*Steve Davis:  Tips for Better Teaching and Learning*

## 1. Faculty Development Tidbit: Presentation Principles – they never change!

**"Tell them what you're going to tell them, tell them, tell them what you told them."  (Lend Me Your Ears: Great Speeches In History, William Safire, ISBN 0-393-04005-4, 1992, p. 21)**



- **Give the introduction and conclusion their due with an exciting attention and motivation at the "BIG"inning, summary and remotivation at the end (why should they listen/pay attention?).**
- **Plan effective transitions (summarize highlights of last point and introduce what's next).**
- **Provide at least one active learning strategy per point (audience response, drawing, think/pair/share, test question writing…) – keep them engaged.**
- **Practice 3 times before delivery of new lesson and at least once for non-new lessons.**
- **Like this slide – use visuals… a picture is worth a thousand words.**
- **See http://www.oucom.ohiou.edu/fd/Quick%20lesson%20plan%20counter.htm for a quick lesson planning template using this format.**

**STUDENTS APPRECIATE ORGANIZATION AND CLARITY MOST!**

*Find more "Teaching Tips" at your **OU-COM & CORE** faculty development Web resources:*
*www.oucom.ohiou.edu/fd/programs.htm or www.ohiocore.org/cf/index.htm.*
*If you have a great strategy that seems to always work, please send it to me, and I'll include it in a future Faculty Development Tidbit. (Tidbits courtesy of your office of faculty development with **Steve Davis, Ph.D., Robbin Kirkland, Ph.D.**, and **Olivia Sheehan, Ph.D.**)*

2. So, you need faculty development activities for your teachers….What type(s) do you need?

Guiding Principles:

1. There is no such thing as one size (or type of activity or series of activities) that fits the needs of all institutions.
2. Faculty development activities must meet the needs of the individual faculty and the institution.
3. Buy-in  from individual faculty and institutional leaders is necessary to have a successful program(s),

   What do you need to know?

   a. What is the purpose of this faculty development activity?
   b. What are the faculty development needs of individual faculty?
   c. What are the needs of your institutional leaders in this area?
   d. Whose support do you need?
   e. How will this activity be funded?
   f. Where will this activity fit into the structure of the school?
   g. Who can participate in this activity?
   h. Who will teach and/or lead the program?
   i. What's in the curriculum? Who determines what is in the curriculum?
   j. What resources are currently available?
   k. What resources need to be developed? How will they be developed?
   l. How will the program(s) be sustained?


3. Online Video as an instructional aid:

Beside the challenge of searching, selecting and placing in the right setting (see below on ideas about having students help) there is now and will continue to grow a plethora of short videos on almost any subject.  If you can't find one it's relatively easy to make your own and publish it as scholarly work.  Here's a resource feed that came to me that's worthy of sharing.

Fortunately, the sources of videos for your classes extend far YouTube. There is BBC News: Video and Audio, CNN Video, MIT World, SciVee, Yahoo! Video, Google Video, MSNBC Video, Current TV, NASA TV, Discovery Channel Videos, National Geographic Video, Hulu, TeacherTube, Link TV, NomadsLand, and so much more! Today there is even YouTube Edu and hundreds of colleges and universities with their own channels on YouTube.

And it is not going to slow down.  The use of shared online video may become the major source of your course content by the middle the next decade. The **key question** that comes up is **how to use it effectively**.  Listed below are 10 ideas for integrating online video into your courses.

1. **Online Video Anchoring:** Use online videos to anchor your instruction and make it come to life.
2. **Online Video Ender:** Employ online videos to wrap up a class, activity, lecture, or other course event.
3. **On Demand Key Concept Reflections:** Play a shared online video when appropriate to illustrate points, concepts, principles, or theories from the current unit, chapter, or lecture.
4. **Pause and Reflect:** In a live class, you can play a portion of a video in YouTube or some other source and reflect on the content and then play another section and so on; continuous video, chat, and reflection.
5. **Online Class Previews and Discussion:** Post useful online videos to the course management system for students to watch prior to or after class.

6. **Cool Resource Provider Handouts:** Ask students to sign up to be the person who finds and presents relevant online videos (i.e., the "cool resource provider") after which the class can discuss or debate them.
7. **Anchor Creators:** Require students to create their own YouTube videos to illustrate course concepts or ideas.
8. **Video Anchor Competitions:** Assign students to find relevant videos for the week and send the list to the instructor(s) for viewing and selecting (with class recognition or bonus points if used).
9. **Video Anchor Debates:** Create a task where students are required to find YouTube or other online video content representing the pros and cons of a key class issue or topic which they discuss or debate.
10. **Anchor Creator Interviews:** Require that students find YouTube videos relevant to course concepts and then interview the video creator or invite that person in for a class chat.

*Curtis J. Bonk is Professor of Instructional Systems Technology at Indiana University. He has a popular blog called TravelinEdMan and is the author of The World Is Open: How Web Technology Is Revolutionizing Education as well as Empowering Online Learning: 100+ Ideas, for Reading, Reflecting, Displaying, and Doing.*

Permalink: http://www.facultyfocus.com?p=7870

## 4. Reading in Medical Education

In a recent article entitled: "A Perfect Storm: The Convergence of Bullet Points, Competencies, and Screen," author Delese Wear, PhD suggests that three distinct phenomena are currently at play in medical education: (1) the pervasive use of PowerPoint in teaching, (2) the wholesale application of competency models, and (3) the shift from paper reading to screen reading regardless of course, text, or genre. Finding themselves placed at this intersection, students encounter fewer and fewer opportunities to practice some of the very cognitive and affective habits medical educators say they value in physicians, particularly critical reflection and deliberation, an eye for nuance, context, and ambiguity, and an appreciation that becoming a doctor involves more than learning content or performing skills. This article confronts these phenomena singly and then at their intersection, which may discourage, even dismantle, many of these habits. The author proposes that the rapid shift over the past decade to a technology-driven, competency-oriented environment in medical education is the medical educators' creation, one that sets up conditions for a perfect cognitive storm. –From *Academic Medicine* 2009; 84:1500–1504. (Special thanks for Luke Mortensen, PhD for this resource find and forward.)

This article took me 17 minutes to read and advocates for some "deep reading" with technology turned off and an distracted brain tuned in.

OUCOM/CORE system users can access Academic Medicine (as well as other medical journal articles) through the OUCOM/CORE faculty development website at: http://www.oucom.ohiou.edu/fd/programs.htm.  Non-OUCOM/CORE readers must arrange their own access.

5. For your consideration:
…it is "the instructor [who] studies the material, culls and organizes what is important, makes notes, finds examples and then presents it all on the board," or now on PowerPoint slides.  That's **what students should be doing with the content** as witnessed by the fact most teachers readily acknowledge how they really learn the content once faced with having to teach it.
Black more or less stopped lecturing. He assigned material and expected students to come to class having spent time working on the content.  In class, they presented the topics they wanted to discuss, those they were struggling to understand. They presented solutions to problems for verification or partial solutions to problems they couldn't solve.  In essence, they set the agenda for the class, based on topics in the text assignment for that day.

Reference: Black, K. A. "What to do When You Stop Lecturing: Become a Guide and a Resource." *Journal of Chemical Education*, 1993, 70 (2), 140-44.
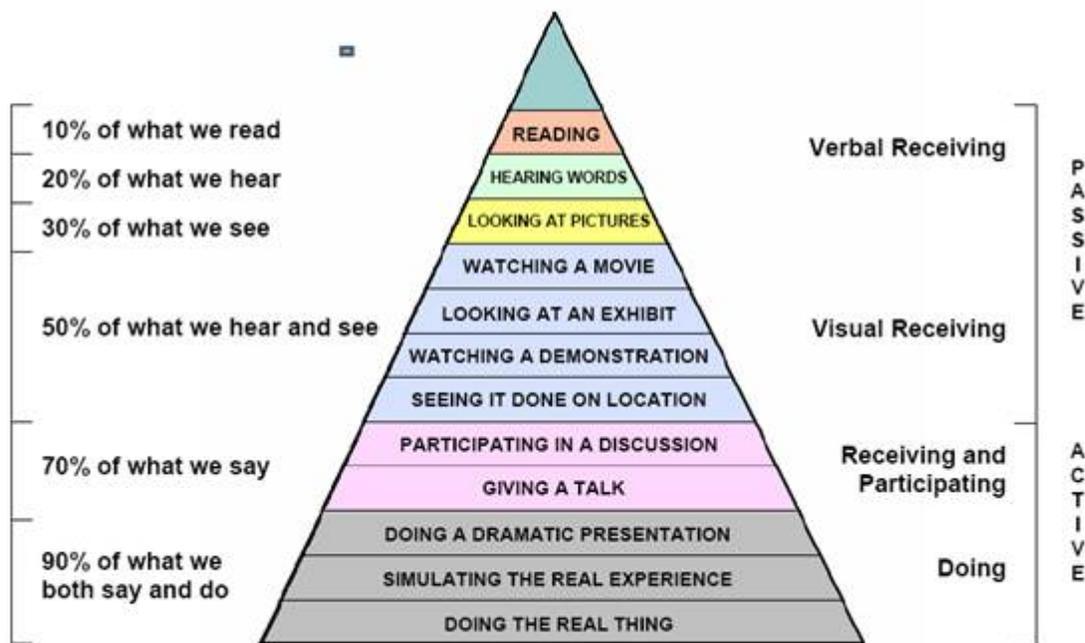
As reviewed by Maryellen Weimer in June 2008 "Teaching Professor"

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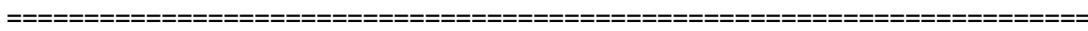
## CONE OF LEARNING
### WE TEND TO REMEMBER OUR LEVEL OF INVOLVEMENT
(developed and revised by Bruce Hyland from material by Edgar Dale)

| | | | |
|---|---|---|---|
| 10% of what we read | READING | Verbal Receiving | P |
| 20% of what we hear | HEARING WORDS | | A |
| 30% of what we see | LOOKING AT PICTURES | | S |
| | WATCHING A MOVIE | | S |
| 50% of what we hear and see | LOOKING AT AN EXHIBIT | Visual Receiving | I |
| | WATCHING A DEMONSTRATION | | V |
| | SEEING IT DONE ON LOCATION | | E |
| 70% of what we say | PARTICIPATING IN A DISCUSSION | Receiving and Participating | A |
| | GIVING A TALK | | C |
| 90% of what we both say and do | DOING A DRAMATIC PRESENTATION | | T |
| | SIMULATING THE REAL EXPERIENCE | Doing | I |
| | DOING THE REAL THING | | V E |

Edgar Dale, *Audio-Visual Methods in Teaching* (3rd Edition). Holt, Rinehart, and Winston (1969).

http://www.public-health.uiowa.edu/icphp/ed_training/ttt/archive/2002/2002_course_materials/Cone_of_Learning.pdf

See:  Active Learning Strategies for engagement ideas.

## 6. Promoting 'Netiquette' in the Classroom

In today's college classroom, it seems that more students have laptops than don't. In many lecture halls, professors see several of their students typing away all class long. But some professors have to wonder: how many of them are taking notes, and how many of them are checking Facebook.

To help professors keep students concentrated on class work, several colleges have offered guidelines and suggestions for curbing misuse of computers in class and setting "netiquette" standards, like turning off the computer's volume before class begins. Other college guides give tips on ways professors can use technology better in their class, as long as they comply with copyright laws.

The University of Wisconsin suggests professors implement a "no laptop time" when "laptop users must close their lids." An online guide also says professors may want to create a policy in the event a student breaks the established laptop rules.

In past years, several law schools have banned all laptop use in class in an effort to guarantee students aren't surfing the Internet during lectures.

Northern Michigan University's guide, "Suggestions for Addressing Computer Use in the Classroom," lists sample policies either limiting or prohibiting computer use that can be printed in a professor's syllabus, and offers philosophical rationales for imposing the rules. "Laptop misuse is today's version of having a 'dirty' magazine hidden in the pages of the textbook," the guide says. "It is the student's responsibility to use the laptops responsibly."

The University of Dayton's guide doesn't dwell as much on student misuse of laptops during class time, but it offers ways professors can use computers to enhance learning strategies. — *Marc Beja*

Posted on Friday June 26, 2009: http://chronicle.com/wiredcampus/article/3851/promoting-netiquette-in-the-classroom

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Identify the assets and liabilities and establish rules to maximize assets and minimize
liabilities!  See an example produce by in cooperation with our small group facilitators at:
http://www.oucom.ohiou.edu/fd/group_ground_rules.htm
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7. Educator Malcolm Knowles used Piaget's and Erikson's work to study the adult learner.  Knowles believes that the adult learner brings life experiences to learning, incorporating and complementing the cognitive abilities of Piaget's adolescent.  As the individual matures:

1. his/her self-concept moves from dependency to self-direction
2. he/she accumulates a growing reservoir of experiences that becomes a resource for learning
3. his/her learning readiness becomes increasingly oriented to the tasks of various social roles
4. his/her time perspective changes from one of postponed knowledge application to immediate application
5. his/her orientation to learning shifts from subject-centered to problem-centered

If you examine personal and cognitive development and compare teaching approaches, you see that children tend to be dependent learners, whereas adults need to be independent and exercise control.

Source: http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/knowles.htm, Patient Teaching, Loose Leaf Library Springhouse Corporation (1990)

Implication for your teaching: provide opportunities for your adult learners to get involved in self-assessment, identification of learning needs, question asking, team work, teaching and projects requiring the specific knowledge and skills you offer.

8.  **COLLEGE 2.0  When Computers Leave Classrooms, So Does Boredom**

By JEFFREY R. YOUNG.

José A. Bowen, dean of the Meadows School of the Arts, has challenged his colleagues to "teach naked"— by which he means, *sans* machines.

Class time should be reserved for discussion…especially now that students can download lectures online and find libraries of information on the Web.

When students reflect on their college years…they're going to remember challenging debates and talks with their professors.  Lively interactions are what teaching is all about…discouraged by preset collections of slides.

The least boring teaching methods were found to be seminars, practical sessions, and group discussions…In other words; tech-free classrooms were the most engaging.

…computers have probably led to a slight improvement in teaching.  But technology has hardly revolutionized the classroom experience for most college students, despite millions of dollars in investment and early predictions that going digital would force professors to rethink their lectures and would herald a pedagogical renaissance.

…the information delivery common in today's classroom lectures should be…podcasts or online videos before class sessions. To make sure students tune in, he gives them short online multiple-choice tests.

… debate … and get the students to weigh in...if the student believes they can contribute, they're a whole lot more motivated to enter the discourse, and to enter the discipline." …don't be boring.

Strangely enough, the people who are most resistant to this model are the students, who are used to being spoon-fed material…response from students is typically, "I paid for a college education and you're not going to lecture?'"

Now that so many colleges offer low-cost online alternatives to the traditional campus experience, and some universities give away videos of their best professors' lectures, colleges must **make sure their in-person teaching really is superior to those alternatives** (bold mine).

Now that an entire infrastructure for instant online delivery is widely in place, all that's left is the hard part of changing what happens in the classroom, which might need to stay a low-tech zone to survive.

From: The Chronicle of Higher Education issue dated July 24, 2009, Information Technology section.  Full article: http://chronicle.com/article/Teach-Naked-Effort-Strips/47398/

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MY $.02:  In my humble opinion this may be a good way to go but I don't believe we can abate the pervasive and ubiquitous use of technology in our classrooms.  It does, however, beg the question for all faculty – what are you going to do about it?

May I encourage you to work with your colleagues to overtly identify the assets and liabilities created by these communication tools and think of strategies to maximize the assets and minimize the liabilities – and then publish for others to see and adapt for use.

I did this with our small group facilitators and you can see the results at: http://www.oucom.ohiou.edu/fd/group_ground_rules.htm

9. **Faculty Development Tidbit:** Redundancy Effect with Presentation Software

When you place both verbal and visual material in the slide area, the busy slide splits the audience's attention between screen and presenter, which creates additional load on working memory.   And when you present the same information in both visual and verbal form (i.e. reading from your slides), you create redundancy that overloads working memory.

To explore the redundancy effect, Richard Mayer, Ed., conducted experiments using two multimedia presentations.  The first presentation included the same material both narrated and displayed with text on the screen, and the second presentation included the narration with the text on the screen removed.  Audiences who experienced the second presentation retained 28 percent more information and were able to apply 79 percent more creative solutions using the information that those who experienced the first presentation.  Thus, the dual-channels concept turns one of our core assumptions about PowerPoint upside-down.  Contrary to conventional wisdom and common practice, reading bullet points from a screen actually hurts learning rather than helps it.  Research shows that when you subtract the redundant text from the screen that you are narrating, you improve learning.

**Research shows that people learn better from words and pictures than from words alone.  This applies when the pictures illustrate what the words say, not when pictures are added for decorative effect.**

Source: Richard E. Mayer, Ed., "The Cambridge Handbook of Multimedia Learning" (Cambridge University Press, 2005) as quoted in "Beyond PowerPoints" by Cliff Atkinson, p.47.


## Tip 10: When Using PowerPoint slides and Handouts Leave Opportunities for Them to Write

Many instructors use PowerPoint slides and handouts.  Many of those same instructors make the PowerPoint slides and PowerPoint handouts an exact duplicate of what they verbalize as they present from the podium.  With this approach students sometimes say, "Why bother coming to class?  I will just pick up the handout and leave."  Other students may say, "If the slides, handout, and words coming from the mouth of the instructor are all the same then there is nothing for me to write down.  I become inactive and tend to stop paying attention."

If you would like to address both of these student responses, you may want to create your slides with a different approach:

1. One easy way to do this is to insert a slide with a question or a blank space to be filled in.  Ask students to answer the question/fill in the blank space by writing in the space provided to the right of the slide on the handouts.  To use this approach you will want to have only 3 slides per page on the handout.

2. Another approach that can be used in conjunction with the "question slides" is to have some of your slides appear with just key words on them instead of complete sentences.  This forces the student to write some notes about the slide and thus gets them mentally engaged.  You might not want every slide to be this way but perhaps you choose them carefully so they are the ones with some very critical information on them and as you show the slide and talk about the content, you say, "These are very important points, be sure and write something down to help you remember them."

Source: Teaching Tips from your faculty development website:
http://www.oucom.ohiou.edu/fd/teachingtips.htm

## 11.  A GRACEFUL CLOSE

One of the most important findings in learning psychology is that students must deliberately process information in order to retain it. No matter how well new ideas are presented, short term memory can only hold about seven items before it must either process the ideas into long term kinds of memory or lose them. In most lectures, this point is reached every 12-18 minutes.

The successful teacher creates moments that allow students to cognitively process information before it becomes overwhelming. In traditional lecture courses, this may only require two or three brief activities inserted in the middle of a talk. This week's tips offer some ideas that you might use. Of course, classes that do not rely on lectures can adapt these activities to invite critical reflection on the work students are doing.

The ideas presented below are taken from the work of Susan Johnston and Jim Cooper (CSU-Dominguez Hills). They call these activities "Quick Thinks." The CIRT will be glad to send you a copy of their article.

> ***Select the Best Response***.  *At the right moment in your lecture, present students with a single multiple choice question over the material just covered. Have students indicate what they believe is the correct response (usually by holding up a paper with their answer). From the range of responses, you can gauge their understanding of the material and adjust accordingly.*

> ***Correct the Error***.  *Present students with a statement -- based on the material just covered -- that contains a deliberate error. Ask students to discover the error and correct it. As you listen to their efforts, you will learn what confusions remain. Students will begin practicing critical thinking.*

> ***Complete a Sentence***.  *Create a sentence stem that requires using lecture material to complete accurately. Present it to the class, allowing 1-2 minutes for completion. Ask for several responses before continuing. This activity requires students to recall and interpret rather than just recognize information.*

> ***Compare or Contrast***.  *Ask students to compare or contrast newly presented information with prior knowledge. For quick thinking, you should pose the comparison in precise terms, such as: how are the elements of this idea (just covered) like/unlike these other ones?*

> ***Support a Statement***.  *Present students with a statement and ask them to use the information just presented to support (or dismiss) the statement. Students will need to connect the material to deeper thought processes to draw connections and inferences.*

> ***Re-Order the Steps***.  *If your instruction includes teaching students steps of a procedure, hand out a list of steps in the wrong sequence and ask students to reorganize them. This may make a thought-provoking start to a lecture if linked to the readings.*

> ***Reach a Conclusion***.  *Present a short problem to students drawn from data or events or opinions and give students a couple minutes to draw a conclusion that would be consistent with the material you are covering. A short discussion of various responses will model how the material is part of complex thinking.*

> ***Paraphrase the Idea***.  *After presenting an idea, have students write down the idea in their own words (or as if they were explaining it to a friend). As you share the results of this complex re-processing of your content, your students profit from hearing it several times, and you can coach those who are still uncertain.*

### FINAL THOUGHTS

Quick Think activities are small but powerful tools to engage students in the kind of mental work that psychologists have shown are crucial to effective learning. There are various adaptations of each of these. Some instructors, for example, let students know that the multiple choice questions are drawn from the question pool used in exams -- capturing attention and introducing students to your testing style. Other faculty connect quick thinks with homework. Still others, have students share in pairs before gathering responses. This brings social support into the processing. By focusing Quick Thinks around the main ideas of the lesson, students learn how to discriminate ideas from details. Your imaginative application of the principle should help your students become more actively engaged in understanding the lessons of your classroom/teaching.

This *Teaching Tip* was first published by Indiana State University's, Center for Teaching and Learning on February 9, 1998.

## 12.  Faculty Development Tidbit: Why Group Work Improves Problem-Solving Abilities

Problem solving in a group slows down the process.  It forces student to be more thoughtful or, more precisely, as the educational psychologists would point out, it promotes metacognition.  Now students have to explain to others why they think a particular action should be taken and what they anticipate will happen as a result of that action.  Guessing or glossing over the details doesn't hold up when there are competing explanations or others to be convinced.

Researchers have identified three aspects of these explanations, each of which has the potential to develop problem-solving skills:

- First, when the student explains why, that explanation may help others learn.  Sometimes a student can actually help another student understand better than the teacher can. Students who have just learned something remember the way into that understanding, whereas teachers who've known and used the knowledge for years forget what it looked like when they first confronted it.
- Next, the problem may be solved in a group by co-construction.  Students elaborate and otherwise build on each other's answers, creating a solution collectively.  The process may involve controversy and critique, but again it is a process that causes students to engage and think more deeply about the problem and its solution.
- Finally, there is the benefit of self-explanation.  Ideas often exist in amorphous forms.  The kind of make sense.  They may ever be right but the student may not understand why.  When an idea must be articulated, either spoken or written, it is made concrete, and that tangible form makes it much easier to see and to understand if and how the original idea hangs together.  Said simply, students understand something better when they say it.

Ref: Cooper, M.M., Cox, Jr., C.T., Nammouz, M., and Case, E. (2008).  "An assessment of the effect of collaborative groups on students' problem-solving strategies and abilities."  *Journal of Chemical Education,* 85 (6), 866-872 as reported in "The Teaching Professor," Volume 23, Number 5, May 2009

## 13.  One of the conundrums we face in professional education vis-à-vis lecturing is that "lecturers" sometimes believe that unless they cover everything in the lecture, the student won't learn (sage on the stage approach) which produces an attitude in the students that says, "if the lecturer didn't cover it, then it either isn't important, or it won't be on the test".  Collusive game that is not patient-centered.  (Which is why, by the way, I'm not a proponent of either teacher-centered or learner-centered approaches in medical school – I think it needs to be patient-centered at all times.)

So, I often ask folks, what is the real intention of the lecture? (Or, said another way, "What does it mean to be the 'guide on the side'?")

It seems to me, after all these years of observing great lectures (and less than great lectures) and going through my owntrials and tribulations (more so than I had wished for!) regarding effective lecturing, that the true intention of a lecture at the professional school level has more to do with **inspiring learning, creating an organization framework for students (given the vast amount of complex, evolving, and sometimes contradictory knowledge), and fostering critical thinking and self-directed life-long learning**.

So, I feel the following component skills are essential (and position your email below in a highly effective framework):

1. **There has to be an opening that provides context** (often using a clinical anchor like a case study), objectives to be covered, and a map to the learning required (which will occur mainly outside of the classroom)
2. **Questions must be used effectively**, and the questions must serve both the interests of the students ("Am I getting this?") and the teacher ("Are they getting this?").  I believe in the **"awareness begets understanding which begets transformation"** paradigm and, because of this, questions need to cover all aspects – awareness (knowledge and comprehension), understanding (evaluation, synthesis, application) and

transformation (reflection – how am I different now that I know this).  Whether the questions are in the form of a test, or a 5 minute paper on "what I learned", etc, they must address this paradigm.

3. **Reinforcement** of learning – and I think, more than anything, the techniques below address reinforcement in a meaningful way.  Reinforcement isn't simply restating what was learned – rather, it's placing the learning in its proper context, again, application to cases is probably the best technique – but follow-up seminars relative to "attitudes" discussions, or actual clinical care settings (SP's or real folk) where the material can be reflected upon in real time – these are reinforcement strategies that can lead to sustainable learning.  Dave Davis showed, in his research, that clinicians who seek answers to clinical challenges, and then apply their learning to the clinical setting (and reflect upon the results of their application) achieve sustainable learning.

4. **Closure** which is **the oft-missing ingredient** in lectures I observe.   Most folks end with a summary slide, or something of that nature, but that isn't closure – that's just another form of reinforcement.   Closure **is all about revisiting the intention**.   It addresses questions like, "Do you have a good sense now of how to approach your studying for this topic?" or "Can you see the linkage between the material we covered today and your evolving role as a provider of patient care?".   And I'm sure there are dozens of other questions similar to this.

If you read the Macy report carefully, they are asking us to begin to use this methodology more explicitly in our schools. They are worried about things like making the connection between the "basic sciences" and clinical medicine more explicit, focusing on the competencies and subject matter needed of the 21$^{st}$ century physician, using pedagogical approaches in a manner that excites students and activates learning, and fostering critical thinking, among other things.

Change is not easy in this regard.  There is still not uniform buy-in at the undergraduate level that our approach to UME may be part of what has accounted for the patient safety and quality issues we see in practice.  (This conversation has taken firm root in GME, and CME, but it took a decade for that to happen.)  And then there is the whole conversation concerning the hidden (informal) curriculum.   Students do not consistently see the competencies of the "good physician" in the halls, classrooms, and labs of our schools (i.e. the variability is high, unexplained, and in many cases unnecessary – there is good, there is bad, and there is downright ugly – part of what I think is motivating the Macy group.)

Compliments of:

Hershey S. Bell, MD, MS

## 14. **Ideas on Teaching:** Enhanced Lecture Formats

1. Lecture with Periodic Pauses

Format: Lecture 12-15 minutes

Pause for 2 minutes: students work in pairs to review, discuss and revise their notes

(repeat this pattern three times)
Last 3 minutes of class: "Write everything you can recall from the lecture."

Results: ("treatment" and "control" groups in two different courses over two semesters) on a 65-item multiple-choice quiz given 12 days after the last lecture, comprehension and retention of the lecture material was consistently much better, in some cases up to 2 letter grades better.

2. Lecture with Immediate Test: based on the empirically based observation that people comprehend and retain material better when tested quickly and frequently.

> Format: give a test on that days lecture at the end of the lecture, every time

> Results: doubled the retention of the lecture material on a test given 8 weeks after the last lecture.

3. "Feedback" Lecture

> Format: Before class: students do "study questions"
> 20 min.: lecture
> 10 min.: small groups discuss teacher-provided question related to the lecture
> 20 min.: lecture
> After class: students do "study questions"
> Results: 99% of students liked the method and 93% said they in fact did do the study questions before and after class.

4. "Guided" Lecture

> Format: 30 min.: lecture (students take NO notes)
> 5 min.: students take notes on what they remember
> 15 min.: small groups discuss teacher-provided question related to lecture

Source: Active Learning: Creative Excitement in the Classroom by Charles C. Bonwell and James A. Eison.  ASHE-ERIC Higher Educ. Rept. #1.  Washington, D.C.: George Washington University, 1991

## 15. **Socratic questions**

Socrates is popularly considered one of the greatest educators – he taught by only asking questions and thus drawing out (as 'ex duco', meaning to 'lead out', which is the root of 'education') answers from his pupils.  Here are the six types of questions Socrates asked his pupils...often to their initial annoyance but more often to their ultimate delight. The overall purpose is to challenge accuracy and completeness of thinking in a way that acts to move people towards their ultimate goal.

**Becoming a questioning connoisseur instead of answering encyclopedia teaches your students how to orchestrate their own learning and improve the learning of those they encounter.**


**Conceptual clarification questions**

Get them to think more about what exactly they are asking or thinking about. Prove the concepts behind their argument. Basic 'tell me more' questions that get them to go deeper.
> *Why are you saying that?*
> *What exactly does this mean?*
> *How does this relate to what we have been talking about?*
> *What is the nature of ...?*
> *What do we already know about this?*
> *Can you give me an example?*
> *Are you saying ... or ... ?*
> *Can you rephrase that, please?*

**Probing assumptions**

Steve Davis: Tips for Better Teaching and Learning – March 2010

Probing of assumptions makes them think about the presuppositions and unquestioned beliefs on which they are founding their argument. This is shaking the bedrock and should get them really going!

*What else could we assume?*
*You seem to be assuming ... ?*
*How did you choose those assumptions?*
*Please explain why/how ... ?*
*How can you verify or disprove that assumption?*
*What would happen if ... ?*
*Do you agree or disagree with ... ?*

**Probing rationale, reasons and evidence**
When they give a rationale for their arguments, dig into that reasoning rather than assuming it is a given. People often use un-thought-through or weakly understood supports for their arguments.

*Why is that happening?*
*How do you know this?*
*Show me ... ?*
*Can you give me an example of that?*
*What do you think causes ... ?*
*What is the nature of this?*
*Are these reasons good enough?*
*Would it stand up in court?*
*How might it be refuted?*
*How can I be sure of what you are saying?*
*Why is ... happening?*
*Why? (keep asking it -- you'll never get past a few times)*
*What evidence is there to support what you are saying?*
*On what authority are you basing your argument?*

**Questioning viewpoints and perspectives**

Most arguments are given from a particular position. So attack the position. Show that there are other, equally valid, viewpoints.

> *Another way of looking at this is ..., does this seem reasonable?*
> *What alternative ways of looking at this are there?*
> *Why it is ... necessary?*
> *Who benefits from this?*
> *What is the difference between... and...?*
> *Why is it better than ...?*
> *What are the strengths and weaknesses of...?*
> *How are ... and ... similar?*
> *What would ... say about it?*
> *What if you compared ... and ... ?*
> *How could you look another way at this?*

**Probe implications and consequences**

The argument that they give may have logical implications that can be forecast. Do these make sense? Are they desirable?

> *Then what would happen?*
> *What are the consequences of that assumption?*
> *How could ... be used to ... ?*
> *What are the implications of ... ?*
> *How does ... affect ... ?*
> *How does ... fit with what we learned before?*
> *Why is ... important?*
> *What is the best ... ? Why?*

**Questions about the question**

And you can also get reflexive about the whole thing, turning the question in on itself. Use their attack against themselves. Bounce the ball back into their court. Etc.

> *What was the point of asking that question?*
> *Why do you think I asked this question?*
> *What does that mean?*

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16. **Teaching may best be defined as the organization of learning. So the problem of successful teaching is to organize learning for authentic results**. The task of any organizer is to enable a group and the individuals in it to function effectively together for the achievement of a common purpose. This is precisely your proper role as a teacher.

### Characteristics of a Teacher as an Organizer

1. **A good organizer is not an autocrat.** He or she does not make all the decisions or try to tell everybody in detail what to do and how and when to do it.
2. **A good organizer, however, does not simply behave like any other member of the group,** without any special rights, privileges, or powers. The group needs positive leadership in order to function effectively, clarify its purpose and achieve its desired results.

3. **A good organizer helps the group and the individuals in it to discover, to formulate, and to clarify their own purposes.** He or she will not merely tell the learners that they must learn and do this and do that.
4. **A good organizer delegates and distributes responsibility as widely as possible.** He or she will try to educate the group to manage its own affairs just as far as it can. With an immature and inexperienced group a good organizer will function to a considerable extent as a director, because he must function this way for the class to get anywhere. As the class learns how to work together, and as individuals in it learn to steer their own course, the function of the organizer merges more and more into guidance.
5. **A good organizer encourages and values initiative.** But the initiative is not just drifting and getting off the path. It is initiative that is always within in the framework of the purpose of the class.
6. **A good organizer builds on strengths rather that emphasizing weakness.** He or she goes on the constant assumption that everyone is capable of some achievement, some contribution, even though that achievement may be very modest, and perhaps very different from what the organizer expected or intended.
7. **A good organizer fosters self-criticism and self-evaluation within the group.** As leader, as director, as guide, the organizer must often take it upon himself or herself to reveal to the group where they have succeeded and where they have failed. However, he must develop the ability to hold a mirror up to the group do they can see and judge their own accomplishments and failings.
8. **A good organizer maintains control** and as controller constantly strives to develop within the class its own self-control in terms of its common purpose.

These are some of the operating characteristics of any good organizer. They are the operating characteristics of a first-rate teacher. A teacher organizes *learning*. Thus, a teacher's work is different in many important specific and detailed respects from the work of a factory manager, the head of a business department, or the administrator of a school system. But the teacher, like any other organizer, works primarily with *people*, and his task and responsibility are to create situations in which people can do their best and achieve their best.

Take a moment to rate yourself on these characteristics and identify at least one thing you'll try to improve on in your next teaching assignment – otherwise, you just wasted 5 good minutes. Please feel free to contact me with any questions, comments, or reports of things tried.

Source: http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/organize.htm

17. **ACTIVATE YOUR LESSONS**

Too often the term "active learning" leads to a great misunderstanding among educators. For many, it suggests chaotic noise and physical movement in the classroom. Actually, the key component involves creating situations in which students must actively use new knowledge. This may (but need not) involve physical activity or social conversation; it must, however, include conceptual reflection. *Active learning is actually intellectual working.*

To make most classrooms more "active" in this sense, instructors have to ask for more than repetition of information. Below are some "intellectual action works" that can guide you in your course. Bloom's taxonomy of educational objectives provides the organization for the following higher order thinking processes. For more details (steps to follow, sample applications, pros and cons) about specific tips below – see Classroom Assessment Techniques by Angelo and Cross,.

## APPLY

When you ask students to predict, select, demonstrate, explain, or perform, they must actively use the content. Here are some tips

>**Application cards** *(CAT 24) Have students write on an index card some applications for the content they just learned.*

>**Student Test Questions** *(CAT 25) Ask students to write questions regarding the topic that might be included in the test bank you use for exams.*

>**Focused Autobiography** *(CAT 33) Ask students to write a 1-2 page autobiography focused around course content.*

## ANALYZE

To encourage analytic activity, teachers can ask students to compare, contrast, identify parts, justify, resolve, or critique.

>**Approximate Analogies** *(CAT 15) Offer students an analogy that summarizes a concept and have them construct a similar analogy.*

>**Pro Con Grid** *(CAT 10) Give students a dilemma and have them list the pros and cons that are supported by their work in the subject matter.*

>**Problem Recognition** *(CAT 19) Let students review several word problems and decide which test, method, or approach should be used to solve it.*

>**What's the Principle** *(CAT 20) Give a list of principles and a list of situations. Ask students to connect each situation to the right principle.*

## SYNTHESIZE

When teachers can get students to restate, combine, discuss or argue using material, organize ideas, or generalize, they have them actively using knowledge.

>**One Sentence Summary** *(CAT 13) Provide students with some guiding questions which, when answered, can be put together into a long sentence that brings complex ideas.*

>**Concept Map** *(CAT 16) Have students draw a diagram that maps out the flow of ideas in a graphic way.*

>**Invented Dialogue** *(CAT 17) Students can be asked to use quotes from the reading to invent a dialogue on a topic.*

>**Directed Paraphrase** *(CAT 23) Direct students to paraphrase part of a lesson into language that would be understood by a specific audience.*

## EVALUATE

Students can be asked to judge, evaluate, criticize, support, defend, choose positions, and/or determine values involved in decisions.

> **Goal Ranking** *(CAT 35) Have students list their goals for learning the topic; revisit these goals at the end of the unit -- can be used as a journal exercise.*

> **Skills Checklist** *(CAT 34) Have students develop a checklist of skills that should be used in an assignment or concepts that must be known.*

> **Process Analysis** *(CAT 39) Students can describe the steps they followed in completing an assignment and write a reflection on it.*

> **Group Work Evaluations** *(CAT 47) Ask students to evaluate how well their groups have been assisting their learning.*

## FINAL COMMENTS

While CATs are designed to gather information for teachers, they often involve good teaching strategies.  The ones highlighted above can help you think through techniques that can get your students to be active in their thinking. The more students activate different parts of their brain by writing, talking, speaking, in addition to listening, the more they will process and remember the material.  Higher order thinking tasks are great ways to make lessons more active.

This *Teaching Tip* was published by Indiana State University's, Center for Teaching and Learning on October 5, 1998 (http://www1.indstate.edu/cirt/facdev/tips/classparticipation/activateyourlessons.html)

18. Know and check out the resource highlighted below...it is a free and open refereed resource primarily for faculty and students of medical education (http://taste.merlot.org/acceptableuserpolicy.html).  Similar to MedEdPORTAL (http://services.aamc.org/jsp/mededportal/goLinkPage.do?link=home) it's chock full of ready to use curricula and it's a place where you can contribute and receive credit for your educational innovations and contributions.

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