degrees, than anyone else. His quarrel is not with historians (or any other academics) who take political stands, speaking as citizens; but he firmly believes that academics who do so should not clothe themselves in the mantle of the academy; nor, for that matter, should they take their political stands in the classroom. Again, the point is that professors need to "understand the responsibilities and limits of their profession".

On the other side, college faculty are still mostly white and male, and it sometimes happens that our comments in the classroom can, if only unintentionally, offend students who are women, or who come from underrepresented groups. There has been much talk lately of "micro-aggressions", "trigger warnings", "cultural appropriation", and "safe spaces", to an extent that sometimes seems to threaten academic freedom and freedom of speech generally – or, at the very least, make the campus into an "unsafe space" for faculty who might, however unintentionally, step on sensitive toes. Nathan Heller, in "The Big Uneasy" (*New Yorker*, 05/30/2016) portrays a number of incidents, at Oberlin and other elite private schools, where the values of traditional liberal education, with its emphasis on freedom of speech, may be compromised. Many students want a "safe space". But one of the purposes of a liberal-arts education is to support thinking that generates intellectual and personal growth. That probably can't happen without confronting challenging ideas.

Sidelight: When I was a college student, I was heavily involved in the anti-Vietnam war movement, including a student protest (actually, against racial discrimination by some fraternities on campus) that occupied the administration building for four days. My mother wrote Colgate's president, Vincent Barnett, expressing her dismay and asking him to "give

my son back to me". He replied with a very nice letter to the effect that the purpose of college was to promote intellectual growth, and expand students' horizons, and that students are necessarily changed by the experience.

Political correctness (broadly construed) is a particular problem for psychology, as both a biological and a social science, because much of our subject-matter can step on sensitive toes.

- It's hard for social psychologists to talk about stereotypes and prejudice without discussing what those stereotype and prejudices are, and thus offending minority-group members in our classes.
- It's hard for clinical psychologists to talk about autism as a mental illness, when students in the class who may be somewhere on the autism spectrum themselves as simply "neurodivergent".
- It's hard for personality psychologists to talk about introverts or narcissists without offending students who may, in fact, be introverted or narcissistic.
- It's hard for developmental psychologists to talk about parenting styles without offending Asian-American students who might, or might not, have been brought up by what Amy Chua has called "Tiger mothers".
- It's hard for cognitive psychologists to talk about intelligence without referring to the black-white gap in test scores, or gender differences in spatial, math, and verbal ability.
- It's hard for biological psychologists (some of them, at least) to talk about mating behavior without discussing the claim that females seek mates who will support motherhood, while males seek as many mates as they can get their hands on; or about homosexuality without having students compare the lengths of their ring and index fingers.

In my "consciousness" class, which I teach as an interdisciplinary liberal-arts course, mostly to a mix of Psychology and Cognitive Science majors,, I have long assigned David Lodge's novel, *Thinks...* (2001). Lodge is well-known for his academic satires (*Changing Places*, *Small World*, and *Nice Work*), and the plot of *Thinks...* revolves around a cognitive scientist focused on the problem of developing a "third-person" description of conscious mental states, and a writer who thinks that this problem was solved long ago by modern literature (Lodge is also a literature scholar, and has written a book on *consciousness and the Novel*). There's a fair amount of sex in the book, though none of it non-consensual or violent, and so I've inserted a "trigger warning" in my syllabus – but with an ironic touch: a warning that while anyone who's offended can skip those parts of the book, or even the book as a whole, I don't want to catch them reading Molly Bloom's soliloquy from *Ulysses*.

More seriously, perhaps, in my "Social Cognition" course, I have a number of occasions to discuss stereotypes – as representations of knowledge concerning groups, as factors in "gaydar", and especially in the context of the Implicit Association Test (of which I am not a fan). You just can't discuss these topics without risking offending someone – for

example, gaydar appears to be based on the assumption that gays are feminine physical in appearance and lesbians are masculine. And discussing the construction of the IAT almost necessarily involves discussing the stereotypical association of African-Americans with poverty, crime, drugs, and the like. One year, the first time I raised these issues, the lone African-American male in the class got up and left the room, followed quickly by the lone African-American female, who was sitting next to him. I thought they were upset by the lecture, but it turned out that he suffered from a kind of ADHD, and often had trouble sitting still for 50 minutes; she was his girlfriend, who comforted him at such times.

So, while it's important to be careful about what we say in lecture, and not gratuitously offend students, it's also important not to overreact.

But most important, is that we *stick to the discipline*. Think whatever you want, and say whatever you want outside of class. But inside, don't say anything that's not relevant to the course; and don't say anything that you can't back up with empirical findings. That's what it means to teach psychology as a science.

Chapter 14: Active Learning

Active learning is great, but it's also something of a misnomer. *All* learning is active learning. Well, maybe not *all*. Some learning does occur passively and incidentally, simply in the course of ordinary experience. We do pick up knowledge as we go through life. And language learning, at least learning one's native language, occurs effortlessly by means of exposure – that's the whole point of Chomsky's arguments in favor of a "Language Acquisition Device". But in the absence of a specialized module like the LAD, the best learning – the learning which connects most broadly and lasts longest – is the product of active knowledge acquisition.

McKeachie discusses active learning mostly in terms of various forms of group learning, including collaborative and cooperative learning, but I find these difficult to implement (and control) in the large-class settings in which I do most of my teaching. However, I acknowledge the value of such arrangements, and I regret that I do not actively encourage students to form themselves into the study groups so popular in law and MBA programs (although I'm somewhat skeptical that, without the special structural features of law or business school (like a forced curve), it's possible to ensure that individual students "actively" participate in study groups.

It needs to be said, though, that a lot can be done to promote active learning. As I've noted earlier, many students come to college with deficient study skills, and an inappropriate "implicit theory" of learning to go with them. Correcting both these problems should be an early priority of the college teacher.

The model here is the PQ4R technique discussed earlier. Reading a textbook through once is a pretty passive activity. Getting what a student is supposed to get out of a textbook (or paper, or monograph) requires a much more deliberate, active approach: previewing the material and formulating questions before reading, then reciting and reviewing, not to mention repeating, is active learning.

A very similar approach can be used for lecture material. Again, if instructors post their PowerPoint slides prior to class, especially in a format that facilitates note-taking (e.g., three slides per page, with lined space beside each slide) right beside the slide, this gives students the opportunity to preview and query the material. But students have to look at what's posted, if not print it out! And they have to take notes!

By the way, there's a very convincing literature that students should take notes in longhand – not, as so many of them prefer, on their laptops. The extra effort involved in writing is, apparently, another element of active learning that can be practiced at the individual level. And students should take their own notes, and not rely on any note-taking service that might be available.

After taking the notes, preferably in longhand, there come the remaining Rs. In this respect, students should be encouraged to rewrite their lecture notes at home. This permits them to reorganize the material as desired, and also to identify any gaps in their note-taking that might be addressed by questions in discussion section or posted to an online discussion board.

This would be the time, as well, to compare their own notes to those of any note-taking service to which they've subscribed.

As a final step, I recommend that students prepare a "synoptic" (like the Gospels) set of notes that arranges notes from the text and lecture notes side-by-side in parallel columns (or facing pages), so as to determine how readings and lectures articulate with each other. Where readings and lectures overlap, the student can identify any discrepancies between them – and resolve them in discussion section or online discussion board.

Now, *that's* active learning!. The only problem is to get students to actually do it. Most of them won't, because it's too much trouble (many, perhaps most, college students don't work nearly hard enough). But if they did, they'd get a lot more out of their classes.

Chapter 15: Experiential Learning

Experiential learning is great too, Dewey and Bruner are quite right about the pedagogical virtues of "discovery" learning. On the other hand, it's incredibly inefficient -- and, I think, almost impossible in a large lecture class. You can pose a problem to a

class, and have small groups of students, or individual students, work on a solution. If you do this, the students will learn a lot about that problem area – if they actually participate. Some of them won't, and will simply be "free riders". Some groups will solve the problem quickly, and sit there bored while other groups catch up. Other groups won't solve the problem at all, and will sit there in frustration and embarrassment. Not great prospects.

The point bears repeating: the well-thought-out academic lecture is the most efficient means of transmitting knowledge and understanding from one person to others. I've used this example before, but if I give students enough time, they'll eventually figure out the principles of linear perspective, and the other optical cues to depth perception, all by themselves. But I can demonstrate those same cues, as well as the ocular cues that they *can't* figure out by themselves, in much less time.

Moreover, vicarious experience is experience too, and I suspect the time spent on Deweyan/Brunerian "discovery learning" would be better spent viewing videos demonstrating various concepts, methods, and principles. There's an awful lot of this material on the internet, much of it in the form of YouTube videos, and we probably should make better use of it.

Assembling a list of such videos would probably be a good project for a class like Psychology 375, and I wish I had thought of it before the semester started!

Whether such material should be incorporated into the lecture hour, or rather provided on the course website for students to view as they are interested, will depend on individual instructors and how much they have to say in their lectures.

Chapter 16: Using... Writing to Enhance Learning

Writing is for communicating, but it's also for thinking, and so it's a good thing for students to be writing in *all* their classes. Unfortunately, many students don't come to college prepared (or inclined) to put their thoughts in writing – and, more's the pity, the size of most of our classes doesn't make it any easier to give students the writing experiences they really need.

The same principle applies to papers as applies to exams: if you assign a paper, it has to be read and graded and commented upon.

I avoid "high-stakes" writing, such as major term papers. Given the enrollments in my classes, I simply don't have time to read and comment on the large number of term papers that would come across my desk, and I don't think that's a good use of GSU time either. Moreover, these days, there's an awful lot of plagiarism and ghost-writing of papers, vitiating the pedagogical value of any such exercise.

However, I do incorporate “low-stakes” writing in all my classes, in the form of short writing assignments. For each major section of my courses, I post a discussion prompt related to the readings and/or lectures. For example, for the methods and statistics module in my introductory course, I’m currently asking the students to talk about clinical vs. statistical prediction. Students write 50-250 words (i.e., no more than a single double-spaced page, 1” margins, 12-point type), and they get full credit if their posting is on time, on topic, and reasonably free of spelling and grammatical errors. I ask the GSIs to read and make brief comments on a *sample* of these postings – rotating through each of their sections, so that students receive comments on roughly one-third of their postings. This way, students get some opportunity to express their thoughts in writing, and they also get some feedback, without anyone being overly burdened.

On time, on topic, and reasonably free of errors – which brings up the problem of deadlines. Students (unlike faculty, of course) have an overwhelming tendency to procrastinate, leading to many, many requests for extensions. Just as I don’t give incompletes, I also don’t give extensions on deadlines. My deadlines are always announced well in advance (they’re clearly indicated in the syllabus distributed on the first day of class), so students have plenty of time to plan for them. And, frankly, my usual discussion prompts are of such a nature – often asking students to apply some psychological concept or principle to some matter of policy (like whether parole decisions should be left up to judges or based on regression equations) – that, if they anticipate any conflicts or absences, they can post their responses well in advance.

Still, some students are going to turn in their assignments late. It’s just in the nature of things. In such cases, I apply the following rule: *Somebody has to be last*. After a deadline, we start reading and grading papers. If a late paper is turned in before we’ve finished *our* job of grading, we treat it as if it were turned in on time. But once we’ve graded the last assignment, *we’re done*, and any tardy assignment is officially late and gets no credit.

Chapter 17: Technology and Teaching

When your parents (or maybe your grandparents) went to college, there wasn’t much technology involved in teaching. Instructors wrote their lecture notes out on yellow legal paper, and scrawled on a chalkboard. Maybe they used 35mm slides in a carousel projector, but that was expensive. Then we got overhead transparencies, which were easier and cheaper to make than slides, and easier to display in rooms without slide projectors. And then we got PowerPoint, and all hell broke loose.

PowerPoint is, in many respects, a godsend. We can illustrate our lectures (and other presentations), and we can prepare and revise them up to just a few moments before presentation. But that’s also a downside, because the convenience of PowerPoint sometimes lulls lecturers into procrastination. It used to take days to prepare photographic slides, and (if you count standing in line for the departmental photocopier)

hours to prepare overhead transparencies. And so lecturers also prepared their lectures in advance. But with the convenience of PowerPoint, it's possible for lecturers to throw a couple of slides together right before class and wing it. And sometimes we do, to the detriment of our teaching. Come to think of it, that was also a problem in the days of legal-paper-and-chalkboards. So, in that respect, maybe we haven't come all that far after all.

Good or bad, PowerPoint is with us to stay. We're used to it as a vehicle for teaching, and students are used to it as well. In his Table 17.8, McKeachie provides a number of excellent suggestions for preparing maximally effective PowerPoint slides, and I endorse them wholeheartedly. Here are a couple of additional suggestions.

- Don't use special themes like "Dad's Tie", or strange fonts like "Comic Sans" – unless you have good reason to. It just clutters the slide, and adds pointless distraction. I favor plain-vanilla black print on a white background, and Arial or Helvetica font.
- Don't use a colored background unless you have a good reason to, and whatever you do, *don't use a black background* (meaning, of course, white print on black background). When students print out your PowerPoint presentation, they'll use up a lot of printer ink, for no good reason, which will come off on their fingers and generally make a mess of things.
- Don't read directly from your slides unless you have a good reason to. I use PowerPoint slides now in lieu of lecture notes, mostly because I've been teaching the same classes for decades and lecture notes are superfluous at this point. Mostly, they're there to provide students with graphs and tables, and bullet points that summarize the points you're making in lecture (and spell out the vocabulary terms).
- Give students access to your slideset before class, by posting it to bCourses (or whatever Learning Management System we're using). Remember **PQ4R**, the basic guide to effective studying: **P**review, **Q**uery, **R**ead, **R**ecite, **R**eview – and **R**epeat. This system, designed for mastering textbook material, also works for lecture. If you give students your slideset after lecture, they have the opportunity to Read, Recite, Review, and Repeat; but if you give them your slideset *before* your lecture, they also have the opportunity to Preview and Query.
- Of course, distributing the slideset *before* lecture will spoil any surprise you want to inflict on your students *during* lecture. For example, if you want to demonstrate the serial-position curve, you don't want the students to have been able to memorize the whole list in advance! So, you may need to remove a slide or two from the advance set. Just put them back in after the lecture.
- Distribute your slideset in PDF format, not PPT. Lecture illustrations are your intellectual property, and if you distribute PPTs, you enable other people to use or modify your work without giving you credit. One exception to this rule: I make my raw PPT slides available to my GSIs, for them to use in their teaching. Those slides are my intellectual property, but they're also part of my intellectual heritage, and I don't mind passing them on if they'll be of use in their own future teaching.

- I normally distribute the PPTs in two formats: 3/page (good for note-taking) and 6/page (better for trees). Alternatively, you can just post a 1/page PDF, and let students print out multiple slides per page at their option, but the 3/page format in PDF doesn't give nice lines to support note-taking, which PPT does automatically.

Chalkboards, 35mm slides, overhead transparencies, PowerPoint presentations – the latest thing is webcasting, in which entire lectures are preserved for students to watch at their leisure. Here at Berkeley, webcasting comes in two forms.

1. Many UCB classrooms are equipped for audio and screen capturing, sometimes known as “screencasting”. By arrangement with Educational Technology Services, you can record the audio and video (i.e., PowerPoint) part of the lecture, or just the audio alone. Whatever you say, and whatever you display on the screen, is recorded and made available to the students, usually within 1 business day. This service is free for the asking, so long as you're teaching in a screencast-enabled room (the rooms used by GSIs for discussion sections aren't screencast-enabled).
2. A few UCB classrooms, notably the big lecture halls in Wheeler and Li Ka Shing, have the capacity for video capturing as well, recording what goes on at the podium, and on the stage, as well. This “videocasting” is expensive, because it requires that ETS supply a camera operator, and so hardly anyone uses it (my Psych 1 lectures in Wheeler Auditorium were recorded when the service was being piloted, and was free; the minute ETS started charging for it, we went to screencasting).

Screencasting is benign, and you don't even know it's there. Frankly, I don't see the point of videocasting. Students get to watch the instructor pace back and forth across the stage, shuffle papers at the podium, and drop lecture notes on the floor, but the slides presented on the screen are hard to read. At \$2000/course, no department in its right mind would pay for it.

Some instructors don't like webcasting, even screencasting. It does diminish classroom attendance. And if you say something stupid or offensive, it's preserved for posterity, and liable to go viral on the web (ask Mitt Romney or Hillary Clinton). On the other hand, students love it. Not only do they not have to show up for class (unless, like some instructors, you actually take attendance), but – more important for pedagogy -- they get to review whole lectures as many times as they want. If, as a professor, you have to chance to do screencasting, the advice from here is: *do it*. And if your campus ETS doesn't have the ability to do screencasting, encourage your administration to put it in the budget.

At least potentially, webcasting can have another benefit, in terms of a college's public relations, by making webcasts of courses available to the public, as a form of no-credit “adult education”. UCB used to do that, by posting screencasts and videocasts of courses to websites like iTunesU. All three of my undergraduate courses – “Intro”,

“Consciousness”, and “Social Cognition” -- were made available in this manner, and I have fond memories of receiving emails from people around the world who logged on to them (perhaps my favorite was from a restaurant worker on Hamburg, Germany, who listed to my lectures while washing dishes). Unfortunately, UCB had to abandon this service. When we use someone else’s material on a slide (which we all do), or play a short video (which many of us do), ETS has to go through a laborious process of dealing with copyright issues, and it just got too expensive. These same issues don’t pertain when material is posted on an intranet like bCourses, accessible only to current members of the UCB community. It’s too bad, because posting course webcasts is a great vehicle for public outreach.

Online learning (or course) management systems (LMSs) are increasingly prevalent, and that’s a good thing. They facilitate communication with and between students, and they allow an instructor to post material supplementing (or, sometimes, correcting) the text and lectures. I always create a “Queries and Comments” discussion board, to deal with questions and comments from students. There isn’t always enough time to handle questions in class, and some students are too shy. With a Q&C board, students can post their questions, get them answered, and the entire class can have the benefit of the exchange.

Online instruction, as opposed to “on ground” instruction in traditional classrooms, has its place. After 30 years of teaching the introductory course on ground, I developed an online version for UCB Summer Session, which is now also offered during the regular academic year throughout the UC system. I don’t think that online instruction will ever replace traditional classroom instruction, nor should it. But it does make it possible for students to take a course when they have scheduling conflicts with the onground offering. From an instructor’s point of view, I can prepare my lectures in advance, and ensure (because students can’t interrupt with questions) that I cover all the material I intend to cover. And because there aren’t discussion sections per se, I can actually deliver more lectures than I could in the onground version. On the downside, I do miss the spontaneous interactions with students.

The other downside is that online instruction is expensive. When I taught Psych 1 onground, I could do it pretty much myself (I’ve taught the course with and without discussion sections). This is not to demean the contributions of support staff, such as our tremendous Student Services Office, or of graduate students, such as the GSIs who hold discussion sections. But teaching online also requires specialized technical support in the form of an instructional designer who actually puts the course together, mounts it on a server, and makes sure that the whole thing runs smoothly. These people add to the expense of a course, and the money has to come from somewhere.

This is even more the case if the online course is offered to the general public *for free* as a Massive Open Online Course (MOOC). Psych 1, taught on ground, requires a staff of GSIs to hold discussion sections, grade writing assignments and exams, etc. When I’ve taught the course in Wheeler Auditorium, with an enrollment of perhaps 500 students, I’ve been fortunate to have as many as seven or eight GSIs to perform these

tasks before we run out of available GSIs (if we had more GSIs, the course could enroll more students). Now scale this up to 5,000 or 50,000 students, and tell me where the GSIs are going to come from, and who is going to pay them. When Michael Sandel's justly famous course on "Justice" at Harvard University was offered as a MOOC, the University had to recruit *volunteer* alumni of the course to serve as teaching assistants. Tell me how long that is going to last.

However, my online version of Psych 1 is not intended as a Massive Open Online Course (MOOC) – not least because I'm a MOOC skeptic.

- I don't understand the business model. Based on what I have read, universities provide MOOCs free to all who wish to enroll, and must devote resources to teaching the course, mounting it online, and grading assignments and exams without remuneration in the form of tuition. It would be one thing if MOOCs were intended as a revenue source for the institution involved, but that doesn't seem to be part of the business plan.
- Given that the students in MOOCs don't pay tuition and fees commensurate with the instruction they are getting, it seems to me that MOOCs must necessarily divert resources that would otherwise go to the education of matriculated students (whether they take courses onground or online).
- There is reason to be concerned that the development of MOOCs, which by definition reach beyond the boundaries of the home campus, will be incorporated into the curricular plans at other institutions – that, for example, Psych W1 might be adopted at some other college or university, in lieu of its own offering. At best, this would relegate the faculty on that campus to the role of glorified teaching assistant, and might even reduce its incentive to hire the faculty needed to teach the course. This would be uncollegial at the very least. And by reducing the demand for new faculty, would increase the difficulties that exiting graduate students will have on the job market. (San Jose State University has already tried to import Sandel's "Justice" course into its curriculum, raising vociferous objections from the faculty of its own philosophy department to the effect that if the Administration wanted such a course offered, then they should hire a new faculty member to teach it.)

Put bluntly, the online Psych W1 is not intended to be either massive or open. It is primarily intended to increase access to the introductory course for matriculated students. Virtually every freshman comes to college intending to take an introductory psychology course. On the other hand, given present resources (i.e., interested tenure-track faculty, GSI availability, and classroom size), we are only able to offer the course to about 1,200 students per year. If Psych W1 can play a role in UCB's program of outreach beyond the campus (as it currently does through such vehicles as webcasting and iTunes University), that will be an extra benefit.

I have no experience with "Web 2.0" social networking. I'm a Gutenberg Guy, and Web 1.0 is all I need. I don't blog, I don't tweet, I'm not on Facebook, and I'm not Linked In.

Chapter 18: Teaching Large Classes

In an earlier edition of *Teaching Tips*, McKeachie offered what might be called “the large-class heuristic” – namely, if you’re teaching a class of 50, you might as well teach a class of 500. The sentiment is right, but I’d lower the threshold to something like 30.

Small classes are nice, and I’m glad I had them (mostly) as an undergraduate, but they are increasingly a luxury. College enrollments are expanding faster than the ranks of the faculty to teach them, and college budgets are shrinking so that more and more courses are going to be taught without the benefit of teaching assistants to help – that is, in those colleges that have graduate teaching assistants to begin with. So faculty are going to have to learn how to do more, or at least as much, with less.

And it’s important that we do so, because, let’s face it: *students have to get through*. It often happens that a paucity of classes that students have difficulty completing their undergraduate degrees in the traditional four-year time-frame: difficulty completing lower-division prerequisites, and difficulty completing upper-division courses required for the major. Sometimes, “contingent” (i.e., non-tenure-track) faculty can be hired to teach some of these courses, and by and large these lecturers and other adjuncts do a great job. But it inevitably means that the tenure-track faculty are going to have to take up some of the slack – even in “research intensive” institutions like UC Berkeley. *Especially* in “research-intensive” institutions, because that’s where faculty teaching loads are the lightest. Faculty in “teaching-intensive” institutions (like CSU and the private liberal-arts colleges) are already pulling their weight, and more. This is part of what it means to do more with less.

But it can be done. I’ve taught both the introductory course and the mid-level survey course in personality without discussion sections – and only a single teaching assistant to hold office hours and help with exams. Doing so required relying on multiple-choice, computer-scored exams, and doing away with term papers (or, indeed, any kind of writing assignment). But it can be done.

And, as McKeachie says, students can still engage in active learning, even in large classes. But, as I’ve indicated earlier, I think his definition of “active learning” is too restrictive. Students can engage in active learning even when they study alone, by applying the PQ4R method to both readings and lectures. And, as I have written earlier, all too many students just don’t know how to study, how to read a textbook, or how to listen to a lecture. All too many think that it’s enough to read a chapter once, enough just to show up for lectures. They’re wrong, unfortunately, and they have to be taught otherwise.

Otherwise, McKeachie’s tips are all well-taken, and I endorse them. I think that two points about large lecture classes are particularly valuable.

1. Show up early and stay late. I try to arrive early for each class, and I try to stay after each class until the last student has left the room and the corridor outside. (Henry Gleitman, one of my teachers in graduate school (and author of the last great single-authored introductory text) taught intro in Irvine Auditorium, the largest venue on campus. A sometime actor and theater director, he arranged to set up the stage as a kind of living room, with an easy chair, footstool, and floor lamp, and for a while before class he'd just sit there, reading, and open to engagement with students.) In terms of atmosphere, this shows the students is that teaching isn't just something you deign to do between running your laboratory and attending conferences. It indicates to them that you actually take the job of *teacher* seriously. As a practical matter, however, it creates an opportunity for the students to make contact with you. Office hours aren't convenient for all students, who may at the very least have other, conflicting, classes, and this gives them another chance to make face-to-face contact. For the same reason, I expect GSIs to attend lectures (part of my job is to teach *them* psychology, too!), coming early and staying late.
2. Call on the very first student who raises his or her hand. This legitimizes question-asking during lecture. You may not be able to call on everyone who raises their hand – you've got a lecture to get through. You can apologize to later students with just that excuse – and, assuming that there's a LMS like bCourses attached to your course, encourage them to post their question to a dedicated "Queries and Comments" discussion board. But calling on the first student who raises his or her hand during each lecture shows that you're actually interested in give-and-take, and helps breach the anonymity that comes with the large-lecture-class territory.

McKeachie's points for working with teaching assistants, if you're lucky enough to have them (even in teaching-intensive colleges, it's sometimes possible to hire advanced undergraduates as assistants) are all well taken – if honored in the breach.

- According to UCB policy, instructors are supposed to meet regularly with their GSIs, though sometimes scheduling conflicts don't make this easy. I often find it easier on everyone simply to touch base with GSIs before class – another good reason to have them attend lectures.
- And, also according to UCB policy, instructors are supposed to visit discussion sections to observe their GSIs in action. This is harder to do. In the first place, you want to give your GSIs time to get comfortable with their discussion sections, and vice-versa. By the time that happens, the term may be half over. Moreover, there's a certain level of artificiality that attends "visitations" where the GSIs know they're being observed and evaluated, and so do the students. Everybody's on their best behavior, and I'm not sure much is learned (surprise visits are less artificial, to be sure, but they're also uncollegial and I don't do them).

It's my practice to write a detailed memo to my GSIs, outlining the various aspects of their roles, and what I expect of them. I also take them to lunch at the beginning of the

semester to iron out any details, and make clear that I am happy to meet with them, singly or together, whenever they feel the need.

Here's an example of such a memo (note that certain policies and procedures, e.g., with respect to switching sections, may have changed since this memo was written):

Welcome! The consciousness course is a fun course, very wide-ranging, with a group of students whose interests and backgrounds are wide-ranging as well (especially among the CogSci students). And, because of its subject matter, it's also a chance to make contact with a broad range of students and their concerns, a chance to master material outside our own specific areas, and a chance to put disparate concepts and principles together.

I have attached a draft of the course syllabus (it won't change much, if at all).

If we don't get to meet before then, I hope that we will be able to meet for lunch after the first class on Wednesday, September 3 (Free Speech Café, my treat) to get to know each other better and iron out any details. But in this memo, I'll outline the general structure of the course and your responsibilities.

A great deal of additional information about the course is available on the course website:

<https://bcourses.berkeley.edu>.

You've already got desk copies of the required texts. The primary text is Revonsuo's *Consciousness*. Also Searle's *Mysteries of Consciousness* and Lodge's *Thinks...*

Your basic job is to conduct the weekly discussion sections. Ultimately, each of you should have three of these, each with about 25 undergraduates in them, totaling about 70 students, roughly half Psychology and half Cognitive Science majors.

As soon as possible, but before Wednesday, September 3, you should get together and divide up the discussion sections. I do not care how you divide these up, except that each of you should take three. Let me know via e-mail which you have assigned yourselves. We want very much *not* to shift the days and times of sections. It would be a bad thing to drop students from the course at this point.

From the undergraduates' point of view, the principal purpose of the discussion sections is to permit them to become engaged with topics of special interest that cannot be addressed in any depth during the lectures. There's a lot of material here, even if I concentrated solely on the mind-body problem, and given that we try to do much more than that, there's even more material, and the shortness is aggravated further by the fact that there are only two hours of lectures per week. So, the purpose of discussion is emphatically *not* to rehash material from the text and lectures. If the readings or the lectures don't get something across there is always the "Queries and Comments" forum on the course website. Before each of the exams, I will conduct a review session, and I am accessible to the whole class via the Q&C forum. Discussion section is only valuable if it functions truly as an *extra*.

From your point of view, as graduate students, the major purpose of the discussion section is to give you some experience, in a relatively low-demand environment, with preparing and giving lectures. The real challenge in this course is that it is interdisciplinary, though if you stick with psychology, that will be broad enough for most people, most of the time. *Anybody* can teach undergraduate and graduate courses in

their own specialized area; being able to teach an interdisciplinary course like this, even if you don't really do it in a truly interdisciplinary manner, makes you stand out.

I would like you to conduct discussion sections in the following manner. Each week, prepare one "mini-lecture", 20-30 minutes in length, on some topic relevant to that week's readings and/or lectures. Deliver it to each of your sections that week, improving the content and polishing your delivery as you go. By the end of the semester you will have given roughly 45 lectures, you will be very good at lecturing, and you will be well on your way toward having your own set of consciousness lectures.

I can suggest topics for the mini-lectures. It's OK if you collaborate, such that one of you prepares something one week for both of you to teach, and the other does the same for the next week.

Here are some ideas for other sections, roughly in order of the course syllabus:

1. **8/27-28.** *No sections this week: The class hasn't even met yet!*
2. **9/3-4.** You should plan to meet your sections the very first week of classes. I know that doesn't give you much time to prepare your first mini-lecture, so don't even try. Instead, spend some time talking to your students about yourself -- where you came from, how you got interested in psychology, what your undergraduate psychology major was like, why you came to graduate school, why you came *here* to graduate school, what kind of research you do, what kind of research your advisor does, what kind of career you want to have after you take your PhD. Open up the floor for questions, and get the students to introduce themselves (name, class, where they went to high school, major, interest within major), and to talk about the things psychological or cognitive-science-y that *they're* interested in. This may give you some ideas for mini-lectures or other section activities later in the semester.
3. **9/10-11.** Do something on the limits of introspection, taking them through the Nisbett & Wilson 1977 paper (see Farthing, Chapter 3).
4. **9/17-18.** Review the classic approaches to the mind-body problem: dualism, idealism, and materialism (see Farthing, Chapter 4).
5. **9/24-25.** Review the "split brain" experiments and their implications for consciousness (See Farthing, Chapter 5).
6. **10/1-2.** Talk about automaticity and the free-will problem, with special reference to the work of John Bargh or Dan Wegner.
7. **10/8-9.** Talk about blindsight as an example of implicit perception, or the amnesic syndrome as an example of implicit memory (start with Farthing's Chapter 6).
8. **10/15-16.** Talk about the Implicit Attitude Test, and the idea of unconscious attitudes (you could even get them to take the IAT beforehand).
9. **10/22-23.** No discussion sections the week of the Midterm Exam: they'll be exhausted on Wednesday, and all they'll want to do is talk about the exam, and you'll want the extra time for grading.
10. **10/29-30.** Talk about the Terry Schiavo case, and the question of how we know whether someone in a coma or the persistent vegetative state might actually be conscious, and the implications of the case (and the research literature) for end-of-life planning.
11. **11/5-6.** Present something on the content analysis of dreams, perhaps based on Domhoff's website at UC Santa Cruz.
12. **11/12-13.** I'll give you two short videos on hypnosis: Just show one or excerpts of both.
13. **11/19-20.** Have students fill out the Tellegen Absorption Scale, the Imaginal Processes Inventory (a daydreaming scale), the Swedish Flow Proneness Questionnaire, and a mindwandering scale (see the Smallwood & Schooler 2006 *Psych. Bull.* paper), all of which are available in the Lecture Supplements, score their own responses and compare them to published norms, and then discuss the components of the scale.

14. **11/26-27.** No sections Thanksgiving week. I may lecture on the Wednesday before Thanksgiving, for the few students who will be on campus, but no student will want to come to section on Wednesday afternoon.
15. **12/3-4.** Do course evaluations and then lead a discussion of Lodge's *Thinks...* (see more below). This is usually a big hit, and when you read it you'll see why. You don't have to do any Lit-Crit heroics. Just read the novel and lead a discussion of it as it relates to the course (which almost every page, except perhaps the sex scenes, does). You'll find some very helpful material at <http://us.penguingroup.com/static/rguides/us/thinks.html>.

If you have other ideas, feel free to develop them. Whatever you prepare, I'd appreciate receiving a copy, for possible use in future offerings. And I'll reciprocate, by giving you copies of my PowerPoint presentations for your future use.

I will intrude on the contents of discussion sections only minimally. All I ask is that they be devoted to some substantive area of psychology, and that they be empirically based (not too much to ask, I don't think). My lectures are light on practical applications, so that might be one good area to focus on. You are free, even encouraged, to emphasize your own unique orientations within psychology. In order to avoid overlap with the lectures, you can get a good idea of what I'll be talking about by consulting the Lecture Illustrations and Supplements posted to the course website.

Please do *not* give quizzes of any sort during discussion sections. In my experience, section quizzes only reinforce the students' concern with grades and social comparison; I want them learning and discussing instead.

What about the rest of the academic hour? Discussion sections are for discussion, and for the remaining 20-30 minutes you should open up the time for students to raise comments and questions. Don't feel that you have to respond to each question with a mini-lecture. If you don't have much to say, try to turn it back on the student him- or herself -- the best part of education is learning to answer one's own questions; or try to engage someone else in the class. If all else fails, admit you don't know the answer, promise to find out by the next class session, and then by all means follow through on that promise.

Attendance at discussion sections is required. Discussion sections are a scarce resource. A student who is not attending sections is depriving a student of the course. Thus, you should take the roll at the beginning of each meeting (a dated sign-in sheet is fine for this purpose). Sections won't be held during the first week of the semester, so you have some extra time to get your act together. But count attendance by giving them points for attendance and for participation. Setting aside the first week, you've got 14 weeks, and 30 points to deal with (see the syllabus), so I'd hand out one point for attendance, and one point for participation, per week; then give everyone some free points to bring the attendance total to 15, and extra points to fill out the 15 points for participation. But you can do this any way you see fit, as long as your distributions of participation scores are roughly equivalent at the end of the semester.

There is no term paper in the course. One-third of the papers would be on dualism vs. materialism, one-third on free will, and the remainder on Freud vs. Jung on the meaning of dreams.

However, the course does have writing requirement, in the form of postings to the course website. These are intended to give students a writing opportunity that is both more structured and easy to deal with. , and I would like you to keep a record of your students as they fulfill this requirement. All I ask you to do is glance over the postings from the students in your sections, make sure they're minimally acceptable (according to the criteria laid out in the syllabus), and record either zero or full credit in the gradebook on

the website (you'll have access to this). You don't have to read them thoroughly, and you don't have to comment on every one. *Do this as soon as possible after the deadline, and then post an announcement that the grades have been recorded.* Then, go back and comment on one section's postings for Posting #1, another for Posting #2, and the third for Posting #3, starting the rotation again for Posting #4. This way everybody gets comments on some of their postings, and you're not overwhelmed by having to make comments on everyone's, all the time. You can also encourage students to comment on each other's postings, but we don't require them to do so.

Forum postings for discussion sections should *not* be posted to Comments and Queries forum -- they clutter the space, and make it hard for me to find the messages I'm supposed to respond to, and make it hard for you to find the postings you're supposed to grade. Instead, they should be posted to their section-specific "Topic" of the relevant forum (there is one such topic for each section of the course).

If you have to miss a section, due to illness or attendance at a conference, try to arrange for the other GSI to cover for you. If that doesn't work, I'll try to do so, schedule permitting.

In addition to conducting your set of discussion sections, you should plan to attend my weekly lectures on Mondays and Wednesdays. This enables students to contact you outside of section if they need to speak to you personally. Part of my job is to teach *you* as well -- at least insofar as I help you to integrate the material of this diverse field, remind you of some things that you may have learned once and subsequently forgotten, and fill in some gaps in your undergraduate preparation. But equally important, you can learn both good and bad things from my example. Remember, your GSI appointment is supposed to be a learning experience for you, not just a drudge. Moreover, if you are in attendance at the lectures it will be easier for the students to contact you. If you can't attend physically, there is always the webcast.

According to current plans, you do not have to do anything to help me get ready for lectures. I prepare all my own graphic materials, I set up my own equipment. I do not expect to be absent for any lectures. However, if I need your help on an emergency basis, I will call on you as needed.

You should also plan to attend the midterms and the final exam. While you are not asked to construct the exams, or to do formal pre-exam reviews (I do these, in class before the midterm, and then again immediately before the final), I do depend on you to grade them. In view of the 9 forum postings, the exams will be strictly short-answer, and thus pretty easy to grade pretty objectively -- especially in view of the fact that I give you a pretty thorough scoring guide. I don't anticipate any trouble.

I hope to give the students feedback within five days of each exam -- that is, on the Monday after the Wednesday exam. So what I will need from you is an updated spreadsheet showing each student's score on each item of the exam (so I can correct for bad items if necessary). We'll return the exams to the students in section, and I'll enter their grades manually into the grade sheet on the course website. At the end of the semester, you will determine each student's section grade, and then we will combine all this information to produce a final grade. I enter those grades as well. But it is important that I possess a copy of the updated spreadsheet after each exam has been scored. After all, I wrote the exam, and I will have to deal with any students' queries about the exam or their performance.

Our final exam is scheduled for the regular Exam Period, Thursday, December 18, from 7 to 10 in the evening. Please make your end-of-semester arrangements so that you can

stay on campus until the grades are in: that's what I am required to do, too. We have 96 hours, or four business days, after the exam to get the grades in.

Remember, you are not responsible for preparing the exams or for conducting the pre-exam review sessions. Those are in my job description. I also set the curve, which is generous but not too liberal. You also should resist the students' tendency to take up time in discussion section with questions about the immediately past exam. I give the students detailed written feedback about the exams via the course website. This should supply all their needs, so you needn't spend any section time discussing *past* exams either.

I post copies of previous exams (and answers) to the course website. Refer students there.

You should establish a schedule of office hours. About two (2) hours a week should be fine: that's what I do. Students hardly ever show up. My policy is also to be available before and after class (which is why I try to show up early, and try to stay in or around the lecture hall until the last undergraduate has left), and by appointment. Students do not use office hours effectively, except right before exams -- when there are too many to cope with. But we must schedule them anyway: it's University policy for all instructional staff.

At the end of the semester you will have to report a section grades for each student. Actually two such grades: one based on section attendance and participation (total 30 points). You'll also be assigning the students credit, as the semester goes on, for their website Discussion postings (45 points). I've designated each of you as "Head GSI", so that you can make entries into the online gradebook.

There's no RPP component to this course.

You also control admission to your sections. Your limit is approximately 70 students, so once you hit 70 don't add anyone unless someone drops. Adds are done manually, I think, through Harumi Quinones (Psychology) or Carol Snow (CogSci). Beginning the first day of class, and for the next two weeks, students may badger you to get into the course. You are, effectively, the gatekeepers to the course: the only way into the course is through a discussion section, and the number and size of discussion sections is strictly limited. Ideally, each of you should have three discussion sections totaling about 70-75 students. If you have a section that is undersubscribed, let people in until you have your quota. If you have a section that is fully subscribed, add people as others drop out. In either case, you should maintain a steady state of 70-75 students. It's OK if you have one section that's oversubscribed, so long as at least one other section is undersubscribed, so that your total doesn't go much above 70. Make sure that the students you admit have the prerequisites: Psych 1 or 2 or CogSci 1 at the very least; Psych 120 or CogSci 100 as well, even better. Otherwise, they'll be lost, and we'll all be overburdened explaining things to them.

Because every student must have a discussion section, and discussion sections cannot be oversubscribed, students should be added in the order of their appearance on the waitlist for *the section in question*. Because this is an upper-division course, we give preference to seniors, then juniors, then sophomores who have the prerequisites. We also give preference to Psych and CogSci majors. Their order of appearance on the waitlist for the *lecture* doesn't matter.

Students who are already properly and fully registered for the course may wish to change sections. Ordinarily, they should *not* do this through Tele-Bears. The reason for this is that Tele-Bears forces them to drop the course, and when they attempt to re-register they

usually find themselves at the bottom of a waiting list. Accordingly, during the first couple of weeks you should run an informal “section-swap”, in which students can trade sections with each other. If someone wants to change sections, they should find someone willing to trade.

No matter how much care we take, some students may try to “crash” the course by attending discussion sections, and taking exams, even though they are not registered. Then they will present us with a *fait accompli* at the end of the semester, and petition for late enrollment. We rarely succumb to this ploy. Accordingly, you should announce to your discussion sections that students who are not registered for the course will not receive credit for section attendance or exams.

I am happy to meet with you both on a regular basis to discuss teaching strategy, etc., but this is your option. I am also required, by University policy, to visit your section, and watch you in action, but I will do this only once, and only by prior arrangement.

I don't think I have left anything out, but if you have any questions be sure to raise them when we meet on Wednesday.

So, in summary, here's the breakdown of your weekly commitment to the course. I am assuming that GSI positions are nominally half time, thus 20 hours per week, though on most weeks your commitment will be closer to 15 hours. Here's how I estimate things work out weekly:

Attendance at lectures	2 hours
Conduct 3 discussion sections per week	3 hours
Preparation of discussion mini-lecture	5 hours (max)
Scheduled office hours	2 hours (students will rarely show up)
Grading of exams	5 hours (bank this time weekly)
Reviewing forum postings	3 hours

WEEKLY TOTAL	20 HOURS (with lots of wiggle room)

Not too bad, I think, especially if you plan your life in advance.

Let's make contact on Wednesday. I don't need help getting materials to the classroom, but if you want to walk over with me, let's meet at 9:30 at my office. If you need to get hold of me, I check my e-mail several times a day M-F, and at least twice a day on weekends and holidays (though I don't write e-mail on Sundays or holidays).

See you that Wednesday – in class, maybe before, and for lunch afterwards. And again, welcome to the course! I look forward to working with you.

Chapter 19: Laboratory Instruction

Laboratory courses are pretty rare in psychology, and for reasons good and bad.

The Bad, Part 1: Like intro and stats, this is a course that faculty are increasingly reluctant to teach (and, as with intro and stats, willingness to teach the course is an asset in a job application).

The Bad, Part 2: Most psychology departments don't have the dedicated teaching laboratories that are a fixture in pretty much every biology, chemistry, and physics department.

The Good (at least relatively speaking): There are ethical concerns involving both animal and human subjects. Gone are the days when every undergraduate could get a white rat to train (I got a goldfish, for a particularly interesting exercise, but that's another story). And you can't have college sophomores running around campus doing experiments on other students, either. For better or worse, "human subjects" committees make it difficult for untrained undergraduates to actually get involved as experimenters, even in demonstration experiments.

Berkeley's Research Participation Program (there are similar programs in most psychology departments now) is supposed to fill this gap, but I suspect that the pedagogical purpose of RPP is honored mostly in the breach. Mostly, students "participate" in research as *subjects*, not *experimenters*. They get some insight into the experiment during the debriefing session, but it's not clear how much. They never get to find out the outcome of the experiment, for example – how the data was (*sic*) analyzed, for example, or how the results bear on the hypothesis of the study. Moreover, the pedagogical benefit is vitiated somewhat by the fact that students' research participation is not guided by a pedagogical purpose. It's entirely possible, for example, for students to fulfill their RPP requirement by completing questionnaires online, never darkening the inside of an actual laboratory room nor encountering an experimenter face-to-face. Still, it's something, and that's not nothing.

The students in my online introductory course don't get to participate in RPP, because they're scattered across the state and country if not the world. Instead, I have them complete a series of online lab exercises offered by the [ZAPS 2.0 software package published by W.W. Norton](#) (ZAPS is an acronym for the name given to the package by its Dutch developers; a second edition is currently in beta testing). ZAPS offers a wide variety of data-collection exercises, focused mostly on cognitive psychology, including versions of classic experiments (e.g., the Stroop effect and the serial-position effect). Students read about the phenomenon, actually do the experiment, and can compare their data to norms derived from other students who have also completed the exercise. Moreover, by constraining their selection of ZAPS exercises, Chinese-menu style (one from Column A, one from column B...), I can ensure that they're exposed to a fuller variety of experimental paradigms. They're more *subjects* than *experimenters*, though – but for the reasons stated at the outset, that's about all we can do.

Though maybe not. It's possible to construct a "Methods" course that, while not giving students actual experience as experimenters, still gives them a fuller exposure (breadth and depth) to research methods in psychology. I was part of such a course at Harvard in the late 1970s (I don't know whether it's still on the books), and it seemed to work pretty well. It was team-taught, with each faculty member taking a week to discuss methodological issues in his or her area of research, and take students through one or two classic experiments in detail. Dave Green, who organized the course, talked about

psychophysical methods and signal-detection theory; Duncan Luce talked about mathematical modeling; I talked about demand characteristics, ecological validity, and other aspects of what Martin Orne, who was my graduate advisor, called “the social psychology of the psychological experiment”, using the Milgram experiment as a foil (don’t get me started).

You get the idea. Each module would include a discussion of basic methodological issues intrinsic to that area of research, plus a detailed analysis of some specimen, preferably classic, experiment. For exemplary presentations of classic and other important experiments in psychology, see

- *Great Experiments in Psychology* by Henry Edward Garrett (3 editions).
- *Classic Experiments in Psychology* by Douglas Mook.
- *Forty Studies that Changed Psychology* by Roger Hock (7 editions; but don’t use the chapter on hypnosis).

Here’s what the syllabus for such a course might look like (just off the top of my head; unfortunately, I no longer have the syllabus for the Harvard course – and besides, it was 40 years ago):

1. *Introduction*. Experimental vs. Correlational methods. Basic statistical concepts: central tendency, variability, confidence intervals, statistical significance, effect size, power analysis (all of this presented strictly at a conceptual level, the computational mechanics deferred to the students’ statistics course). I do this in one 50-minute lecture in my online intro course, using the classic “Sternberg experiment” on short-term memory search as an example.
2. *Biological Psychology*. Here you can focus on either animal or human research. On the animal side, you can talk about naturalistic-observation studies, like Franz DeWalls studies of altruism in bonobos. But human cognitive neuroscience is (quite rightly) all the rage now, so I’d probably do there instead. Neuropsychological analyses of brain-damaged patients, addressing the question of functional specialization. Pros and cons of various brain-imaging methods, from EEG and event-related potentials to through implanted micro-electrodes to PET and fMRI and trans-cranial magnetic stimulation, oriented around the search for functional specialization. Show an experiment on H.M., perhaps, plus an fMRI study illuminating (pun intended) on the medial-temporal-lobe memory system, showing how neuropsychological and neuroscientific methods complement each other.
3. *Learning*. Comparing and contrasting classical and experimental conditioning in animals. Observational learning, contrasting Bandura’s “Bobo doll” experiment with Mineka’s experiments on observational fear conditioning in monkeys (the latter being One of the Best Experiments, Ever).
4. *Sensation*. Psychophysics and signal-detection theory, maybe using one of Fechner’s studies, plus a demonstration of SDT in action, varying elements of the payoff matrix to illustrate effects on sensitivity and bias.

5. *Perception*. Cues to motion and depth perception, separation of figure and ground. Maybe one of Proffitt's experiments on "embodied perception".
6. *Memory*. Methods for the stage analysis of memory (encoding, storage, retrieval). The serial-position effect as an illustration of short- vs. long-term memory. Maybe one of Loftus's studies of the post-event misinformation effect.
7. *Thinking*. The debate over the "dual-code" theory of knowledge representation; Shepard's and Kosslyn's experiments demonstrating the reality of mental images.
8. *Language*. Basic psycholinguistic methods. Johnston and McClelland's studies of the word-letter phenomenon (aka the word superiority effect). Or eye-tracking in reading.
9. *Motivation and Emotion*. Cross-cultural studies of facial expressions of emotion.
10. *Development*. Longitudinal vs. cross-sectional studies. Special problems of infant development, focusing on language acquisition (segmenting the speech stream), numeracy (Gelman and Gallistel's experiments), or theory of mind (Baillargeon's experiments).
11. *Personality*. Compare and contrast methods of test construction (rational, factor-analytic, empirical, and sequential). Use of personality questionnaires in behavior-genetic studies (e.g., the twin method) to tease apart genetic vs. environmental contributions to individual differences.
12. *Social Psychology*. Any experiment on any of the "Four As" of social psychology: attraction, aggression, altruism, and acquiescence. Ethical questions arising out of the use of deception. Demand characteristics, ecological validity, and the social psychology of the psychological experiment.
13. *Psychopathology*. Randomized controlled trials of psychotherapy outcome. A study of psychological deficit in schizophrenia.
14. *Conclusion*. Divide the class into small groups, and ask each group to design an experiment on some topic that interests them.

Chapter 20: Teaching Students to be... Strategic and Self-Regulated Learners

I don't have much more to say about strategic and self-regulated learning, so I'll just repeat what I've written before, though more succinctly: PQ4R! PQ4R!! PQ4R!!!

Chapter 21: Teaching Thinking

About teaching thinking, however, there's a lot more to be said – not least because there's an awfully large literature claiming that people don't think very well. This is a trend I've dubbed the "People Are Stupid" School of Psychology, and it has emerged as an unfortunate and unintended consequence of Kahneman and Tversky's work on judgment heuristics. To quote myself, commenting on a paper by Joachim Kruger and David Funder (Kihlstrom, *Behavioral & Brain Sciences*, 2004)

The school consists of a number of theorists who tend to embrace three distinct propositions about human experience, thought, and action. (1) *People are fundamentally irrational*: In the ordinary course of everyday living, we do not think very hard about anything, preferring heuristic shortcuts that lead us astray; and we let our feelings and motives get in the way of our thought processes (e.g., Gilovich, 1991; Nisbett & Ross, 1980; Ross, 1977). (2) *We are on automatic pilot*: We do not pay much attention to what is going on around us, and to what we are doing; as a result, our thoughts and actions are inordinately swayed by first impressions and immediate responses; free will is an illusion (e.g., Bargh, 1995; Gilbert, 1991; Wegner, 2002). (3) *We don't know what we're doing*: When all is said and done, our behavior is mostly unconscious; the reasons we give are little more than post-hoc rationalizations, and our forecasts are invalid; to make things worse, consciousness actually gets in the way of adaptive behavior (e.g., Nisbett & Wilson, 1977; Wilson, 2002).

As K&F's review suggests, PASSP is heavily populated by social psychologists; curiously, cognitive and developmental psychologists seem less inclined to embrace such a monolithic view of human experience, thought, and action. It is not completely clear why this might be so. K&F may well be right that social psychologists' emphasis on bias and error is to some extent a natural consequence of their emphasis on null hypothesis statistical testing, where rational, conscious, deliberate social behavior is the hypothesis to be confirmed, and lapses from prescriptive norms are valued as evidence of how things actually work. But because everybody engages in null hypothesis significance testing, this does not explain why social psychology fell head over heels for peopleare stupidism. Certainly a focus on provocative and counterintuitive findings helps social psychologists maintain their course enrollments, and helps distinguish "scientific" social psychology from the common-sense social psychology of our grandmothers.

To some extent, PASSP seems to have arisen in reaction to the cognitive revolution within social psychology, which emphasized the role of conscious, deliberate thought in social interaction at the expense of feelings, drives, and impulses (Langer, Blank, & Chanowitz, 1978). As such, it shares its origins with the affective counterrevolution (Zajonc, 1980), which sought to replace cold cognition with hot cognition, if not to abandon cognition entirely in favor of affects and drives. PASSP acquired additional force from the resurgence of biology within psychology: Evolutionary psychology explains human thought and behavior in terms of instinctual tendencies carried on the genes (Buss, 1999), while social neuroscience (Ochsner & Lieberman, 2001) can slip easily into a reductionism that eliminates the mental in favor of the neural -- which is one good reason to prefer the term *social neuropsychology* (Klein & Kihlstrom, 1998; Klein, Loftus, & Kihlstrom, 1996). There is also something about conscious awareness, deliberation, and choice that seems to make some social psychologists especially nervous. They feel they need to get rid of it so they can have a completely deterministic account of their domain -- just like a real science (Bargh & Ferguson, 2000).

But there are even deeper roots of social psychology's preference for the thoughtless, the unconscious, and the automatic. Somehow, fairly early on, social psychology got defined as the study of the effect of the social situation on the individual's experience, thought, and action (Bowers, 1973). Think, for example, of the classic work on the "Four As" of social psychology: attitudes, attraction, aggression, and altruism; think, too, on the history of research on conformity and compliance, from Asch and before to Milgram and beyond. In each case, the experimenter manipulates some aspect of the environment, and observes its effect on subjects' behavior. Sometimes there were inferences about intervening mental states, but not very often -- otherwise, the cognitive revolution in social psychology wouldn't have been a revolution. Almost inevitably, the emphasis on how people are pushed around by situational factors led to a kind of "Candid Camera" rhetorical stance in which social psychologists' lectures and textbooks focused

inordinately on just how ridiculous -- how *stupid* -- people can be, *depending on the situation* -- a situation that, in many cases, has been expressly contrived to make people look ridiculous and stupid.

In turn, the doctrine of situationism in social psychology found a natural affinity with the behaviorism that dominated elsewhere in academic psychology (Zimbardo, 1999). Watson and Skinner actively rejected mentalism (Skinner, 1990), while classical social psychology mostly just ignored it. Behaviorism, with its emphasis on stimulus and response, did not survive the cognitive revolution, but the “positivistic reserve” (Flanagan, 1992) that was part and parcel of behaviorism is still with us. As a result, we grudgingly accept intervening mental states and processes as necessary to the explanation of behavior -- but we want them to be as mechanical as possible. We’ve replaced both the black box and the ghost in the machine with a clockwork mechanism that is as close to reflex activity as we can get and still pay lip service to cognitivism (Ross & Nisbett, 1991). In a theoretical environment in which social behaviors are automatically generated by mental states that may be preconscious, and which in turn are evoked automatically by cues in the social situation (Bargh, 1990), interpersonal behavior may not be precisely mindless, it might just as well be. We had a cognitive revolution for this - to be told that Skinner had it right after all?

K&F suggest that we can solve the problem of social psychology by restoring balance between the positive and the negative, between accuracy and bias, and between accomplishment and error. They also call for an expansion of theory to encompass both positive and negative aspects of social relations. Both suggestions are well taken, but there is another one that might be considered as well. That is to change the definition of social psychology itself, from the study of *social influence*, with its implication of unidirectional causality from situation to thought behavior, to the study of *mind in social interaction*, with an express focus on the reciprocal interactions between the person and the situation, and between the individual and the group (Bandura, 1978; Bowers, 1973). In this way, social psychology can link psychology with the other social sciences, just as biological psychology links it to the natural sciences.

Don’t get me wrong: Kahneman got the Nobel Prize in Economics for a reason. He and Tversky and their *confreres* taught us a lot about how people think and reason, and make judgments and decisions. But it’s one thing to demonstrate that people don’t always follow the rules of normative rationality, and it’s another thing to assert that people are just plain stupid, irrational, and prone to all sorts of illusions and biases. Most judgments and decisions, in the ordinary course of everyday living, take place under conditions of *uncertainty*, where people lack all the information, or the time, required to make normatively rational decisions. Under these circumstances, judgment heuristics are all we’ve got. For an overview of modern research on judgment and decision-making, I recommend *Rational Choice in an Uncertain World: The Psychology of Judgment and Decision Making* (2e, 2010) by Reid Hastie and Robyn Dawes, and *Algorithms to Live By: The Computer Science of Human Decisions* (2016) by Brian Christian and Tom Griffiths.

Still, we’re scientists, and one thing we can definitely do in our courses is help students become aware of the liabilities of everyday reasoning, the heuristics and biases and shape our judgments and decisions, and to correct for them when we can. The first step, then, is to teach them what some of these heuristics and biases are, so they can watch out for them in themselves and others. One useful corrective is *Mindware: Tools*

for *Smart Thinking* (2015) by Richard Nisbett, a prominent social psychologist (and one of the few psychologists elected to the National Academy of Sciences). Nisbett's book with Lee Ross, *Human Inference: Strategies and shortcomings of the Intuitive Psychologist* (1980), introduced social psychologists to Kahneman and Tversky's "judgment heuristics" program – and, I believe, inadvertently set PASSP in motion. He's also all too enthusiastic about the "power of the situation" to control human experience, thought, and action (see his other book with Ross, *The Person and the Situation: Perspectives of Social Psychology*, 1991). But Nisbett's prescriptions for introducing a little more rationality into our everyday reasoning are right on point.

More affirmatively, we can ensure that students learn the basic principles of probabilistic reasoning (if you want to brush up, Hastie and Dawes include a very useful appendix outlining the basic principles of probability theory). When I was at the University of Arizona, I chaired the committee that rewrote the General Education requirements for the College of Arts and Sciences. Our proudest accomplishment, undertaken at the behest of the Mathematics Department, was to get rid of the old calculus requirement, and substitute discrete mathematics instead. Thus, every student got a dose of logic, probability theory, Bayes' Theorem, information theory, game theory, and the like. (We also introduced new GenEd courses in the natural sciences, substituting for the usual introductory courses ordinarily geared toward prospective majors: one on the evolution of the universe and of earth, covering physics, chemistry, astronomy, and geology; the other on the evolution of life, covering biology, biochemistry, and physical anthropology. But that's another story.) We're just psychologists, and we don't control the GenEd curriculum at Berkeley, but at least the prerequisites for the undergraduate major include discrete math instead of calculus, which is probably more useful to almost everyone outside of a math major. When you get your faculty position, if your department still requires calculus, try to persuade them to switch to discrete math.

There are other things we can do. I like to think that by teaching students how to evaluate psychology research, we contribute to enhancing their thinking skills generally. For this purpose I highly recommend Keith Stanovich's *How to Think Straight about Psychology* (10e, 2013). Intended as a supplement in the introductory course, and usable as a text in a methods course, it helps students understand the difference between pseudoscience and science in psychology, evaluate psychological research presented in popular media, and apply the concepts and principles of psychology to understanding everyday life and world events. It covers a wide variety of topics in a very engaging way, as this chapter-by-chapter survey indicates:

1. the definition of science and its contrast with folk wisdom;
2. the importance of theories and hypotheses being falsifiable;
3. operational definitions of concepts;
4. problems with case studies and testimonials;
5. confusions between correlation and causation;
6. randomization and control groups;
7. basic vs. applied research;
8. converging evidence;

9. interaction and multiple causation;
10. probabilistic reasoning;
11. clinical vs. statistical prediction;
12. the relation between scientific psychology and folk psychology.

The bottom line is simple: We're psychologists, we explain human behavior in terms of how people think. So training our students to think like psychologists – *real* psychologists, not the charlatans on television or radio talk shows – will help them to think more clearly about themselves, other people, and things in general.

Chapter 22: Ethics of Teaching

The ethics of teaching boil down to two simple injunctions:

1. Do your job.
2. Don't sleep with the students.

The second injunction is pretty straightforward, but the first one requires a little unpacking.

In an earlier edition of *teaching Tips* (5e, 1978, the earliest one I've owned), McKeachie identifies "Six Roles for Teachers", which offer as good a framework as any for viewing the ethical issues surrounding teaching. These are:

1. **Expert.** You're the teacher, they're the students, and you're the teacher because you know more about the subject matter than they do. It's your first priority to transmit to the students the information, concepts, and ideas that constitute the subject matter of the course. Of course, as an apprentice teacher, you may not know *much* more than the students do about any particular topic. Social psychologists may not know too much about the details of synaptic transmission, and neuroscientists may not know much about conformity and compliance. But, while you're mastering your course's subject area, all you really have to do is keep ahead of the students. Pyotr Illyich Tchaikovsky, the pioneering 19th-century Russian composer, was appointed to teach music theory at the St. Petersburg Conservatory, but he realized that he had never had a proper course in the subject. He got through the first year by assigning a standard text and keeping one chapter ahead of his students. He succeeded that way, and learned theory and developed a great course in the process. You can too.
2. **Formal Authority.** You're the teacher, and it's your classroom. Part of your job is to represent the institution in which you're teaching – its policies and procedures, its mores and traditions. Sociologists distinguish among various forms of authority: the *structural* authority of a police officer, the *sapiential* authority of a teacher who possesses special knowledge, the *charismatic* authority of a priest, the *aesculapian* authority of the physician (which is a

combination of the first three), the *moral* authority of one who is trying to change things for the better, and the *personal* authority that results from one's qualities of personality. As a teacher, you've got sapiential authority (see #1, above). But you've also got a measure of structural authority (at Harvard, faculty members receive ID cards designating them as an "Officer" of the University). You set the goals of the class, and the procedures by which it operates (including deadlines), and specify these in the syllabus. As a GSI, you don't have complete independence in this matter, and as a teacher at any level, you may wish to consult with your students about topics for class, evaluation procedures, deadlines, and the like. But in the final analysis, authority in the classroom rests with you, and you have an ethical responsibility to exercise it in order to insure that the classroom is orderly, that students behave in a collegial manner toward each other, etc.

3. **Ego Ideal.** The term, of course, comes from psychoanalysis: it's an idealized representation of oneself, derived from interactions with one's parents and other relationships. In the teaching context, that means mostly that you need to communicate enthusiasm for the subject-matter of the course, so that the students will be enthusiastic about it as well. If you're not enthusiastic about some module in the course – if you don't think synaptic transmission is particularly interesting, or you think that behavioral studies of compliance and conformity are too wishy-washy, or you don't think that personality questionnaires are useful – *find a way to make it interesting*. If it's interesting to you, it'll be interesting to them. If all else fails, inform the students of why they have to know this material – how it fits in the larger structure of the course, or in the history of psychology, something. If you're not enthusiastic about the course as a whole (because you were assigned it despite your preferences), you can do the same thing. But however you do it, students expect that their teachers will be interested and enthusiastic about what they're teaching.
4. **Socializing Agent.** At commencement exercises, as they move the tassels on their mortarboards from right to left, graduates are welcomed into "the company of educated men and women" (or words to that effect). Even if graduates are going home to run the family farm or hardware store, and continuing into a life as scholars, college teachers serve as "gatekeepers" to the intellectual community at large, and to the community of psychologists in particular. By our example, we show them how to live the scholarly life, a life of continuous questioning and self-education; and especially how psychologists conduct themselves. If we're not trained and licensed to practice psychotherapy, we don't. If we encounter a troubled student, we suggest that s/he might consult the mental-health staff at the campus health center. And even if we're trained as clinical psychologists, we do not diagnose "at a distance" people, including public figures, we have not examined personally – no matter how strongly we might think they suffer from narcissistic personality disorder or some other syndrome.
5. **Facilitator.** Teachers don't just teach *at* students, and hope they'll learn what they're supposed to learn. Part of our job is to *help* them learn, by providing them with study skills (like PQ4R) and habits (like meeting deadlines) that they need to succeed as students and in later life. And part of our job is to help

students define themselves, and become more creative and independent in whatever it is they choose to do – as college students and as college graduates. Most important, perhaps, it's our job to prepare them for a lifetime of learning.

- 6. Person.** However much they might prefer lectures to discussion sections, teachers aren't automatons. They're active, sentient beings, trying to make sense of the world just as their students are, and it's important for students to understand that – to see their teachers as people too: people who have feelings and goals, and who would rather be liked than disliked. This is not to say that teachers should turn their classrooms into confessionals. If we're supposed to "save the world on our own time", we're also supposed to get psychotherapy on our own time. The classroom is not the place to talk about your marriage, or your relations with your in-laws. They're your students, and you're their teacher; you're not friends. But it is perfectly appropriate to share with your students personal experiences, outside the classroom or laboratory that are relevant to what you're teaching. Just don't go overboard. No sleeping with the students.

To which I would add a seventh role:

- 7. Worker.** You have a job to do, and you're being paid to do it, so you should do it conscientiously, and do it as well as you possibly can. You should show up for class on time (if not early), and leave class only when it's scheduled to be over (if not later). And you need to be prepared for whatever's on the syllabus. But with these responsibilities should come some rights. As a GSI, you're both a worker and a student, and sometimes these roles come into conflict. Students are expected to spend long hours in the laboratory, and preparing for seminars and research presentations. But, as workers, GSIs have a right to expect some kind of compensation for overtime or overloads. In the past, teaching assistants didn't get any such compensation, nor even an explicit set of rules governing what an appropriate teaching load is. Similarly, they didn't qualify for health, dental, or vision benefits, life insurance, or worker's compensation – the kinds of perks that employees of large organizations usually expect. Nor did they get any particular protection from discrimination, harassment, and exploitation. Hence the movement to organize teaching assistants by unions. At UC Berkeley, for example, GSIs (but not GSRs) are represented by the United Auto Workers, Local 2865. In my view, the fact that GSIs, but not GSRs, have union representation reflects a total misconception, on the part of the administration, faculty, and graduate students of what Ernest Boyer called "the scholarship of teaching" (see my reflections on McKeachie's "Preface", above). The general idea, apparently, is that research is part of a graduate student's scholarly training, and something like union representation shouldn't be allowed to interfere in the mentor-mentee relationship. But, as Boyer points out, *teaching is scholarship too*, and what's sauce for the GSR goose is sauce for the GSI gander. No, this isn't an argument to get rid of union representation for GSIs. Rather, it's an argument for union representation for GSRs, as well. After all, GSRs, no less than GSIs, are vulnerable to overwork, discrimination, harassment, and exploitation; they're entitled to overtime compensation (or limits

on the amount of time they should be forced to spend in the lab) too. Some faculty *have* exploited students, in various ways, both as teaching assistants and as research assistants, and for our collective sins we deserve to have graduate students represented by a union. But there's a better way. When I was a graduate student, all graduate students were required to serve as teaching assistants, as part of our scholarly training, regardless of our source of support -- which was supplemented by a stipend to bring all the graduate students to the same level of funding (except that students who brought an outside funding, like an NSF fellowship got an extra \$500). A student in a prior class (I don't remember who, if I ever knew) had a parent who was a tax attorney, and s/he prepared a form letter saying that our service as TAs was required as part of our training, and wasn't employment, and so it was tax-deductible. So if I were king, I'd require the same TA and RA service from all graduate students, as part of their training, and pay them a stipend as trainees, rather than wages as employees. You can get away with that in the private sector (like Penn, or Stanford); unfortunately, in the public sector, TA (but not RA) funds are allocated by the state legislature, and the legislature considers TA paychecks to be wages rather than stipends, and thus taxable. So, GSIs get a choice: they can consider themselves to be employees, entitled to union representation but subject to taxation; or they can consider themselves as scholars-in-training, who receive untaxable stipends but without union protection.

Chapter 23: Vitality and Growth in Teaching

Being a college faculty member must be the best job imaginable. You get paid to think. You get to conserve knowledge, create new understandings of the world, and transmit both to the next generation. Within broad limits, you set your own work hours. And once you've achieved tenure, you have a job for life -- so long as you don't sleep with the students! But you don't want *just* a job for life. Like everyone else in the workforce, you'd like your job to be meaningful. And in order to be meaningful, it should offer opportunities for development and renewal.

Many departments assign courses to new faculty, and you'll have to service their needs if you want to have any chance for promotion and tenure, but -- especially as you advance up the ladder -- you'll also have a lot of discretion in terms of what you teach.

- One option is to pick a course and stick with it, polishing it to perfection over the years, establishing a tradition of incumbency so that the course is identified with you, and you with it. Many colleges and universities have legendary faculty members whose classes filled to overflowing, and are fondly remembered by generations of graduates. Jim Maas, who teaches the introductory course to thousands of Cornell students every year, is an example. There are some on every campus.

- Another option is to build variety into your teaching life, offering a new course, or at least a new seminar, every year. Because teaching is for learning, this insures that you, and not just your students, learn something new every year.

However you structure your career, a major component of growth as a teacher is improving as a teacher, or at least maintaining the initial high quality of one's teaching, and for this we need feedback from students and, perhaps, colleagues. So this is a good time to discuss course evaluations.

It's been said that the only people who complain about course evaluations are teachers who get bad ones, and that's probably true to some extent. A case in point is Tony Greenwald, a distinguished social psychologist, as related in his guest-editorial introduction to a special section of the *American Psychologist* devoted to student ratings of instruction (1997; the debate continued in a series of comments published in *AP* in 1998 and 1999). I know Greenwald to be an excellent teacher, and after he moved from Ohio State to Washington he got his best course evaluations ever. The very next year he got his worst evaluations ever, by a long shot, for the very same course taught the very same way with the very same syllabus -- and he got interested in the evaluation process. True to his reputation as a deep thinker and implacable methodologist, Greenwald aptly summarizes the literature on four questions of major concern:

1. Is there just one bipolar dimension of evaluation?
2. What is their empirical validity, in terms of correlations with other indices of teaching effectiveness?
3. How much are ratings influenced by extraneous factors?
4. How are ratings used by institutions to evaluate and develop faculty?

But even teachers who get good course evaluations often complain about the process, and I don't think I know anyone who doesn't think they -- indeed, the whole course-evaluation process -- couldn't be done better. What's especially disturbing about this state of affairs is that there is so little research on course evaluations. Maybe this aspect of the "scholarship of teaching" isn't sexy enough to warrant attention (and grant support). A package of articles appearing almost 20 years ago as a special section of the *American Psychologist* was, I believe, the last sustained attention to the topic. Tony Greenwald (1997), who edited the special section notes that research on the validity of course evaluations peaked in the 1980s and declined markedly after that time.

Greenwald's major point is that student ratings of instruction are affected -- his word is *contaminated*, and I think it's the right choice -- by the instructor's grading policy: students who get high grades like their courses, while students who get low grades do not (we will not pause to examine the ethical consideration of those studies that experimentally manipulated students' grades in order to firmly establish cause and effect). Still, the consensus of the other contributors to the Special Section was that this is as it should be: students should get high grades in well-taught courses, and therefore they should be satisfied with those courses.

In response, Greenwald and Gilmore (1997) demonstrate pretty conclusively (I told you that Greenwald was a great methodologist) that leniency in grading substantially influences course evaluations; and they don't actually find much evidence for the "third-variable" theories favored by those who discount the effect of grades. At the same time, G&G found that student ratings also have at least a moderate degree of convergent validity. That is to say, student ratings do correlate with other indices of student learning and achievement.

In a contemporaneous study, Greenwald & Gillmore (*J. Educ. Psych.*, 1997) found that courses with lenient grading also had lighter workloads. They argued that this supports the conclusion that leniency in grading improves course ratings.

What is to be done? Gilmore and Greenwald (1999) argue that ratings could be adjusted for leniency by taking account of three additional factors: the student's expected grade, class size, and whether the student is taking the course as a major or minor, or as a general education elective. This adjustment has been implemented at the University of Washington. The effect is that instructors teaching "large service courses with relatively strict grading policies" saw their ratings go up, while those teaching "small upper-level courses given a high proportion of As" saw their ratings go down. UWash now reports both raw and adjusted figures.

Setting aside the contamination issue, what can be done to improve course evaluations? Let's begin by reviewing the evaluations currently in use (each item is rated on a 1-7 scale).

- Please rate your Psychology instructor (or GSI) for each of the following:
 - Explained concepts clearly
 - Was enthusiastic about the course
 - Was readily available during the class and office hours
 - Encouraged student questions and participation
 - Considering both the limitations and possibilities of the subject matter and the course, how would you rate the overall effectiveness of this instructor?
- Please rate the Psychology course (or section) for each of the following:
 - Was effectively organized
 - Gave me a deeper insight into the topic
 - Increased my interest in the topic
 - I learned a great deal
 - Included background to current thinking and new developments in the field
 - Developed my ability to think critically about the subject
 - Assignments contributed to my understanding
 - The exams were a fair reflection of the material covered
 - Considering both the limitations and possibilities of the subject matter and the course, how would you rate the overall effectiveness of this course?

As a practical matter – McKeachie's (1997) "validity of use" -- all the Administration pays attention to are the final items in each category, "Instructor Effectiveness" and "Course

Effectiveness”. So what should be an instructor’s goal with respect to these numerical ratings? Obviously, you want them to be as high as possible – without compromising your principles by, say, giving everyone undeserved As. Certainly, you want to be above the midpoint of 4. And you’d like to be above the mean (or median). But here’s the catch: even in a department fully staffed with excellent teachers, *someone’s got to be below the mean*. So, at the very least, reports of course ratings should include the department’s median and mode as well as the average. More practically, instructors should aim for the 6s, and make sure they land at least in the 5s – at least one notch above the neutral midpoint.

That advice holds for faculty in tenure-track positions at public research universities like Berkeley. Berkeley expects its faculty to be adequate teachers, at least, but it also expects them to be active researchers, and it – like its peers – allows research activity to compensate for teaching excellence somewhat. The rules are arguably different for faculty at private research-intensive universities, like Stanford, whose endowments are much more reliant on contributions by undergraduate alumni – who remember how well or badly they were taught, and calculate their gifts accordingly. And they are arguably different for “teaching-intensive” colleges and universities, like the CSU system and the private liberal-arts colleges, which – while pleased when their faculty do research (and the liberal-arts colleges expect it) – put more of a premium on teaching. And they’re different, too, for “contingent” faculty like lecturers, who are hired ad hoc on a course-by-course basis. Rumor has it that, in order to be reappointed, a lecturer at UCB had better have ratings that are closer to 7 than 6.

What alternatives are there to the usual sort of course evaluations?

- One that has been proposed, and sometimes implemented, is to have faculty colleagues, or even the campus teaching center, observe instructors at work in their classrooms. This would require a lot of effort on the part of faculty colleagues. And, frankly, it is no less subjective (and arguably more so) than the quantitative course evaluations delivered by one’s own students. Moreover, it could easily be an infringement on academic freedom, if the evaluation centered on the *content* of the teaching as well as, or rather than, its effectiveness.
- Another has been to assess scores on standardized achievement tests. This is often done in programs that lead to licensure – for example, engineering, law, and medicine. The argument is that effective teaching will lead to higher scores on such exams. Within psychology, we could accomplish this by having students in the introductory course, for example, take the Advanced Placement psychology exam; or we could require all majors to take the GRE Advanced Test in psychology.

So course evaluations are useful, but they could be improved (as could the whole process). To that end, it’s useful to think about what our course evaluations *should* look like.

In the first place, should they be uni- or multi-dimensional? Although the Department asks a number of targeted questions in its course evaluations, UCB really only looks at the overall ratings of teacher and course effectiveness (these are mandated by the Administration, and are common across all colleges, schools, and departments). This suggests a tacit theory that course evaluations are unidimensional. Although a strong case could be made for the unidimensionality of course evaluations (d'Appolonia & Abrami, 1997), a single line going from bad to good, if that were really a satisfactory solution personality and social psychologists would assess their constructs with single-item scales; but they don't (at least, most of them don't). Besides, even if there's a single general factor, multifaceted assessments provide more information about the subject – in this case, about both the course and the teacher. For that reason, I incline toward Marsh and Roche (1997), favoring multidimensional assessments targeting various aspects of the classroom experience.

Here are Marsh's dimensions, taken from the 1982 version of his Student Evaluation of Educational Quality (SEEQ) questionnaire:

- **Learning Value**
 - Course challenging and stimulating
 - Learned something valuable
 - Increase subject interest
 - Learned and understood subject matter
- **Instructor Enthusiasm**
 - Enthusiastic about teaching
 - Dynamic and energetic
 - Enhanced presentation with humor
 - Teaching style held your interest
 - Overall instructor rating
 - Overall course rating
- **Organization/Clarity**
 - Lecturer explanations clear
 - Materials well explained and prepared
 - Course objectives stated and pursued
 - Lectures facilitated taking notes
- **Group Interaction**
 - Encouraged class discussion
 - Students shared knowledge/ideas
 - Encouraged questions and gave answers
 - Encouraged expression of ideas
- **Individual Rapport**
 - Friendly towards individual students
 - Welcomed students seeking help/advice
 - Interested in individual students
 - Accessible to individual students
- **Breadth of Coverage**
 - Contrasted various implications

- Gave background of ideas/concepts
- Gave different points of view
- Discussed current developments
- **Examinations/Grading**
 - Examination feedback valuable
 - Evaluation methods fair/appropriate
 - Tested course content as emphasized
- **Assignments/Readings**
 - Readings/texts were valuable
 - They contributed to understanding
- **Workload/Difficulty**
 - Course difficulty (easy—hard)
 - Course workload (light—heavy)
 - Course pace (slow—fast)
 - Hours per week outside of class

To which I'd add a couple of items, like expected grade (in accordance with Greenwald and Gillmore) and maybe some items that are specific to the use of an online materials. For example, I prepare an extensive set of "lecture supplements" for my undergraduate courses, amounting to a virtual (if somewhat idiosyncratic) textbook, and I'd really like to know whether students make use of them and what they think of them.

March and Roche also make the point that course evaluations should not just reflect some assessment of quality in the abstract, but should also reflect the instructor's specific goals for that specific course – acknowledging that different courses have different goals, and different structures, and one size doesn't fit all. Some courses, like intro, need to convey basic concepts and principles that range widely over the subject matter; other courses, like advanced seminars, may focus on getting students to think deeply about particular topics.

One last thing: course evaluations are useless unless they're completed by a representative sample of the students, and insuring this is not always easy. If you give out course evaluations in a large lecture course, the anonymity of the situation may lead some/many students to update their relationship status on Facebook instead. The trend these days is to collect course evaluations online, which certainly saves effort (and paper!), but in my experience the response rate tends to be low. Before the internet, I had students complete course evaluations in discussion section, which seemed to decrease anonymity and increase response rate. These days, my practice is to ask students to bring their laptops to the last day of discussion section, even if they do not ordinarily do so. When I can do this, my response rate is pretty decent; when I can't, response rate is pretty poor.

Conclusion: The Bigger Picture

Now comes the part where we can stand back and reflect on teaching in the abstract.

First, let's return to the old debate between teaching and research. The American system of higher education offers a wide variety with respect to the balance between teaching and research. This is well illustrated by the Carnegie Classification of Institutions of Higher Education, a product of the Carnegie Foundation for the Advancement of Teaching (one of the best products of the "Gilded Age" that brought such wealth to the likes of steel magnate Andrew Carnegie). The classification distinguishes among four major categories of institutions, based mostly on the balance they adopt between teaching and research:

- **Doctorate-Granting Universities** award at least 20 doctoral degrees per year, and are further classified into 3 subcategories depending on the amount of research they produce, as indicated by number of doctorates awarded, research expenditures, the presence of dedicated research faculty (i.e., those who only do research, not formal teaching), and the like. UCB is in the "R1" category of institutions with the highest level of research activity, along with about 100 others (out of about 350 institutions total, public and private, in this category).
- **Master's Colleges and Universities** award fewer than 20 doctoral degrees, but at least 50 master's degrees, per year. There are fewer than 1000 of these. These programs, public and private, are further classified by size. Most of the California State University campuses fall into this category (San Francisco State actually gives enough doctoral degrees that it qualifies as a doctoral institution).
- **Baccalaureate Colleges** award fewer than 50 master's degrees, and focus on the four-year bachelor's degree (hence their name). There are about 100 of these, are further classified by whether they focus on liberal arts, and their mix of bachelor's and associate's degrees.
- **Associates Colleges**, about 1100 in number. These are the two-year "community" or (less often called these days) "junior" colleges, which award mostly "associate" rather than bachelor's degrees. They are further classified by the extent to which their graduates transfer to institutions offering the bachelor's degree, and the mix of traditional liberal-arts and career-focused courses in their curriculum.

There are also "**Special Focus Institutions**" which, as their name implies, offer both undergraduate and graduate degrees in special fields such as the health professions, arts, training for the ministry, and the like. And, finally, **Tribal Colleges**, mostly organized like community colleges, which cater to the special needs of Native Americans on the reservation.

Another perspective on the organization of higher education is afforded by the California Master Plan for Higher Education, promulgated by Clark Kerr (1911-2003), and adopted during the term of Governor Pat Brown (father of Jerry). Kerr was one of the great visionaries of higher education – perhaps the last visionary head of the University of

California. Kerr was a labor economist who took his PhD from Berkeley in 1945, and immediately joined the faculty as a professor of industrial relations. He was Chancellor of the Berkeley campus from 1952 to 1958, when he was appointed the first president of the entire UC system; he was famously fired in 1967 by Governor Ronald Reagan (well, technically, by the Board of regents), in the wake of the “Free Speech Movement” protests that roiled the Berkeley campus in the 1960s. His two-volume memoir, *the Gold and the Blue: A Personal Memoir of the University of California* is well worth reading.

Kerr’s Master Plan, since emulated by a number of state university systems, envisioned a hierarchy consisting of three levels: the University of California would admit the top 12.5% (1/8) of California high-school graduates, and also be responsible for doctoral-level education; the California State University would admit the top third of high-school graduates, and offer very limited graduate education (e.g., master’s degrees in education); the community college system would be open to all. Students admitted to CSU or the community colleges would be eligible to transfer to the UC system. “articulation”. It’s a beautiful system, and it works.

- The University of California was established in 1868, and moved from Oakland to Berkeley.
 - UCLA began as the State Normal School in 1881, became the “Southern Branch of the University in 1919, covering only the first two years of the undergraduate curriculum; students transferred to Berkeley to complete their degrees. UCLA became a full-fledged campus, offering the bachelor’s degree, in 1917; graduate programs were added later.
 - UC Santa Barbara began life as Santa Barbara State College in 1909, and became part of the UC system in 1944.
 - UC Davis began as Berkeley’s agriculture school (the “University Farm”) in 1905, and became an independent campus in 1959.
 - Similarly, UC Riverside began as UCLA’s agriculture school (the “Citrus Experiment Station”), and became an independent campus in 1959.
 - UC San Diego began life as the UC’s marine biological laboratory (the “Scripps Institution for Biological Research”), and became a full-fledged campus in 1960, dedicated to education in the natural sciences.
 - With the adoption of the Master Plan, several additional campuses were created:
 - UC San Francisco began as Berkeley’s medical school (technically, the “Medical Department of the University of California”) in 1873 – a long an interesting story which will not detain us here). In 1964 it became an independent campus in the UC system, focused on post-graduate and professional education in the health sciences and professions.
 - UC San Diego admitted its first undergraduates in 1964.
 - UC Irvine and UC Santa Cruz were both established in 1965.

- Most recently, UC Merced opened in 2005.
- The CSU system also expanded, and what originally had been intended as teachers' colleges began to offer degrees in the liberal arts and sciences, as well as master's level programs in fields such as business. There are more than 20 campuses spread all over the state, so that students can obtain bachelor's degrees without having to leave home.
- The California Community Colleges is everywhere in the state from the College of Alameda to Yuba College, enrolling more than two million students on more than 100 campuses.

Kerr's Master Plan was visionary, but another part of his vision was a re-visioning (sorry) of the university as a "multiversity". In *The Uses of the University* (originally published in 1963, with many revised editions since then), a series of lectures given at Harvard, he argued that the university had moved away from its original focus on teaching (think of the medieval universities like Oxford and Cambridge in the 19th century) and pure research (think of the German universities like Leipzig and Berlin) to address the needs of a wide variety of constituencies in the real world outside the campus precincts. The university was no longer united around a single purpose, like "higher education", focused on undergraduate education and the humanities.

To make a long story short:

- Toward the end of the 19th century, universities incorporated education in the natural sciences as well as the humanities.
- In the 20th century, they began to offer professional education in medicine and other professions.
- During and after World War II, universities became involved in defense-related research, broadly construed.

The result was that the university was no longer One Big Thing, with a unified vision of itself. It was, instead, many things to many people, a collection of constituencies which had little or nothing to do with each other: the community of undergraduates (and those who taught them) was different from the community of graduate students and postdoctoral fellows; there were communities of humanists, artists, scientists, and social scientists; there were the professional schools, each comprising their own separate community; nonacademic staff and administrators were also separate communities; there were communities of the towns and cities in which the campus was embedded, business leaders, and officials of the state and federal government, private foundations, and nongovernmental organizations. Each of these communities had an interest in the university, and the university had an interest in each of them; but they had very little interest in each other.

As Kerr famously put it, the role of the modern university president was "to provide sex for the students, football tickets for the alumni and parking for the faculty'."

Kerr was castigated for his idea of the multiversity, and its departure from the ideals represented by John Henry Newman's 1852 classic *The Idea of the University* (to which Kerr's title referred): the university was now not a community of scholars, but something closer to a dehumanized knowledge factory organized along industrial lines (remember that Kerr himself was a labor economist, a specialist in industrial relations). But Kerr was less interested in celebrating the new multiversity as he was in describing it, as the situation the university found itself in at the time, and what the university was likely to look like in the foreseeable future.

And, in fact, there were things to celebrate about the new facts of university life. Kerr's Master Plan opened up the possibility of universal access to higher education, in which something which was formerly open only to the moneyed elite was not a possibility for everyone who could work his or her way up from the local community college to places like CSU and UC. The rise in government-sponsored research (not just the Pentagon, the National Institutes of Health, and the National Science Foundation, but also the National Endowment of the Arts and the National Endowment of the Humanities) permitted the hiring of more faculty, and the construction of new buildings. And the connections between the campus and extramural organizations and institutions enhanced the resources available for higher education generally, as towns and cities came to realize that the college campuses they hosted had become economic powerhouses, not just "ivory towers".

And Kerr himself was not unmindful of the problems attending this new development. He worried that as universities became "knowledge factories" they would neglect undergraduates, consigning them to large classes, faculty would be hired and promoted based on their research rather than their teaching, and graduate teaching assistants would stand between faculty and students. And this is what actually came to pass: the Free Speech Movement at Berkeley was less about the Vietnam War (though it was also about that) than it was about the alienation of students from the university, and the students' quest for meaningful engagement with the campus and the world.

There is a time when the operation of the machine becomes so odious, makes you so sick at heart, that you can't take part; you can't even passively take part, and you've got to put your bodies upon the gears and upon the wheels, upon the levers, upon all the apparatus, and you've got to make it stop. And you've got to indicate to the people who run it, to the people who own it, that unless you're free, the machine will be prevented from working at all!

---Excerpt from Mario Savio's speech before the FSM sit-in, 12/03/1964

Kerr also note other problems, or at least potential problems. First, there was the rising Federal influence on campus, owing to government control of research support. Because most government grant support and industry research contracts targeted scientific research, colleges might give priority to the natural sciences, with their potential for practical application, over the humanities and social sciences. And

because of the money involved, colleges might give research priority over teaching and service.

Everett Needham Case, the president of Colgate University who invented the “Core Curriculum” model for undergraduate general education in the liberal arts, once argued that faculty at liberal-arts colleges should not compete for grant funding, because the pressures of applying for and maintaining grant support would inevitably detract from their primary responsibility of teaching, creating an undesirable “shadow faculty”. Somewhat ironically, perhaps, after retirement from Colgate Case became president of the Alfred P. Sloan Foundation, which – among other programs – gave major seed money to establish university programs in cognitive science and cognitive neuroscience. And faculty might become entrepreneurs, enhancing their ability as grant-getters as opposed to scholars and teachers. (Like elementary and high-school teachers, college faculty are paid for the nine months of the academic year (usually spread out over 12 months), and are free – if that’s the right word – to find additional income covering the three summer months. I have long held to the belief that a major incentive for faculty to apply for grants is not to support research, or even students, but to supplement their own academic year salary!

In the course of things, faculty at Colgate and other liberal-arts colleges began to compete for, and receive, grant support for their research. Aside from its contribution to knowledge, research is an important vehicle for faculty development, and students want research experience – both because they’re intrinsically interested, and because it looks good on applications for graduate and professional school. But the success of researchers at teaching-intensive liberal-arts colleges, like David Meyers at Hope College (who also turned his popular introductory course into a best-selling textbook), and many, many others, proves that research does not have to undermine teaching – so long as faculty understand that, no matter how much research they do, teaching has to be a priority and not an afterthought.

In *Uses* Kerr discussed some “old business” that remained to be addressed by higher education.

- One of these, even in 1963, was extending the opportunity for higher education to what we would now call “underserved” populations. College students in 1963, even on the Berkeley campus, were overwhelmingly white and majority male (check out the pictures in the Free Speech Movement Cafe). This is still an issue, despite progress: Berkeley’s undergraduate student population, while clearly “majority-minority” (about 30% if more than 38 thousand students) is only about 3% African-American and about 8% Mexican-American (comparable figures for the state are 42% white, 7% African-American, and 30% Mexican-American).
- Another was “top-down” aid to primary and secondary education. Colleges and universities can only do their jobs if the students who enroll in them are ready for college-level work – in terms of math and language

skills, general cultural literacy, study skills and habits, and the like. Kerr was writing during a “Golden Age” of public support for education at all levels. The UC was tuition-free as late as 1969, with a “registration fee” of \$300; in 1970 the Regents imposed an additional “educational fee” of \$150 (by way of comparison, the total fee of \$450 assessed in 1969 amounts to a little less than \$3000 in 2016 dollars). Now, budget cuts at all levels have led to a general decline that has hit the elementary and secondary schools, and the community colleges, especially hard (UC can at least turn to alumni and foundations to make up the difference).

Kerr also identified some “new business” that had to be addressed in the future:

- Presciently, the first item on his list was “information technology”. The first personal computers were more than 15 years in the future (though ARPANET, the predecessor to today’s internet, was less than 10 years away). Now colleges struggle to keep their IT infrastructure up to the task of handling the many devices used on campus (think of AirBears2); students and faculty make use of learning management systems such as bCourses; and shelves of books and journals in libraries are being replaced by computer terminals and online access. Never mind the advent of MOOCs, enthusiasm for which has since waned, due partly to the expense involved in mounting and maintaining them.

Which brings me to my point: IT services are enormously expensive, and as necessary as they are, they place an exceptional burden on budgets that are already strained. For several years, Berkeley has offered “webcasting” of many large courses – not just to students, faculty, and staff on campus, but to the public at large through services like iTunesU. But webcasting to the public, which was a wonderful vehicle for University outreach, had to be canceled a couple of years ago, because it was simply too expensive to maintain. And so we lost a valuable program that connected the campus to the world beyond.

- Kerr also worried about the growing hegemony of the biosciences on campus. Whether it’s medicine or neuroscience or agriculture, biology is where the money is (there’s a lot of interest in physics and astronomy, but not a lot of industry funding for things like the Hubble Space Telescope and the Large Hadron Collider). As a result, the biological sciences, including neuroscience, get the new buildings, get the new faculty, get the grants (the overhead, or “indirect costs”, of which provide a large tranche of support for the University as a whole), get the graduate students and postdocs, get the undergraduate majors, which means that they get the new buildings, get the new faculty, and so on *in saecula saeculorum*.

You can see this happening in psychology, as well. Historically, psychology has been identified as both a social science (concerned with

mind) and a biological science (concerned with brain). But with the growth of interest in cognitive and affective neuroscience, psychoneuroendocrinology, psychoneuroimmunology, drug treatments for mental illness, brain imaging everywhere (one of our recent PhDs in social psychology got a great academic job in a fabulous department, and was told that unless s/he started doing neuroscience s/he had no future there), this historical balance has been upset – so much so that some psychology departments have renamed themselves as departments of “psychological and brain science”, or even split “cognitive neuroscience” and “clinical and social psychology” into separate departments.

- And finally, he noted that higher education was becoming critical for mid-career advancement outside the academy. In the “Mad Men” days of the early 1960s, it was possible for families to achieve upper-middle class status without the breadwinner(s) having more than a high-school education. But Kerr could see both blue-collar and white-collar industries requiring more education from their workers (he was a labor economist, after all!), and he worried that the “labor market” would come to dominate the university, and detract from the university’s traditional mission of nonprofessional liberal-arts education and basic research.

You can see this trend in spades today, as in the development of “weekend” and “executive” MBA degrees, intended to help those who are already in the workforce advance their careers. Something similar is happening in IT and related fields – especially in the Bay Area. You can see it in the television advertisements for the University of Phoenix, a for-profit educational institution which markets itself precisely to individuals who are already in the workforce. These programs are, quite literally, money machines for the colleges that host them. But they’re also a distraction.

As *Uses* went through successive editions, Kerr revised his views somewhat and added new considerations, but his essential point remained unchanged: the university has changed radically from what it once was (liberal-arts colleges have done the same, of course), and the “multiversity” is here to stay. If current circumstances detract from the university’s traditional mission of undergraduate education, it’s our responsibility to minimize the damage, and keep undergraduate education healthy.

In the spirit of *Uses*, let me simply identify some additional tensions that I see developing in contemporary higher education.

- As I’ve already noted, the demographic changes that Kerr spotted in 1963 have continued apace, and these have created new problems pertaining to the integration of underrepresented minorities into campus life, including the demand for the creation of “safe spaces” for minorities

(including women, even though they're in the majority on many campuses now), protests against "cultural appropriation" at Halloween parties, and so on. Where once the university was a place where students grew personally and intellectually by having their worldviews challenged, now there is a tendency for underrepresented students, at least, to want to be protected from precisely those challenges.

- At least so far as undergraduate education is concerned, private colleges and universities may be pricing themselves out of the market. Some smaller private liberal-arts colleges are closing due to the financial pressures on them (see Sweet Briar College). It's not completely clear why an undergraduate would matriculate at Stanford, for example, when it is a lot cheaper to go to Berkeley. Friends of mine saved \$100K for each of their children's education, and told them they could spend it on undergraduate or graduate/professional school. Under those circumstances, the smart choice is on public schools.
- Another disturbing trend is that, for financial reasons, students may decide to complete their first year or two of undergraduate education in the community colleges, or maybe in CSU-like public four-year institutions, before transferring to Berkeley and other UC-like campuses. With supportive articulation policies in place, that certainly saves money for the student (you can pay \$1500+ to take Psych W1 online in the UCB Summer Session, or you can pay \$300 to take the same course at Berkeley City College, and transfer the credit). This is certainly an attractive strategy, in financial terms – and the provision for transfer "up" from one campus to another is a highly desirable feature of Kerr's Master Plan. But with the asset comes liability, which is that transfer students may never become fully integrated into campus culture. Having taken intro at BCC, for example, a student will have missed out on the opportunity for early involvement in research in a faculty laboratory, for example.
- As the cost of higher education continues to spiral above inflation, and especially in the aftermath of the Great Recession of 2008-2009, we are seeing the privatization of public education – an increasing reliance on the private sector of individual and foundation charity to fill in the gap between public funding and the actual costs of higher education. Buildings are now named after donors (e.g., the Li Ka Shing Center) rather than distinguished faculty (e.g., Tolman Hall). Even academic departments take the names of their benefactors – not just entire schools like the Haas School of Business and the Goldman School of Public Policy, but even individual academic departments (e.g., Berkeley's Charles and Louise Travers Department of Political Science). If donors gravitate toward the biomedical sciences rather than the arts and humanities, and toward graduate rather than undergraduate education, the imbalance that Kerr discussed in 1963 will only be exacerbated further.

Let me end this list on a positive note, however, and that is *the rising tide really does lift all boats*. Places like Berkeley and Stanford, Harvard and Yale, Wisconsin and Michigan produce more PhDs than they can hire, which means that some of their graduates will find themselves at “second tier” research institutions (a term I use advisedly: if “second tier” means institutions that don’t rank in the Top 10 or 20 of the *US News & World Report* rankings, any one of those institutions is superior to all but a handful of universities outside the United States) and “teaching-intensive” colleges and universities. That improves the faculty at these institutions, which – because they are cheaper – will attract better students to them, who will demand more research opportunities, and so on down the line. Now, *that’s* what they call “continuous quality improvement”!

Moving from the abstract to the particular, let’s think for a moment about what the undergraduate curriculum in psychology should look like, using as a resource a series of articles which appeared in a special section of the *American Psychologist* (February 2016) devoted to undergraduate education.

Norcross et al. (2016) report an interesting, and in some respects disturbing, survey of a representative sample of psychology departments.

The first thing to note is the tremendous increase in bachelor’s degrees awarded in psychology, from fewer than 20,000 in 1950 to more than 100,000 in 2012. Of course, college enrollments have also increased over that interval, but it’s still the case that the psychology major is enormously popular among college students. Virtually every freshman matriculates with the intention of taking at least the introductory course.

The introductory course is usually taught over the course of one semester (the last institution I knew to teach intro as a two-semester course was Harvard back in the 1970s, and I don’t think they do it that way anymore). This is not the case with the other sciences, like physics, chemistry, and biology, which universally offer a two-semester introductory course. Even other social sciences require more than a one-semester introductory course, depending on how you count.

- Anthropology requires *three* intro courses, one in physical anthropology, one in cultural anthropology, and one in archaeology.
- Economics requires two semesters, one in macro- and one in microeconomics.
- History also requires three semesters: US history, European history, and the history of another world area.
- Sociology requires both the introductory course and a methods course.
- For that matter, English requires two semesters, chosen from medieval and Renaissance, 17th-19th centuries, 19th-20th centuries, and Shakespeare.

It’s not as if there isn’t enough material to spread over a two-semester course: the knowledge base in psychology has grown exponentially since I took intro (admittedly, as a one-semester course) in 1967. At Berkeley, the situation is even worse, as our introductory course is only taught for two hours of lecture per week, instead of the usual

three (in the online course, which lacks discussion sections, we do three hours per week, added about 50% more material).

There's so much envy of the natural sciences among psychologists, it's not at all clear why we don't also emulate their approach to the introductory course. Harvard's was divided pretty neatly into a first semester that covered biological and cognitive psychology (including learning), and a second semester that covered developmental, personality, social, and clinical psychology. There's no reason why a similar approach could be implemented today. *Except* that it's hard enough to get faculty to teach a one-semester course, it would be almost impossible to get them to teach *two* semesters. These days, graduate students are trained to be specialists (a former Arizona colleague, Ken Forster, who is a psycholinguist, once remarked, half in humor and half in sorrow, joked that his students were so focused on the lexicon that they didn't know what a sentence is). And so, naturally, when they get to their first faculty positions, they want to teach in their specialties, and often lack the broad view of the field that would enable them to be comfortable teaching the introductory course. As a result, as at Berkeley, we now hire lecturers and other "contingent" faculty, off the tenure track, to teach intro (and statistics). These lecturers are often excellent teachers, and certainly better than unwilling tenure-track professor who has been dragooned into teaching the course. But really, teaching is the responsibility of the regular faculty, and we ought to do it. But I digress. The major point is that we *should* teach intro as a two-semester course, but we don't, in large part because we don't have the willing staff needed to teach it as a *one*-semester course.

As discussed earlier, most introductory psychology courses are not accompanied by laboratory experience – again, in contradistinction to the natural sciences we try to emulate. And this is also true for upper-division courses in areas such as cognitive and social psychology – aside from courses in methods and statistics. (Just to belabor the point, the natural sciences offer labs in their upper-division courses as well as their introductory courses.) I've already talked about why this is the case. But as with the two-semester introductory course, there's no *a priori* reason why there shouldn't be labs attached to at least some of our courses, and our failure to have them is just that – a pedagogical failure. We know better. Norcross et al. (2016) rightly point out that, if psychology is to be considered a STEM (Science, Technology, Engineering, and Mathematics) discipline, it had better start acting like it, by adopting such reforms as a two-semester laboratory course and laboratory sections.

The average number of credits in the departments surveyed, 37-39, or the equivalent of 12-13 3-credit courses, is roughly the same as our requirement here at Berkeley. This is just about the right amount, Berkeley requires 120 credits for a bachelor's degree, and after taking General Education requirements into account, this leaves plenty of room for electives (or a second major). Many departments offer a psychology minor, which would likely appeal to pre-medical students and many others (Berkeley is considering whether to offer a minor through Summer Sessions, but not through courses taken in the regular academic year).

Norcross et al.'s (2016) review of specific courses reveal a kind of “core” undergraduate curriculum in psychology, if we count those courses that are offered by more than 90% of the departments surveyed. These are Introduction (99%), Statistics (95%), Research Methods (99%, though it is not clear how much overlap there is with Statistics), Biological (93%), cognitive (92%), developmental (99%), personality (95%), social (99%), and Abnormal (99%).

Our curriculum at Berkeley conforms to this model, more or less, with our courses arranged in a three-level hierarchy:

1. Introduction, Stats/Methods, and other pre-requisites.
2. Broad survey courses in such topics as biological psychology, cognition, personality, and social psychology.
3. More specialized courses in topics like Consciousness, Social Cognition, and Prejudice and Stereotyping.

We can debate the exact placement of certain courses. For my part, I think our Sensation and Perception course belongs at Tier 3, not Tier 2, as it is more specific than a course in Cognition as a whole; same goes for our course in Childhood Psychopathology. But it's the organizational principle that matters. I like the metaphor of textbook chapters. At Tier I, you have your introductory text, with individual chapters on topics like biological psychology, development, personality, social, and abnormal. At Tier II, you take one or more of these chapters and expand it (them) into a full textbook – yielding, for example, a textbook on abnormal psychology with individual chapters on such topics as schizophrenia, affective disorder, anxiety disorder, drug treatments, psychotherapy, prevention, and the like. At Tier III, you take one or more of *these* chapters and expand *it* into a textbook giving comprehensive treatment of some specific topic. This way, courses at one level set the stage for courses at the next level, and the lower-level courses situate the topics of the upper-level courses in a broader context.

The revised APA Guidelines for the Undergraduate Psychology Major (2016) focus less on coursework and more on the educational goals that coursework should meet. Their list is fair enough:

1. “Students should demonstrate fundamental knowledge and comprehension of the major concepts, theoretical perspectives, historical trends, and empirical findings to discuss how psychological principles apply to behavioral phenomena.”
2. Skills include “the development of scientific reasoning and problem solving, including effective research methods.”
3. Skills include “the development of ethically and socially responsible behaviors for professional and personal settings in a landscape that involves increasing diversity.”
4. “Students should demonstrate competence in writing and in oral and interpersonal communication skills.

5. “Students should be skilled in the “application of psychology-specific content and skills, effective self-reflection, project-management skills, teamwork skills, and career preparation.”

As it happens, as part of a campus-wide project to improve undergraduate education, our Department has identified a number of program-level goals which should be addressed by its courses. Here is the current list of goals, which overlap considerably with those set out by the APA Guidelines.

1. Define basic concepts that characterize psychology as both a biological and a social science, explaining behavior in terms of the individual's mental states of knowledge and belief, feeling, and desire; appreciate the various subfields of the discipline and its relation to other disciplines.
2. Develop an understanding of the central questions and issues in contemporary psychology as well as a historical perspective on psychological theories and empirical findings.
3. Develop a deeper understanding of one or more of the major content areas of psychology (e.g., Social/Personality, Developmental, Clinical, Cognitive, Biological).
4. Develop skills to critically evaluate the presentation of scientific ideas and research in original scientific papers as well as in the popular media.
5. Become familiar with experimental designs used in psychological research. Become proficient in basic concepts of statistical analyses and familiar with more advanced methods in data analyses and modeling.
6. Learn to develop, articulate, and communicate, both orally and in written form, a testable hypothesis, or an argument drawing from an existing body of literature.
7. Apply a psychological principle to an everyday problem; or take an everyday problem and identify the relevant psychological mechanisms/issues.

Gurung et al. (2016) focus specifically on the introductory course, which should serve the needs of both prospective Psychology majors and General Education of nonmajors. Most of their recommendations are noncontroversial – for example, that every introductory course cover biological, cognitive, developmental, social/personality, and mental health. It's hard to imagine an introductory course that *doesn't* cover these areas. This is, after all, pretty much the canonical syllabus for any introductory psychology course anywhere in the world. Others might seem a little more controversial, as they include attention to such topics as cultural and social diversity, which might more properly belong in a more advanced course on social (or cultural) psychology. They, too, have difficulty imagining how “exhaustive coverage” of psychology can be accomplished within the constraints of a one-semester course. They, too, think that intro should be accompanied by some sort of formal laboratory experience.

The most surprising finding in the Gurung et al. (2016) paper, I thought, was that there was wide variation in coverage in the introductory course. It's surprising because there really is a canonical syllabus for intro, physically manifested by the chapters, and their

sequence, in any introductory psychology textbook. There may or may not be separate chapters on sensation and perception, or on thinking and language, but all four of these topics are covered somehow. And while intro might be taught by a biological psychologist who is uncomfortable with social psychology, or a social psychologist who is uncomfortable with biology, it's the responsibility of the instructor to make sure that the various topics are covered adequately. Otherwise, students will not be prepared adequately for more advanced courses. In order to foster more commonality across different offerings in introductory psychology, they propose the adoption of a national assessment of learning outcomes. Presumably, this would be a standardized test, similar to the AP Psychology test, or perhaps the GRE Advanced Test in Psychology.

Mitchell et al. (2016) note that, as of 2016, the new Medical College Admissions Test (MCAT) will include a section dedicated to the behavioral and social sciences (especially psychology, but also sociology and anthropology). Here's a list of the "foundational concepts" covered by the new MCAT section on "Psychological, Social, and biological Foundations of Behavior":

1. "Biological, psychological, and socio-cultural factors influence the ways that individuals perceive, think about, and react to the world" – covers sensation, perception, learning, and other aspects of cognitive psychology
2. "Biological, psychological, and socio-cultural factors influence behavior and behavior change" – covers personality, social influence, and attitudes and attitude change.
3. "Psychological, socio-cultural, and biological factors influence the way we think about ourselves and others, as well as how we interact with others" – covers self and identity, social cognition, and social interaction.
4. "Cultural and social differences influence well-being" – covers sociological principles of social structure and demography.
5. "Social stratification and access to resources influence well-being" – more sociology, with a focus on social inequality.

The specifically psychological component of the new MCAT might also provide a model for standardized, national assessment of learning outcomes in psychology. I served on the UCB committee that recommended modifications to the pre-medical curriculum in light of the new test, and it seemed to me that all of the various topics covered on the text would also be covered by any good introductory course. As such, the "behavioral science" portion of the MCAT, appropriately stripped of its sociology and anthropology, might serve as a vehicle for national assessment.

Most pre-medical students will have taken the introductory psychology course in the normal course of their time in college. But in response to the MCAT, psychology departments might consider mounting a new course, geared especially to the needs of students entering *all* the heal professions -- not just medicine, but other professions, like nursing, as well. It would include a review of basic concepts, like an accelerated introductory course, but also a *preview* of material that would be covered in an advanced course in health psychology (like Aaron Fisher's Psych 134).

It's not entirely clear what Takooshian et al. (2016) mean when they discuss "internationalizing" education in psychology. If they mean delivering psychology to an international audience of undergraduate students, that's one thing. Many international systems for higher education don't have the "liberal arts" component characteristic of the American system: In some national systems, for example, students matriculate at university with certain professional goals already set – in law, medicine, or whatever – and their curriculum is structured accordingly. These students might never have the opportunity to take a psychology course. The solution there, of course, is for these national systems to emulate the liberal arts curriculum characteristic. That's not as jingoistic as it sounds: there's a reason why so many families, especially in the developing world, are willing and eager to pay nonresident tuition so their children can study at Berkeley (or, for that matter, San Francisco State).

One of the problems with "internationalizing" psychology is that psychology itself is not well developed in much of the world. My courses spend a great deal of time on particular experiments, mostly classics (or contemporary classics), and in an attempt to connect the studies with the students I try to include images of the investigators or theorists involved. And, probably *because* I emphasize classic theories and experiments, those individuals are overwhelmingly white and male. It would be nice to have a more "international" rogues' gallery for leading figures in psychology, but it's just a matter of historical fact that Americans have dominated progress in psychology. It can't be helped. However, this situational will naturally change as the population of psychology researchers becomes more diverse – and that's a good thing.

In the meantime, I encourage international students in my online introductory course to find out what they can about the development of scientific psychology in their home countries.

The push to "internationalize" psychology is problematic because, for the most part, psychology searches for *general, universal principles* governing mental life and individual behavior. The structure of the brain is the same, whether you're American, Argentinian, Kenyan, or Korean. And there's no *a priori* reason to think that the basic principles of mental life – the principles of classical conditioning, say, or the encoding specificity principle in memory, or the development of the theory of mind are any different for foreign nationals than they are for Americans. Somewhat paradoxically, some researchers have taken an interest in cultural psychology precisely because they hope to show, by failing to reject the null hypothesis, that certain principles (like the facial expressions of "basic" emotions) really *are* universal!

Of course, *other* cultural psychologists really are interested in cultural differences for their own sake, and where appropriate to the level of the course, it might help international students to connect with the course material if we discussed some of this research in class. My introductory course doesn't afford much opportunity for this, frankly, though I do discuss a study in my lab showing that Australians are quicker to

see the kangaroo in the “Arizona Whale-Kangaroo”, a novel reversible figure. And I also talk about the “Sapir-Whorf” hypothesis concerning linguistic effects on thought processes. In my Consciousness course, I talk a little about the psychologies associated with Hindu (yoga) and Buddhist (Zen) meditative traditions. And in my Social Cognition course, I discuss a provocative article suggesting that, in some cultures, even adults might not have a “theory of mind” similar to that characteristic of Western children. That reminds us that psychology is, after all, a social as well as a natural science. And especially when it deals with problems of *content* and *meaning*, as opposed to *structure* and *process*, it needs to take account of personal, social, and cultural context.

I'd like to end these reflections by saying something about the role that psychology plays in general education. As I've noted earlier, almost every student comes to college intending to take a course in psychology, even if they don't intend to major in the subject. And this is not surprising. Everyone wants to know more about how their minds work, and why we do what we do. And so it doesn't seem unreasonable to suggest that psychology should be part of the GenEd curriculum. Not as an elective, but as a requirement.

After all, it can be argued that psychology stands near the center of human inquiry, at the intersection of the natural sciences, social sciences, humanities, and arts.

- Psychology shares with **philosophy, theology, literature, and art**, an interest in the nature of human existence and the sharing of individual experience.
- Psychology shares with **economics, sociology, cultural anthropology, and history** an interest in the relation of individuals to society.
- Psychology shares with **biology and physical anthropology** an interest in the relation of humans to other creatures.
- Psychology shares with **physics, chemistry, and cosmology** an interest in the place of humans in the universe as a whole.

Steven Weinberg, a Nobel laureate in physics, has written that "the effort to understand the universe is one of the very few things that lifts human life above the level of farce, and gives it some of the grace of tragedy". Whereas literature and the arts are concerned with individual experiences and expressions, psychology is interested in discovering generalizable laws governing human mental life and behavior. Whereas other natural and social sciences study the universe outside the individual, psychology studies what Morton Hunt (1993) has called "**the universe within**" the individual mind.