



CENTER FOR TEACHING AND SCHOLARLY EXCELLENCE CTSE

Making Things Click in the Classroom

You're rolling along in class, talking about the "Spirit of the Laws" or the great whale as metaphor or why people can't see black holes, and a nagging thought creeps into the consciousness: Does anybody out there in Classroomland know what I am talking about?

Are they even listening? Are they understanding? Do I move on? You can ask, Any questions? But if no one has a question, does that indicate understanding, inattention or wild confusion? You can repeat yourself in an effort to ensure understanding or you can press on, perhaps leaving a gap in understanding that may be hard to bridge later.

Dr. Mauro Caputi, an associate professor of engineering, has another answer, and it's not one of those little Rube Goldberg mousetrap-powered cars he has his students build. The answer is a little gray gizmo that looks like a TV remote control designed by a Trekkie. Known formally as a personal response system (redundantly, as a PRS system) or, almost universally, as a clicker, it costs about \$25, can be sold back to the Bookstore at the end of term and allows professors to pick up all sorts of feedback from students, discreetly relayed and in real time. In Dr. Caputi's Engineering 15 class, and increasingly in other classes across campus, every student has one at the ready, either purchased separately at the Bookstore or, increasingly, bought in a package with the text itself.

the lectern's computer monitor and, should Dr. Caputi choose, on the overhead projection as well.

Each student's clicker has a unique number. In seconds a checkerboard of answers appears: No. 352 chooses (b); No. 581 also chooses (b); No. 604 chooses (d); No. 159 hasn't voted (isn't awake?) and so on. In 30 seconds or less, a whole lecture hall has voted, the results have been tabulated on the fly, and Dr. Caputi has good data on the answers to the questions raised above: Do we need to go over this again, or can we safely move on?



Dr. Caputi is not the first to use the clickers on campus. The Biology Department

is using them in introductory courses and other departments, including Chemistry, are also starting to see their value, particularly in large lecture classes of, say, 50 students or more.

Dr. Caputi demonstrated the use of the clickers – and a host of other teaching bells

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This and other issues of the CTSE Newsletter are available on the Web at www.hofstra.edu/Faculty/CTSE/cte_programs.cfm.

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More Than Bells and Whistles: Adding Multimedia

On my special teaching leave, the goal was to transform a standard lecture course into a new experience, 100 percent driven by multimedia and designed to promote enjoyable student learning, involvement, participation, and interest.

I wanted to find a delivery system that could control and display all types of multimedia using a single easy-to-use software application. PowerPoint wouldn't do, because of its limitations concerning the integration and playback of various media types.

The solution was to use MediaShout, a media presentation program that its maker, MediaComplete Corporation, says can "play any media at any time, in any order, instantly." MediaShout can organize, control, and display text, video, Flash animation, audio, PowerPoint, and Web pages.

Some of the benefits of using MediaShout are that it:

- Vastly reduces the amount of switching between multiple programs to play different media.
- Seamlessly integrates all media.
- Lets you easily display media in or out of a predetermined sequence.

MediaShout requires the use of two monitors – one monitor to control the presentation, and a second monitor to display the presentation. Several technology classrooms at Hofstra are already equipped with one SMART Symposium monitor. For this project, a second Symposium was added.

Some of the benefits of using dual-Symposium monitors are that it:

- Provides a pen tool to control the presentation on the control monitor.
- Gives the ability to add emphasis and focus students' attention by using the same pen tool to write in digital ink over the media on the display monitor.
- Allows the presenter to see what the students see without having to turn constantly to look at the classroom screen.

Each year, the University grants several sabbatical leaves to faculty for projects that deal specifically with pedagogical issues. These Special Teaching Leaves provide faculty members time away from regular responsibilities to develop ideas and methods to enhance teaching excellence. The CTSE reviews applications for Special Teaching Leaves each fall and makes recommendations to the Senate Faculty Affairs Committee. Recognizing the tremendous breadth of insight, innovation and research that may be stimulated during a teaching leave, the CTSE does not limit applications to any particular topic or field. Faculty may, for example, use the time to investigate larger pedagogical theories, devise instructional methods, or study problems and crises in education. To date, 35 faculty members have been awarded Special Teaching Leaves. Each fall, the Special Teaching Leave recipients from the prior year are showcased in a presentation titled "Program on Scholarship in Teaching," to which all faculty and administrators are invited.

Dr. Mauro Caputi is an associate professor in the Department of Engineering.



Dr. Caputi found MediaShout made multimedia easy to use.

Another goal was to integrate what is commonly called "clicker" technology into the presentation. Students use the InterWrite Personal Response System, or PRS, clickers to answer electronically the multiple-choice questions I display on the screen, using PowerPoint. The PRS clickers have been used at Hofstra for several years.

Some of the benefits of using PRS clicker technology are that it:

- Requires all students to participate in the class by considering a question, forming opinions, and actively submitting their responses by clicking in their answers.
- Breaks down barriers of shyness or the emotional distress some students feel in answering aloud in class by letting students respond anonymously.

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The Good, the Bad, and How to Tell the Difference

Dr. Ira Kaplan sees a problem: Despite the widespread use of the phrase “critical thinking” in education literature, not many students truly engage in it. Too few are rigorous enough in their analyses, and too many are willing to accept bad evidence – or no evidence at all – when coming to conclusions.

And one of the reasons for that lack of analytical skill is that their professors could use a little work on critical thinking, too.

To try to fix the problem, Dr. Kaplan, a psychology professor, is holding a two-session lecture series on critical thinking, sponsored by the CTSE. In the first session, held on September 28, he addressed faculty from across the disciplines on how to get their own mental houses in order. On February 15, 2006, he will conduct a second session on how to teach this sort of rigor to students.

First, some definitions. Critical thinking is similar to the scientific method in that it involves the rational analysis of empirical evidence.

“The two do not automatically go together,” Dr. Kaplan said in his first session. “You can be very rational about things that are not good evidence, and you can gather good, empirical evidence, and then not deal with it rationally.”

But critical thinking is broader than the scientific method, as Dr. Kaplan describes it, because critical thinking can apply easily to all disciplines. While the scientific method, with its insistence on replicability and hypothesis testing, best fits bench science, critical thinking is the careful and deliberate determination of whether to accept, reject, or suspend judgment on some problem or issue.

As Dr. Kaplan describes it, “Critical thinking involves:

- Following evidence where it leads.
- Relying on reason rather than emotion.



Ira Kaplan

We can all use sharper critical thinking skills, Dr. Kaplan says.

- Being precise.
- Considering a variety of possible viewpoints and explanations.
- Weighing the effects of motives and biases.
- Being aware of one’s own prejudices and biases, and not allowing them to sway one’s judgment.”

He shies away from claiming that critical thinking will inevitably lead to truth in any cosmic sense. “The questions of what truth really is, how you can recognize it and validate it and so on, are enormous philosophical questions, and rightly so,” Dr. Kaplan said. “I don’t think it is necessary to claim that critical thinking will lead to absolute truth. But I do believe that critical thinking will get you closer to the truth by reducing error.” And that, he said, is worth doing.

Even highly trained and deeply knowledgeable faculty could use a healthy reminder of the need for critical thinking, Dr. Kaplan said. “People get carried away by their own enthusiasm

and interests.” All of us, he said, could benefit from some rational analysis of even our most deeply held beliefs – not with an eye toward discarding them, but with the goal of recognizing them for what they are.

Dr. Kaplan offered his workshop audience some things to look for in determining whether one is thinking critically or not. Ask:

- Can you elaborate?
- Can you give an example?
- Can you be more specific?
- How can we verify or test that?
- Can we look at this in another way?
- Are we sympathetically representing the viewpoints of others?

Critical thinking allows answers to those questions. Guesswork, and answers based on faith, prejudice, emotion, or mere rote memorization, do not.

While the hard sciences are long accustomed to the rigor of critical thinking, Dr. Kaplan said, other fields could well profit from some reasoned analysis. He asked his audience to consider:

- What are the competing claims and controversies in your discipline?
- What criteria and procedures do you use to evaluate those claims?
- What claims do you accept or reject?
- What claims are you currently evaluating?

The world may have had shamans as long as it has had bogus remedies and bad ideas to sell, but the computer age has made it easier to reach the gullible. A look at your own e-mail in-box suggests that the Internet has not made the world a more rational place for everyone.

Dr. Kaplan cited a handful of examples from the scores available: pills that will make you smarter in an hour, career-enhancing college degrees that can be bought for just a few dollars, and miracle cures that “they” don’t want you to know about. How to resist? Think critically.

Alternatives to Lectures

Leaving the Lectern, but Keeping Standards High

You've heard this before: Research shows that lecturing in class – often considered the sine qua non of university teaching – often fails to engage students' interest and results in their forgetting much of what they've heard. For the time being, we'll define a "lecture" as a teacher speaking to the class for an extended period, as opposed to making far shorter comments in the midst of a discussion or hands-on activity.

Many professors are skeptical, recalling their own student days as informative and inspiring. Now on the other side of the lectern, many professors strive to provide similar experiences for students.

But professors are not a representative sample of the university enrollment. By virtue of their career choice – a life in academia – they tend to favor intellectual pursuits for their own sake and value scholarly rigor more than the average college student. And while the professor in any given classroom has made a lifelong commitment to the academic discipline, the students there may be studying it primarily to meet degree requirements or to pursue non-career interests. Professors are often very different from their students.

Research indicates there is a great deal of variation in what kinds of classroom activities work best for different students. This variation has been characterized in

such terms as "learning styles" and "multiple intelligences," many of which capture something important about how students differ and how educators can tap into these differences. Some students can learn effectively from lectures, but their numbers are not large – they certainly make up less than half, or perhaps far less, of the student population. That leaves a majority of students out in the cold at least part of the time.

But even professors who acknowledge that lecturing is sometimes relatively ineffective often point to another problem: the pressing need to make sure that students receive sufficient exposure to the course content – the issues, theories and research in the discipline. That's essential, and many professors wonder where the content will come

from if it's not presented to students directly and efficiently in lectures. It is often argued that you cannot have effective discussions or hands-on activities with students until they have back-ground knowledge. And lectures are certainly an accurate and efficient way to cover content.

But there are alternatives to lectures. For example, in a lesson on the Magna Carta, a professor can prepare a hand-

out that includes selected passages from the document and some background information, accompanied by a set of written questions that require students to



Bruce Torff

Dr. Torff says that breaking away from lectures requires some planning.

summarize parts of the Magna Carta and think critically about its significance – by, for example, comparing it with similar documents in American history. Students read the text on the handout and prepare written answers to the questions. Later, with the full group, they share and discuss their answers. But as students make their contributions, so does the professor, who offers several mini-lectures (one to three minutes at a time) at just the right moments, after students have thought about the matter at hand and discussed it. In such a lesson, students are very active, yet sufficient content is covered – some comes from the handout, and some from the professor.

Teaching ideas like these will be examined in more detail in future articles in this series, *Alternatives to Lectures*.

**Many faculty
falsely reason that
just because they
liked lectures in
their own student
days, all students
like the format.**

Stalking Data? Take the Right Tools on the Hunt

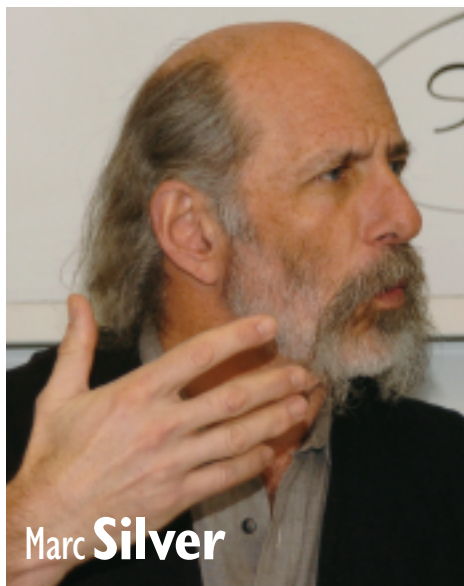
What is it about social research that makes it so difficult? Why is it so hard to “get it right”? Well, first of all, there’s the fact that social research frequently means that the subjects of our attempts at systematic data collection are other people. Even when the focus of our research is not on the individual (but on broader aspects of the social landscape, such as organizations, cities, and nation-states), the sources of our information are often still other people.

As we all know, relying on the kindness of strangers has its limitations. People are not always cooperative and generous with their time. (When was the last time you completed and actually returned that three-page questionnaire you received in the mail?) Even when they’re trying to be helpful, people are not always very reliable sources of information. They misremember things and misinterpret questions; they change their minds; they say one thing and do another.

Second, there are the difficulties associated with collecting information from and about social settings that are fluid and dynamic. It can be challenging indeed to identify what is relatively stable and consistent in social relationships. It’s not easy to separate what is patterned and ordered from what is idiosyncratic and random. Some serious obstacles, as well as some amazing opportunities, present themselves when society itself is our research laboratory.

Those of us in the social sciences confront these challenges all the time in our scholarly work. We would like to think that our background and training in the methodologies of data collection and the techniques of data analysis and interpretation provide the proper foundation for meeting those challenges. Increasingly, however, faculty who aren’t social scientists are being asked to take up the challenge of social research.

At Hofstra University, we use course and teacher evaluations (CTRs) and



Marc Silver
Data analysis should be kept in mind from the beginning of a project, Dr. Silver says.

classroom peer observations to inform our decisions concerning reappointments, promotions, and tenure. In the past decade, we have seen a growing emphasis on outcomes assessment. Faculty and administrators are being asked to develop and use systematic processes for determining whether we are meeting our educational and pedagogical goals. To do that, we need to be able to base decisions on information we can trust, information that is considered accurate and precise. Many faculty are becoming aware that the forms of inquiry associated with their specific kinds of disciplinary training are not directly applicable in this context.

That’s why the Center for Teaching and Scholarly Excellence sponsored a four-part series of workshops last year on conducting social research. The goal was to offer an elementary introduction to the area of social research, as well as provide a framework that would help guide faculty who aren’t in the social sciences through the data collection and data analysis process. Following are some of the key aspects of our discussions.

The central concept that we work with in social science is the *research design*. Actually, research design is not so much a thing as it is a process. Starting with the

basic area of interest or focus of the study, we decide how to measure key concepts (*operationalization and measurement*), how to select our sources of information (*sampling*), which *method of observation* to use (e.g., using surveys, interviews, focus groups, field observations), and how best to summarize and organize our findings (*statistical analysis*).

The process of developing a workable research design is complicated by the fact that no one decision (or combination of decisions in one area) is independent of another decision (or decisions in other areas). To illustrate, it is essential to keep in mind that decisions made about how to measure things at the early stages of the process will dictate how you analyze and organize the information at the very end. Conversely, deciding on particular techniques of data analysis will constrain one’s decisions about how to get the data. While the various aspects of research design are obviously interrelated, it is worth briefly considering them separately.

The process of operationalization and measurement refers to how we start with a concept like “student satisfaction” and create ways to measure that concept. Two central concerns in this process are *reliability* and *validity*.

Reliability refers to the ability to collect measurements that are consistent and repeatable. A reliable instrument will yield the same results on multiple administrations if what is being measured has remained stable. A reliable instrument should provide a different result only if what is being measured has changed. Validity, on the other hand, refers to whether an instrument measures what we intend it to measure. One might question whether asking students about how often they attended campus events, or how many clubs they joined, were measures of “satisfaction.” It might be better to view them as indicators of “engagement.”

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When Dangling, Watch Out for Modifiers

Carol Porr is assistant to the director of the Composition Program in the English Department. She teaches an advanced grammar course, English 102, and serves as the English editing consultant to the CTSE. Questions, comments, and suggestions for this column may be sent to her at engcip@hofstra.edu.

Having survived the publication of my first grammar article, it was decided by the editor that I should do another one. If the previous sentence looks somewhat strange to you, it's because it begins with a **dangling modifier**. This is a type of **misplaced modifier**, the topic I'll explore for this issue.

As a general rule, **modifying words, phrases, and clauses should clearly refer to another word in the sentence**. They should be placed in such a way that there is no uncertainty about the words they modify. Sometimes the incorrect placement of the modifier can create an illogical sentence:

INCORRECT: The musicians played while I tried to study at *fever pitch*.

The sentence as it stands is illogical. *At fever pitch* seems to modify the infinitive *to study*, but it should modify the verb *played*.

CORRECT: The musicians played *at fever pitch* while I tried to study.

When a modifier is placed between two elements in the sentence and could logically modify either one, it is **ambiguous** or a **squinting modifier**:

AMBIGUOUS: The young woman who had been singing *dramatically* entered the room.

The adverb *dramatically* could logically refer to how the young woman was singing or how she entered the room. Either of these meanings could be stated with clarity by placing the modifier appropriately:

CORRECT: The young woman who had been *dramatically* singing entered the room.

CORRECT: The young woman who had been singing entered the room *dramatically*.

One of the most common grammatical crimes is committed by well-meaning people (myself included) who misplace

One of the most common grammatical crimes is committed by well-meaning people (myself included).

words such as *only*, *nearly*, and *almost*. These modifiers should immediately precede the word they modify. Misplacing them often results in illogical statements:

ILLOGICAL: The baby *only* cried in the afternoon.

Didn't this baby do anything else in the afternoon? Correct this error by placing the modifier *only* where it logically belongs:

LOGICAL: The baby cried *only* in the

afternoon.

ILLOGICAL: The pole vaulter *almost* jumped six feet.

LOGICAL: The pole vaulter jumped *almost* six feet.



Where a modifier appears in a sentence makes a difference, Carol Porr says.

ILLOGICAL: Professor Tough *hardly* gives any A's in his class.

LOGICAL: Professor Tough gives *hardly* any A's in his class.

Let's go back to the first sentence in this article. My sentence contained a dangling modifier, a term that refers primarily to verbal phrases and elliptical clauses that do not refer clearly to the words they modify. In general, the implied subject of an introductory phrase or elliptical clause should correspond with the explicit subject of the main clause. The correction of this sentence would be as follows:

CORRECT: Having survived the publication of my first grammar article, I was asked by the editor to do another one.

In the corrected version, the **participial phrase** now modifies the appropriate word: the subject of the main clause.

Here's another example of a dangling modifier:

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Student misbehavior in the classroom

is an issue that generates a great deal of concern among faculty. Aside from taking personal offense at rude behavior, many college faculty believe that tolerating misbehavior in the classroom damages the learning environment to the point that an instructor is obliged to intervene. At the suggestion of Debra Comer of the Department of Management, Entrepreneurship and General Business, the CTSE sponsored a roundtable discussion on the problem. Here is her summation of that conversation.

It has been getting worse.

There is a consensus that a confluence of cultural factors (an emphasis on preserving children's self-esteem at all costs, diminishing discipline, fading of the authority role, etc.) has resulted in an increase, in the last few years, of students' displays of disrespectful and obnoxious behavior in the classroom. The fact that new faculty members are equally dismayed by students' rudeness suggests that it is not merely the case that more seasoned faculty are running out of patience as their careers progress – or that students are trying to take advantage of new or young instructors.

Identify what truly matters to you.

Is your primary goal to put an end to rudeness, or to facilitate learning? If a student is reading the newspaper or a textbook from another class, but is doing so quietly and unobtrusively so that other students' learning is unaffected, how important is it to you to point out to the student that such behavior is rude? You will need to interrupt learning to do so. Pick your battles; you may want to save your energy to contend with students who converse in class, which is rude *and* disruptive.

The syllabus is your friend.

The syllabus is your contract with your students. Specify those behaviors that you will not tolerate – and the consequences for students who exhibit them (e.g., lowered grades, being asked to leave the classroom). Some students will take this information seriously from the start. Others will test it. Adhere to your written policy, or everyone will call your bluff. Students' swollen sense of entitlement is producing requests for special treatment (e.g., extensions for submitting work late or taking a make-up exam because one forgot to take the regularly scheduled exam). Anticipating students' requests and trying to address as many contingencies as possible on the syllabus works wonders to limit requests for favors. And even when students persist in demanding special treatment, you can refuse them handily by referring to the policies articulated on your syllabus. On the first day of class, review the syllabus and be sure to mention the consequences of disruptive behavior. (If you wish, preface your remarks by explaining that, unfortunately, it is necessary to discuss this topic.)

Use techniques that work for you.

Some instructors find that they can end bad behavior by staring or glaring at a disruptive student. Others use sarcasm (e.g., "I must be having an auditory hallucination! I just heard a cell phone and everyone knows my policy against ringing phones in class.")

Difficult cases? Know your rights.

It is within a Hofstra faculty member's rights to ask an especially unruly student to leave the classroom. It is not a good idea, however, to lay hands (even gently) on a student as you usher him or her out the door. If a student refuses to leave, call Public Safety.

From the Director

Come On In, and Make a Splash

Dear Colleagues,

Are you looking for ways to enhance your work as a teacher and a scholar and broaden your interactions with colleagues in other departments? Would you like to be a mentor for new teachers, or help new faculty get manuscripts ready for submission? Would you like to add richness to campus life by organizing panel discussions and brown-bag seminars? If any of those things sound intriguing, you should apply for membership in the Center for Teaching and Scholarly Excellence. The goal of the CTSE is to help all of us improve our skills as teachers and scholars, and members play an active role in making that happen. Besides the activities mentioned above, members review and recommend applications for the Special Teaching Leaves offered by the University, and they come up with new ways for the University to support our academic endeavors through the CTSE.

In the spring semester, the Provost will send out a call for CTSE member

applications. You can view the requirements for membership on the CTSE Web site, which you can find by clicking on the Support tab on the Hofstra Portal. The most important part of the application is a brief statement explaining the activities you would like to pursue as a CTSE member. To learn more about the kinds of activities that CTSE members undertake, view the Events page. But I am sure that there are many people on campus with new and different ideas that would benefit the rest of us and that are within the means of the CTSE. Another way to explore the possibilities for CTSE projects is to look at what other campuses have done; the CTSE Web site provides links to many teaching and learning centers throughout the country.

For their participation, members receive a small yearly stipend and provide a service to the University. I know that there are many interesting and exciting opportunities for faculty on our campus, and that most of us have limited time to take advantage of them. But the CTSE



Susan Lorde Martin is director of the CTSE.

offers members an unusual opportunity to contribute whatever they judge to be most worthwhile in promoting excellence at whatever times are convenient for them. I very much hope you will consider coming onboard – the gain will be ours, and yours.

Best regards,
Susan

Watch Out for Modifiers

(continued from page 6)

DANGLING: *Taking our seats at the Hofstra stadium,* the game started.

Taking our seats is a participial phrase that does not clearly refer to any word, or it seems to modify *game*, the subject of the main clause.

CORRECT: Taking our seats at the Hofstra stadium, *we* waited for the game to start.

Now the participial phrase modifies the subject of the clause: *we*.

Dangling participles can cause some pretty ridiculous sentences. Here's one I like to use with my students:

DANGLING: The doctor will not treat the patient, *unless thoroughly anesthetized*.

I'd like to see that doctor's insurance premiums. The problem here is that *anesthetized* is a past participle that should clearly modify the direct object, *patient*. Obviously, this sentence needs to be reworded so the meaning is clear:

CORRECT: The doctor will not treat any patient *who is not thoroughly anesthetized*.

Now the direct object, *patient*, is modified by a clause functioning as an adjective. This is another way one can correct the problem of dangling participles: turn the

participial phrase into a modifying clause.

Sometimes dangling participles result from poor placement. Here's one I got from *The Grammar Bible*:

DANGLING: James Dickey, poet and professor, was a guest of honor at a surprise luncheon with a birthday *cake thrown by several close friends in the English department*.

Wow! That's one cantankerous English department. This sentence is written in a way that has the cake thrown by members of the English department. *Thrown by several members of the English*

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Making Things Click in the Classroom *(continued from page 1)*

and whistles, including multimedia presentation software and old movie clips – to more than 40 colleagues on October 19 at the 13th Annual Scholarship in Teaching Program.

Dr. Caputi was awarded a Special Teaching Leave last year and spent the time developing a multimedia presentation for his Engineering 15 course. What he came up with is as far from a standard PowerPoint show as a 60-inch surround-sound flat-panel plasma screen HDTV is from an old wireless radio.

After the presentation, he said that just putting together the 90-minute demonstration had taken three full days of work. Many faculty are probably unlikely to put months of work into refashioning a lecture course to turn it into a multimedia extravaganza. But they'd probably like to be able to do what he does when a cell phone goes off in class: he immediately punches up a "Three Stooges" skit about a ringing telephone on the overhead projection.

The clickers can be used independently of the multimedia software – indeed, they demand a PowerPoint presentation to record, tabulate and graph the instant voting that the PRS can provide. Dr. Caputi otherwise scoffs at PowerPoint as too tame, too quaint and too dull for his teaching style. But whether PowerPoint is a step up or a step down, it is ubiquitous on campus.

The clickers can be used only in classrooms equipped with receivers to pick up their signals, said Kat Broadwater, the University's classroom technology coordinator. Currently, only 100 and 105 Breslin have the receivers installed. The large lecture hall in Monroe will be fitted with them in the

coming months – certainly before the fall 2006 semester, she said.

The clickers are catching on. The Biology Department has used them for three semesters in introductory courses for both majors and non-majors, said Maureen Krause, an assistant professor of biology. She likes the clickers so much that for a semester, before the receivers were mounted permanently in her classroom, she arrived early each class period to hang the receivers and then take them down at the end of the period. "We wound up using Velcro to stick them up with. If you look, the Velcro strips are still there."

Instead of bringing stepladder and a roll of Velcro to class, if a professor wants to try the clickers, Ms. Broadwater's advice is to make it clear to the department head at the time of scheduling that the course will need PRS receivers. To date, the supply of rooms has been adequate to meet the demand.

She says that while "most high-tech toys are just that – toys," the clickers are a real boon, particularly to students. "You sit in the classroom and you're never quite sure where you stand in relation to others in the room," Ms. Broadwater said. "Sometimes you wonder why the professor is going so-o-o slowly," she said, while at other times "you look around and wonder: Is it just me? Does everybody else get it?"

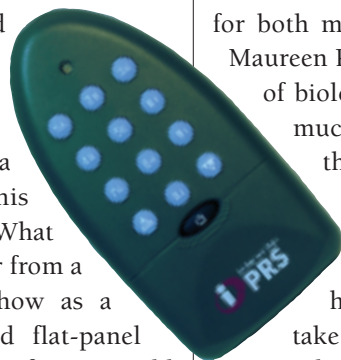
The clickers provide an answer. Voila!

Instant feedback, and the professor and the students are on solid ground.

While the clicker system seems to be most useful in large classes, Dr. Beverly Clendening, an associate professor in biology, finds them useful in at least three ways in her BIO 11 class for freshman biology majors. The class has only 40 students, but it is large enough to make the clickers "a very useful feedback tool," she said.

First, "Student responses to questions about topics we have not yet covered help to uncover misconceptions that need to be addressed." Second, "Questions about material that has already been covered in class help me to see how much the students are getting." And lastly, she said, echoing Ms. Broadwater, "These questions are also useful to the students as self-assessment tools."

Dr. Clendening said, "The only down side is the not insignificant learning curve. It takes a couple of weeks to learn all of the tricks, particularly if you want to import your questions directly into a PowerPoint presentation."



More Than Bells and Whistles *(continued from page 2)*

- Provides immediate feedback to the professor and the students on how well students understand the material.
- Makes student participation enjoyable.

I needed one more technology component, a way to store all the multimedia and transport it to and from the classroom. The Faculty Computing Support office provided a solution: the use of a LaCie 80GB external hard drive. I can access all multimedia files from the external drive, so I don't need to use the internal hard drive of the classroom computer.

As you would expect, it takes a considerable amount of time and effort to plan, develop, produce, and organize all the multimedia elements of this type of classroom experience. If you're interested in pursuing a project of this type, you could begin by exploring one aspect at a time and slowly expanding your comfort zone through various levels. (See the article "Making Things Click in the Classroom" on p. 1.)

This project was even more complex

because I found new ways to integrate multimedia technology into the classroom while I was developing a new course. The new course is a natural science distribution course, Engineering (ENGG) 15: Designing the Human-Made World, which is cross-listed with Technology and Public Policy (TPP) 15. The class is composed of first-year engineering majors and non-engineering majors.

To look at the world that humans have designed, we study the products, processes and systems used in its development. An Informed Design Process connects basic science and mathematics to an eight-step design cycle, enabling students to grasp the fundamental nature of conceptual design.

Teamwork is a vital component of the course. The class is divided into teams of three or four members. Each team works collectively on all homework, in-class quizzes, and laboratory experiments. Team members confer and then use one clicker to answer the in-class PRS clicker

questions. The course culminates with a project: each team develops and delivers a 10-minute PowerPoint presentation highlighting the solution to one of its Design Lab experiments.

The six design labs are the laboratory part of the course. Teams construct their own design solutions to meet certain project specifications and time constraints, and they integrate supporting science and mathematics into their designs. This process allows the students to develop good team dynamics – working constructively to handle team conflicts – and to improve their oral and written communication skills.

By all accounts, student enthusiasm for the course is high. They enjoy the many differences between this new course and more traditional courses. I am learning along with them, and am hopeful for success as this effort moves from its beginning stages into its more mature, intermediate stage.

Stalking Data? Take the Right Tools *(continued from page 5)*

Sampling is the process of selecting a set of elements for purposes of making observations. We are rarely able to observe an entire population, even though we want to draw conclusions about that population. We usually have to settle for observing a subset of the population in order to draw conclusions. How we go about selecting a sample affects our ability to draw inferences from our sample observations and apply them to the population.

There are important advantages associated with using *random samples*: those for which all elements of the population have an equal chance of being selected for the sample. A random sample has the best chance of being representative of the population from which it was drawn, and thus provides the best opportunity to develop inferences about the population. Random

samples also provide a basis for assessing how much confidence we should have in those generalizations. Non-random samples undercut our ability to draw conclusions about the larger population.

Every researcher collects information. Each social science strategy for soliciting information from respondents has its particular strengths and weaknesses. The use of survey questionnaires, for instance, tends to enhance the ability to collect a large amount of information efficiently. It also makes it easy to analyze relationships and summarize information later by using quantitative statistical techniques. Unstructured interviewing, by contrast, allows for pursuing a focused line of inquiry in great detail. One of the real virtues of such an approach is the opportunity to follow lines of questioning based on the unanticipated responses of interviewees, as well as the ability to

probe to gain greater clarity and depth of understanding.

There are multiple methods of observation to consider. It is not that one approach is inherently superior to another. The choice of method often comes down to the interests and needs of the researcher. Perhaps the safest and best approach, if feasible, is to consider using more than a single method.

It is, of course, impossible in such a short article to cover the full range of issues associated with conducting social research. Nor am I able to do justice to the few topics that I did mention. I hope, however, that this brief discussion provided a little insight into what is a challenging, but ultimately rewarding and useful, exercise.

Balancing Act



HAVING IT ALL Debra Comer from Management, Entrepreneurship and General Business; Estelle Gellman from Counseling, Research, Special Education and Rehabilitation; Cheryl Lehman from Accounting, Taxation and Legal Studies in Business; Margaret Abraham from Sociology; Joanne Willey and Jason Williams, both from Biology; and Jason's son, Ian, 14 months, proved it can be done: One can carry out academic work and manage a family at the same time – though it can be tricky. The

panelists were joined by two dozen other faculty and two other little ones for a CTSE-sponsored discussion of how to balance the competing obligations of work and family. “Compartmentalize” was the operative word, as in: Don’t take a briefcase full of papers home and expect to grade them during naptime. You won’t get any academic work done, and you’ll be frustrated. Rather, enjoy your children during the all-too-brief time they are young. That’s why there are weekends and summers.

Watch Out for Modifiers (continued from page 8)

department is a participial phrase that should be modifying *luncheon*, not *cake*.

Here’s the correction:

CORRECT: James Dickey, poet and professor, was honored with a birthday cake at a surprise luncheon *thrown by several close friends in the English department*.

Gerund phrases can also cause confusion:

DANGLING: On *entering the Hofstra stadium*, the size of the crowd surprised us.

Entering the stadium is a gerund phrase that is the object of the preposition *on*. This construction has no clear word to modify. *The size of the crowd* didn’t enter the stadium.

CORRECT: On entering the Hofstra

stadium, we were surprised at the size of the crowd.

And here’s an example of an **infinitive phrase** that has no clear referent:

DANGLING: *To write well*, good books must be read.

CORRECT: To write well, *one* must read good books.

An **elliptical clause** is a grammatically incomplete expression (frequently the subject or verb is omitted) whose meaning is nevertheless clear. Elliptical clauses can cause problems when there is no word for them to modify. Here’s a sentence from a student of mine:

DANGLING: *When only three months old*, my father took this picture of me.

In addition to being precocious, this student’s dad was also a time traveler. The elliptical clause *when only three months old* needs to modify the appropriate word. The way to correct sentences that contain dangling elliptical clauses is either to leave the clause the way it is and reword the main clause or to expand the elliptical clause into a dependent clause:

CORRECT: When only three months old, I was photographed by my father.

CORRECT: *When I was only three months old*, my father took this picture of me.

So there’s my mini-lesson on misplaced modifiers, and I apologize for any technical language. When it comes to modifiers, make sure they’re placed properly, and remember not to let them dangle!



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