Quantitative Reasoning Across the Curriculum Committee Meeting October 22, 2008

Incorporating Quantitative Reasoning into Writing, Strengthening Both

I. **Why make Quantitative Reasoning a part of the Queens College curriculum?**
   A. Students need it: Consider today's global economic crisis
      i. Innumeracy extends from the homeowner who can't calculate a variable rate mortgage increase, to the sophisticated banker who can't price risk (AIG)
      ii. Letter from Neil DeGrasse Tyson, Hayden Planetarium

   B. QC needs it: Other schools have already done it
      i. Some are math-oriented (Yale, UVa, UMass-Boston, Colorado College)
         1. Quantitative Reasoning Center (Colorado College)
         2. Math Q114 requirement (UMass-Boston)
      ii. Some are writing-specific (Carleton, U of North Dakota)

II. **Why incorporate QR into Writing?**
   A. Michael Burke's "A Mathematician's Proposal": Idea: Use Freshman Composition

   B. Other schools do it
      i. Case for Psychology (Carleton), Geology (Dickinson), Economics, etc.
      ii. Carleton's QuIRK; examination of student writing portfolios reveal 3 common problems: "comparison", "staples", and "weasel word"

III. **How I incorporate quantitative reasoning in writing assignments**
   A. Journalism: Aiming to educate
      i. CUNY J-school, "numeracy" mandated for first-years
      ii. Credit-crunch example of what students need to understand and produce

   B. Business Writing: Aiming to clearly present information
      i. All students must produce a 10-12 page formal business report, with graphic and numerical information
      ii. In-class exercises using *New York Times* graphics

   C. Creative writing: Producing Vivid and Compelling Prose
      i. Replacing fluff with illustrative, numerical detail
      ii. Moving the personal into the political realm of advocacy

Presentation by Susan E. Kuhn, adjunct English/Journalism/Bala, Queens College

The Case for Employing Quantitative Reasoning in Writing

1. **Detail, detail, detail makes you sound smarter and makes your writing less "fluffy"**
    a. Don't say a car is fast; tell me how fast? Say it goes from 0-60 in 5 seconds; say the driver was determined to cover 200 miles in 3 hours, and the cop clocked him going 80.
    b. Don't say Queens College is a diverse campus; what the heck is diversity? Tell me how many languages students speak, and how this compares to the average college.

2. **Numbers prove a point better than opinions.**
    a. "Queens College is a great value". Really? What's our tuition vs. other public schools, or private schools? How do our departments rate, academically? Numbers lend authority, and neutrality, so arguments can move beyond the personal.
    b. "Investing in stocks is the best way to make money over time." Really? Today the market is down 40%--which means my $1,000 is worth $400. But 1929, the average annual return on stocks has been 10%, vs. a 6% return on bonds. Oh. Including both sets of facts tells the truer story, and clarifies hearsay that leads so many innocents down the path to ruin.

3. **Numbers prove different points, easily and more simply than words, on related subjects.**
    a. Quick, tell me who smokes more, men or women? Now tell me the fastest rising group of smokers. Do the same for AIDS, or cancer, or heart disease. There's a difference between absolute amounts and rates of change, and they tell different, often equally-important stories. Absolute amounts tell you the impact of a problem; more men than women smoke, for example, and that is a leading factor in why 1 in 2 men are expected to get cancer vs. 1 in 3 women. But young women are a faster-rising group: that speaks to potential future problems, or a present day social issue.
    b. Imagine defining words like "good" or "bad" without numerical context. A student asks how his paper was; you say good. He gets a B; is he happy, or sad? Think of how many words you have to use to explain to him why it's "good". There's a reason some writing teachers come up with a point scale to get around this issue (and why we envy math teachers grading exams).

4. **Informative graphics, combining art, numbers, scale and brief text, work as compact, stand-alone stories.**
    a. Proof: Try reading all the newspaper stories on the current financial crisis—or just examine the graphics, with dollar bills and arrows indicating where the Treasury intends to infuse cash. Look at the timelines for a CEO's tenure; the tables of which banks get how many millions in capital infusions. They have headlines, source lines, a key, scale and labels—it's the heart of the story, compacted.
    b. Additional benefit: You get to say the same thing twice. Your graphic pulls in the reader and in your story you flesh everything out, again. Also, producing the graphic forces you to concentrate on the main point of your story—and find the "thread".

The Carnegie Foundation for the Advancement of Teaching

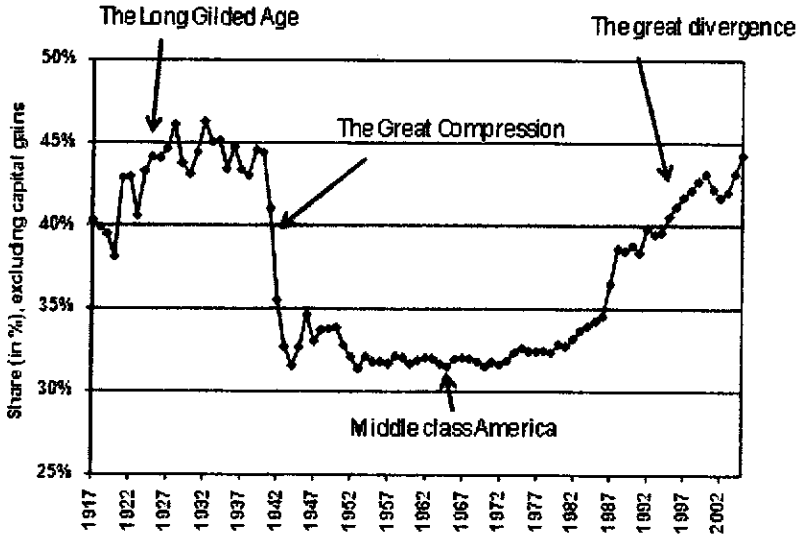
A Mathematician's Proposal

by Michael C. Burke

In *Mathematics and Democracy,* Lynn Arthur Steen describes quantitative literacy as "a habit of mind, an approach to problems that employs and enhances both statistics and mathematics." What characterizes this habit of mind, this way of thinking? Why is it important? How can it be taught?

These are questions much on my mind as a college mathematics teacher, but I believe they matter far beyond my discipline. Quantitative literacy, the ability to discriminate between good and bad data, the disposition to use quantitative information to think through complex problems—these are capacities that educators across fields should be helping students develop. I'd like to lead you to this conclusion through an extended example.

Princeton University economics professor Paul Krugman recently began a blog on *The New York Times* website. In his first post, Krugman wrote, "I'll be using this space to present the kind of information I can't provide on the printed page—especially charts and tables, which are crucial **to the way I think** about most of the issues I write about." Krugman then introduces a graph that presents a picture of income distribution in the country by displaying the share of total income earned by the richest 10 percent of Americans.



Income distribution chart courtesy of Paul Krugman

On the basis of this graph, Krugman posits that the "middle class America" period from 1950 to 1970 produced a society "without extremes of wealth or poverty, a society of broadly shared prosperity," and that this period is, in fact, an aberration. The years since 1970, as Krugman's graph clearly shows, have been marked by a gradual return to the America that existed before what he calls The Great Compression in the World War II years, an earlier America characterized as the Gilded Age.

How did this shift occur? How did this country decide to return to a Gilded Age in which extremes of wealth and poverty were the norm? The answer, of course, is that we made no such conscious decision. Instead, we made numerous small decisions, without any articulated vision or plan. We did not see what we were doing, and could not therefore really "decide," because *we did not know how to look.* There was public discussion,

certainly, but it was fragmented, fractious, and marked by a conspicuous lack of grounding in the underlying reality of the America of the late twentieth century and the trends at work that led to the America of today.

In contrast, Krugman's use of a graph illustrates an especially powerful way to look at and think about our world. The graph, he says, is "central to how I think about the big picture, the underlying story of what is really going on in this country." Using the tools of economics, he shows us that things that are otherwise difficult to see or understand can sometimes become dramatically apparent when we look at the right graph, table or chart. These visual representations of data are indispensable tools for understanding, and they can often clarify what is obscured by the sound and fury of public debate.

Caveats are in order here, of course. Krugman uses the "right graph," but it is also possible to construct the "wrong graph." Graphs, like words, can be used to mislead. There is also a great deal of subtlety involved. As Edward Tufte elegantly illustrated in *The Visual Display of Quantitative Information*, it can be difficult to envision what the right graph for a given situation should look like. Which graph will illuminate rather than obscure, clarify rather than confuse?

But my larger point here is that the content of our thoughts and the depth of our understanding are dependent on the tools we bring to the task. *What* we think is intertwined with *how* we think. And the ability to think in terms of quantitative data, in terms of tables and graphs, is indispensable for understanding our modern world. This should be part of what we teach *all* our students—not just students in selected courses or selected majors.

With that aim in mind, I would propose that we begin by redesigning our freshman and sophomore writing programs in order to place a significant emphasis on working with quantitative data, and on the visual representation of that data. We write, after all, to figure out what we think. And we ask our students to write so that they will learn how to think.

I can imagine that many who oversee our writing programs would not be eager to implement such a program. After all, it is perhaps asking them to teach our students to think in ways that they themselves do not think. That's a tall order, indeed. Of course, the responsibility for rethinking the way we teach writing on our campuses should be shared. Mathematics faculty, in particular, should take the lead here, but others who view the world through a quantitative lens—statisticians, economists, physicists, biologists, even some psychologists—should contribute as well. It is well past time for those of us with a quantitative cast of mind to become involved in a serious way with the writing programs on campus. For the majority of our students, this is where the action is, and accordingly, this should be one of the places where we concentrate our efforts.

We need to come to terms with some basic questions. Since the ability to think quantitatively is, in fact, essential to understanding today's world and to acting effectively and wisely as a citizen, we have an obligation to ask: are we teaching these skills? Do we routinely require students to build their arguments on an analysis of the data relevant to an issue? Do we require them to create their own tables and graphs to support their arguments? Are we teaching our students how to get beyond the rhetoric surrounding important issues, how to see the underlying trends at work, and how to cut through the distractions of the often loud, heated debate?

If the answer to these questions is no, then we have work to do.

Join the conversation »

Quirks of Rhetoric: A Quantitative Analysis of Quantitative Reasoning in Student Writing

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This paper offers a preliminary report on Carleton College's effort to develop an empirically-grounded method for evaluating uses, non-uses, and misuses of quantitative reasoning in student writing. This effort is central to Carleton's Quantitative Inquiry, Reasoning, and Knowledge (Quirk) initiative, which is supported by grant P116B040816 from the Fund for the Improvement of Postsecondary Education (FIPSE) of the United States Department of Education.

Carleton's Quirk Initiative

Quirk's Rationale

Carleton's Quantitative Inquiry, Reasoning, and Knowledge (Quirk) initiative is taking an "across the curriculum" approach to improving undergraduate education in quantitative reasoning. We are doing so, in part, in light of sound educational advice. Derek Bok (2006), for example, has argued that "...numeracy is not something mastered in a single course. The ability to apply quantitative methods to real-world problems requires a faculty and an insight and intuition that can be developed only through repeated practice. Thus quantitative material needs to permeate the curriculum." But there is a deeper intellectual justification for such an effort. If, as Stephen Stigler (1999) has claimed, "Statistical concepts are ubiquitous in every province of human thought," then students and faculty should find a facility with quantitative reasoning relevant in the wide variety of disciplinary, professional, and societal discourses in which they commonly participate. In particular, we believe quantitative reasoning to be intertwined with the construction and presentation of arguments, which is of relevance both to individual liberal arts disciplines and to the broader goal of critical thinking in undergraduate education.

The aim of our educational program is to help students strengthen basic quantitative reasoning habits of mind. These include:

(a) Electively asking "What do the numbers show?"
(b) Seeking to support claims with sound empirical evidence.
(c) Being able to find or generate relevant evidence.
(d) Evaluating quantitative information in a knowledgeable and principled manner.
(e) Communicating quantitative information clearly and meaningfully to others.
(f) Acknowledging and respecting uncertainty.

Quirk represents an attempt both to give students background and experience that would be useful in evaluating quantitative claims critically and to promote appropriate uses of quantitative reasoning to help illuminate issues and answer questions.

Quirk's Curricular and Campus Program

How might we accomplish these ends? In part, Quirk is mounting a local curricular reform effort that includes (a) new first year seminars that involve students in using data and course revisions to existing courses to provide students with reinforcing encounters with numerical analysis, (b) faculty development activities (workshops and lunch sessions) to strengthen faculty expertise and resources to help address quantitative reasoning, and (c) campus events to raise attention to quantitative reasoning in the intellectual culture of the college. The first year seminars we have introduced include courses on "Media and Electoral Politics," "Geology and Health," "Chance in the News," and "Measured Thinking: Reasoning with Numbers about World Events, Health, Science and Social Issues." Course revisions we have sponsored include introducing statistics for a course on The Perception of Music, developing a data base for student projects in a history course on the trans-Atlantic slave trade, and preparing research assignments on small-town movie-going for a course in Cinema and Media Studies. Faculty workshops have addressed "Medical Research and Personal Health," "Writing with Numbers," and "Statistics for Faculty." And we have sponsored campus visits from Joel Best (University of Delaware), author of *More Damned Lies and Statistics*, and David Hemenway (Harvard School of Public Health), author of *Private Guns Public Health* (2004), a public health and empirically-informed approach to gun violence in the United States.

Assessing Quantitative Reasoning in Student Writing

At its core, however, Quirk is an assessment driven program rooted in evaluations of student uses of quantitative reasoning in arguments as those are represented in written work. We sought to employ assessment to inform our teaching and curriculum development efforts by helping us identify tendencies in how students used or failed to use quantitative reasoning. And we needed to find a means of gauging whether our educational initiatives were, in fact, accomplishing what we hoped they would. Because we believe quantitative reasoning to be central to the construction and presentation of arguments, we identified an available campus vehicle for capturing natural samples of students' arguments: Carleton's required writing portfolio.

At Carleton, all students are required to submit writing portfolios by the end of their sophomore year. Students are asked to include 3-5 course papers in the portfolio as well as a reflective essay they write specifically for the portfolio on their development at Carleton as writers. The papers the students select must represent two of the four divisions in the Carleton curriculum and address five domains of writing: observation, analysis, interpretation, documented sources, and thesis-driven argument.

Phase I: The Quant Squad

In June of 2005, a group of eight Carleton faculty and staff began the process of reviewing student writing for quantitative reasoning. This represented the first step in an attempt to assess the baseline character and extent of quantitative reasoning used in written arguments by students who were not influenced by Quirk activities. We did so by first identifying and then jointly discussing quantitatively rich papers from student portfolios. This unsystematic immersion led us to the tentative identification of three common shortcomings in student uses of QR. First, students would present numerical information absent the frames of reference or comparison that might make that information meaningful. We came to call this the *comparison problem*. Second, students would staple tables and figures to papers without addressing the numerical findings represented in these in the paper's presentation of arguments. We came to call this the *staples problem* (under the tongue in cheek assumption that students assumed the meaning of attached tables and figures would be conveyed through the staples that bound the paper together). Third, students would use terms like "many" and "often" without numerical precision and documentation. We came to label this the *weasel-word problem.*

The Quant Squad also began discussions about a specification of goals and outcomes for student writing using quantitative reasoning. The draft list we generated is available at http://apps.carleton.edu/collab/quirk/resources/writing_protocol/

These preliminary observations about student use of quantitative reasoning in written argument informed subsequent faculty development activities on campus. For example, we organized a lunch presentation at Carleton's Learning and Teaching Center for faculty on what we had found during the portfolio reading process. We also co-sponsored a winter break workshop with the Carleton Writing Program on "Writing with Numbers," facilitated by John Bean of Seattle University (see Ramage, Bean, & Johnson, 2007). And faculty shared resources such as Jane Miller's (2004) book, *The Chicago Guide to Writing about Numbers*, to help us teach students to present quantitative information more effectively in their writing.

Phase II: An Empirical Assessment of QR in Student Writing

Our Phase I readings and discussions provided the foundations for a more systematic approach to assessing quantitative reasoning in student writing, again as part of our attempt to document a pre-grant baseline for subsequent comparisons. In Phase II, we randomly sampled one paper coded by the student as demonstrating analysis, interpretation, or observation from each of 200 randomly selected 2004 and 2005 student portfolios. We restricted ourselves to these categories because they were the richest potential sources of papers incorporating quantitative reasoning.

Each paper was read and, we coded the *potential* uses of quantitative reasoning in the paper as central, peripheral, or incidental/irrelevant. Central uses of QR referred to the potential use of numbers to address a central question, issue, or theme. Peripheral uses of QR referred to the potential use of numbers to provide useful detail, enrich descriptions, present background, or establish frames of reference. Miller (2004) wrote

that "Even for works that are not inherently quantitative, one or two numeric facts can help convey the important or context of your topic" (p. 1). Works that are inherently quantitative correspond to what we coded as central; the other uses of quantitative information correspond to what we coded as peripheral.

Note that this coding represented the reader's judgment about the potential use of quantitative reasoning in the paper, regardless of what the paper did include (or the assignment required). We next coded the extent to which quantitative reasoning was in fact employed, implemented competently, communicated clearly, and interpreted effectively. We also coded the forms the quantitative information took and other features of the paper. (A complete codebook is available through the Quirk website at http://apps.carleton.edu/collab/quirk/resources/Research_Codebook_for_Assessing_QR/.)

What have we found so far using this codebook? First, we found that quantitative reasoning was relevant in one way or another to 64% of all papers sampled. We found that 36% of these potential applications of quantitative reasoning were central and 28% were peripheral. Most (66%) of the papers for which quantitative reasoning was potentially centrally relevant in fact used QR; few (12%) of the papers for which QR was judged potentially relevant peripherally in fact used QR. The papers in the former group tended to represent the natural and social sciences, while the papers for which QR was potentially peripherally relevant came from across the curriculum. Given the random selection of papers, these findings permit a challenging inference: the same students who could use QR when called upon to do so centrally when assignments presumably require QR tend not to do so electively in other papers.

What happened when quantitative reasoning was not used but could have been? Again in this sample, we found that students used undocumented quasi-quantitative terms such as "many", "some", "a number of", and "most" instead of anchored numbers. Here, for example, is the opening of a paper on Chronic and Psychogenic Pain: "At one time or another, some of us have gone to see a physician for pain treatment only to be told, 'It's all in your head.' Many people experience acute or chronic pain whose severity, duration, or degree of resulting disability cannot be explained by a possible, underlying physical disorder alone. Others suffer psychogenic pain..." In sum, in this instance, what was chronically painful was the degree to which weasel words were found.

Phase III: The Quant Squad Reads Again

We are currently refining the coding scheme used in Phase II of our project and applying it to papers randomly selected from 2006 student writing portfolios. These are the first portfolios from a class of Carleton students exposed to Quirk initiatives. Moreover, we are attempting to address a central limitation of our Phase II assessment, namely that it was conducted by a single rater (the author) and lacks an evaluation of its inter-rater reliability.

We are also examining the writing contributed by students who participated in the first set of first year seminars developed under Quirk and comparing that writing, using our rubric, to that submitted by students in control first year seminars. We already know, using a quasi-experimental research design, that participation in our first year seminars had a statistically significant impact on attitudes toward quantitative reasoning. QR first year students reported being more inclined to evaluate arguments in terms of data, to be interested in developing their statistical skills further, to see QR as important to professional roles, and to perceive QR as important to citizenship. What remains to be seen is whether exposure to Quirk will be reflected in evidence of stronger quantitative reasoning in students' written arguments.

Assessing the quantity and quality of student quantitative reasoning in light of our efforts to enhance the curriculum to strengthen QR remains the central goal of the efforts reported here.

References

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Bok, D. (2005). *Our underachieving colleges.* Princeton: Princeton University Press.

Hemenway, D. (2004). *Private guns public health.* Ann Arbor, MI: University of Michigan Press.

Miller, J. E. (2004). *The Chicago guide to writing about numbers.* Chicago: University of Chicago Press.

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Stigler, S. M. (1999). *Statistics on the table*. Cambridge, MA: Harvard University Press.

Eng 201W: Business Writing, Fall 2007

Assignment:

Eng 201W is a business writing specialty designed for honors students in BALA, the business and liberal arts minor. The goal of the course is to teach students, whose majors range from English to Accounting, how to communicate effectively in writing. Ultimately, I have them produce a 10-15 page formal business report that argues a case, ranging from holding the line on a tuition increase for SUNY and CUNY in 2003, to this semester's assignment comparing the safety of a checking account at two banks.

As part of this report, which includes a cover page, table of contents, executive summary, proposal, discussion of findings, conclusion, and works cited, I require at least one visual aid. They choose the content and form—pie chart, line graph, table—but each must have a headline, source line, appropriate labels, scale, and color codes. In addition, there must be one or two lines in the text that tell where the visual aid is located, and analyze its main point. The point of the visual aid is to attractively display data that would be too dense and monotonous if written out.

I knew I was going to have to prepare them to do this, so I came up with a classroom exercise using visual aids in *The New York Times*. I deliberately choose graphs and tables from a variety of stories: urban, political, business, even the weather. In pairs, students pick one out and write down a line of summary, and a line of analysis. As an English teacher, I had already discovered that this difference was not clear to students, so I told them: Summary is what information is present; analysis is the most relevant point. An example: "Summary: The table below shows the cost of attending CUNY Law School, by category. Analysis: CUNY Law School isn't cheap, and tuition is the biggest hurdle."

Goal:

With the formal report, my goals as a writing teacher are:

1) To get them to argue a point effectively through solid research, clear organization, and tight writing that moves from proposal to proof;
2) To make sure they know how to use and cite sources effectively in research (we use MLA citation, but I explain APA briefly too); and
3) To have them effectively address their audience—in this case, a business audience that has little time and wants quick "bites" of information--through form and tone.

It is this latter aim that led me to the inclusion of visual aids: they convey lots of information quickly and attractively, and serve as entry points to the text, which is ultimately long.

Examples:

The work attached represents the interpretations of graphs by pairs of students in separate classes. These are honors students, used to getting As. But they were clearly not used to reading graphs and tables; they rushed to conclusions, or didn't notice small details.

Notes on New York Times graphic analysis exercise, November 2007, Eng. 201W: Business Writing

The students asked to summarize and analyze graphs and tables from the *New York Times* had a difficult time doing so. They frequently failed to note identifying labels (dates and dollars), missed scaling, and oversimplified patterns. They relied heavily on text for interpretation. While some students were able to note the significance of a difference in numbers (a population rise from 75 to 300 million is quadruple), most either failed to mention numbers at all, or simply recited them. Knowing there was a story to the graphs, some tried to bring in outside information as a way of offering analysis (employment in Detroit is falling because of foreign car competition), showing a potential for bias in the reading of the chart.

1. "IPO" graph:
    a. On "A", no mention of dollar value; says "2007", not year-to-date; notes strength of some months, but no numerical comparison given, either in dollar values or comparative size.
    b. More detail—mentions that IPOs in May were $2 billion in US vs. $28 billion worldwide, but no sense of how large this difference is.

2. "Oil Production"
    a. Good details noted (dates, numbers of rigs and barrels) as well as a smart comparison ("crude oil production decreased over a third"), but ignores history.
    b. Gets the oil production graph wrong; misses the two-part trend, pre-and post-1970.

3. "Altria"
    a. Mistakes total donations of Altria for total donations in New York State (wrong inference). Notes exact donations, but fails to tell what they signify.
    b. Notes that Altria gives a lot to arts in NYC, then credits company with being "deeply concerned with preserving arts and culture", overlaying a simplistic value on raw data.

4. "Downsizing Detroit"
    a. Notes general decline, but assumes downsizing must be in relation to competition from foreign autos, a fact not represented here.
    b. Attempts to hone in on Chrysler, but misses big picture.

5. "Population"
    a. Concentrates only on first chart; notes peak, but no sense of how got there; attempt at incorporating final charts with superficial statement about "ethnicity".
    b. Nice pickup on population quadrupling, on foreign born percentage, and on dominance of white. Like chart above, skips the "crowding" part.

6. "Campaign Contributions"
    a. Focused look at first chart; skips remaining.
    b. Incorporates all three, succinctly.

OIL-B

~~Summary~~

~~Our graph shows that over the past 140 years that the production of oil decreases as the drilling process continues to increase.~~

~~Analysis~~

Summary

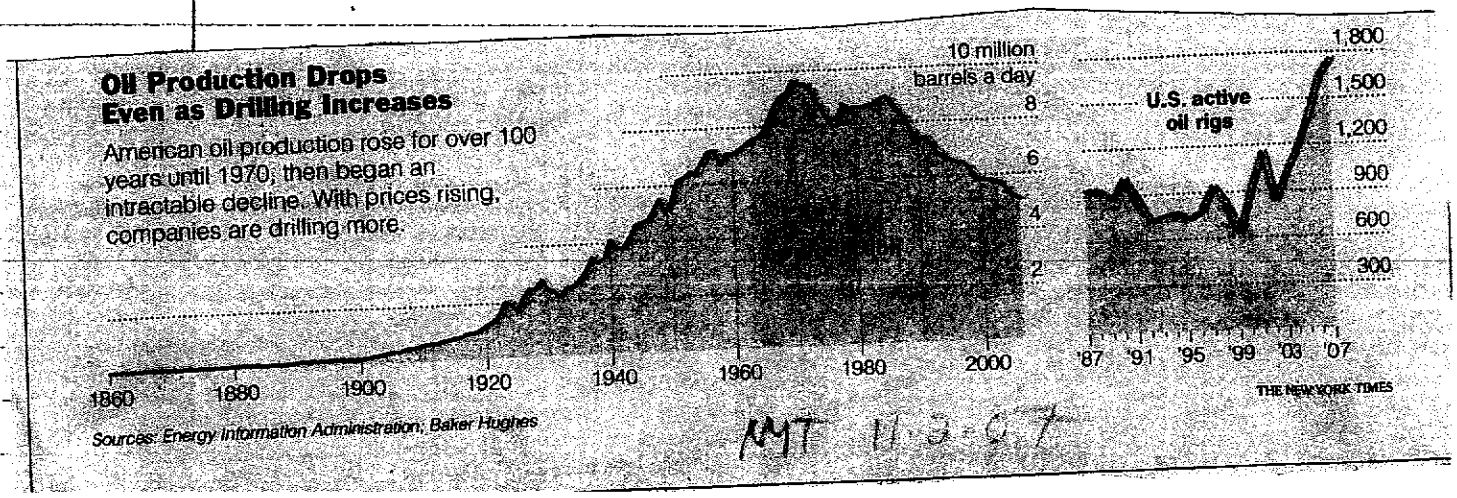
[redacted]

One of our graphs shows the amount of U.S Crude oil production in 10 million barrels a day from 1860 to the year 2000.

Our other graph shows the amount of active U.S oil rigs from 1987 to 2007.

Analysis

Our graph shows that over the past 140 years that the production of oil decreases as the drilling process continues to increase. [redacted]



Summary

Graph A shows the amount of money donated by Altria on 2006 to NYC, as compared to the state as a whole, for the arts, Domestic Violence and Hunger.

Graph B shows how the funds were disposed among a selection of the 200 art organizations in NY who received donations.

analysis -

Graph A on the right shows that on 2006, Altria donated a ~~total~~ of $7 million to arts in NYC out of a total of $8.9 million designated to the entire state. Domestic violence received $1.5 out of $7.1 million and hunger received $1.1 out of $6.8 million.

~~Graph B shows that $375,000 was given to the Brooklyn Academy of Music, $125,000 to the Harlem Stage, $40,000 to NYC Ballet, $30,000 to Urban Bush Women in Brooklyn, $10,000 to Socrates Sculpture Park in Queens and $5,000 to Big Dance Theater in Brooklyn, highlighting Altria's emphasis and influence on arts in New York.~~

Combined, Graphs A and B highlight Altria's emphasis and influence on art organizations in New York.

"ALTRIA" - B

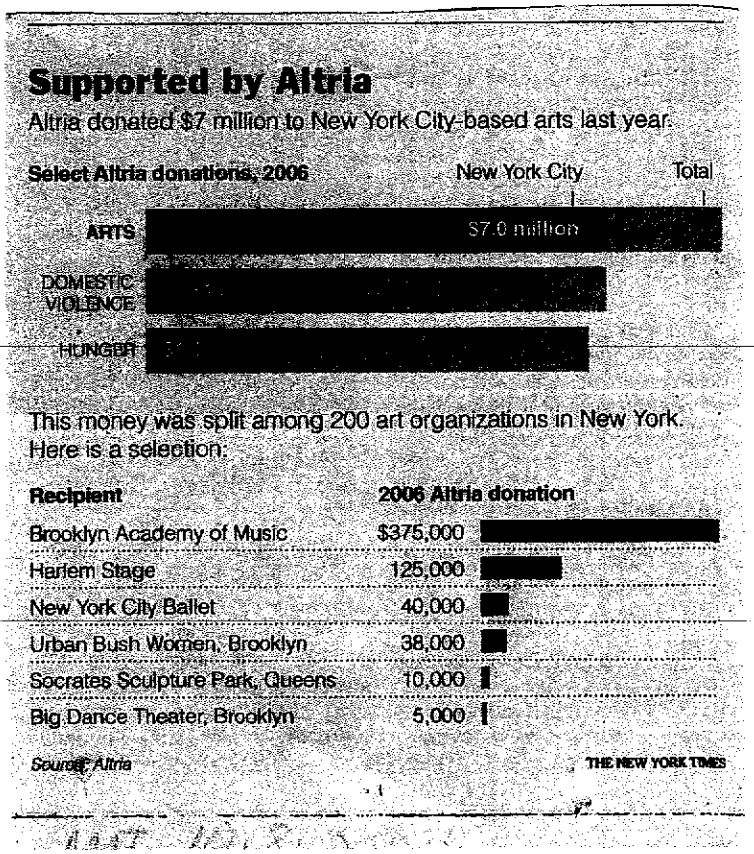
Graph : Supported by Altria

Summary: This bar graph breaks down what institutions [redacted] Altria donated money too, over the 2006 fiscal year.

Analysis : a) This graph [redacted] is located in [redacted] page 10 of the business section of NY Times.

b) This bar graph details the fact that Altria donates more money to art organizations in NY. The next big donations go to helping domestic violence & finally hunger organizations. The information on this bar graph shows that Altria is concerned with helping [redacted] perserve the arts of NY. Altria believes perserving arts is very important.

Analysis(2) : As the bar graph shows Altria is deeply concerned with [redacted]serving arts and culture organizations in New York.



"Detroit" – A

Summary

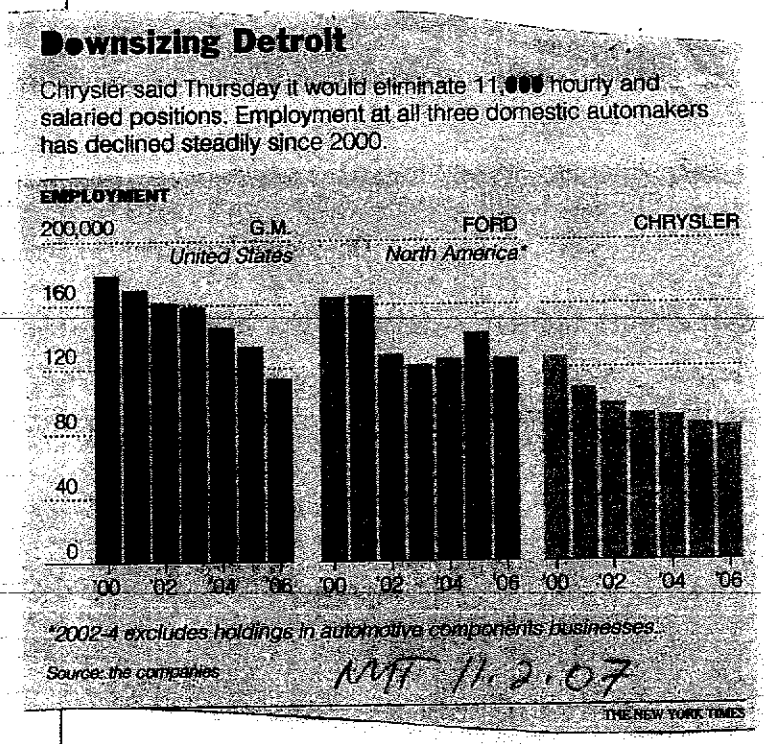
G.M., Ford, and Chrysler has been downsizing in employment since 2000.

analysis

a) Locate the graph ("above", etc.)
and
b) Describe the main point

As the graph below shows, → New York Times

American (domestic) car companies have been in fierce competition with foreign car makers & have NOT been able to overcome the competition & therefore have been downsizing employees. Obviously the demand for these cars have not been great enough to maintain the production & revenue of the past.



Eng 210: Creative Nonfiction, Fall 2006

Assignment: Students were asked to write a true story, and incorporate 3 pieces of research into it.

Goal: To create a lively and moving piece of writing that would speak with a personal voice, but to a larger audience. In many cases, the included research moves these stories move from opinion to argument or advocacy.

Example #1: In the story "Me and Otsi", by John Brusca, John talks about his decision to get a tattoo. In the excerpt below, he includes results from a Harris poll. Note the following:

1) how this data lends vivid detail that serves to tell us how this personal decision is actually one enacted by millions of others, and

2) how John lyrically interprets the data in light of his own circumstances, applying logical reasoning.

By getting my tattoo, I would be entering into a large (around 16% of all Americans, which is roughly 50 million people, according to a 2003 Harris poll) club: The Tattooed. Those in the other club, The Not-Tattooed, are the ones who I am worried about.

Personally, I don't believe that paying a licensed professional artist to safely inject ink deep enough into the skin so it will permanently form an image is necessarily a negative reflection on the character of a person. According to the Harris poll, however, anywhere from 20 to 45 percent of people without a tattoo will now find me less sexy, intelligent, spiritual, healthy or attractive because I now have a small tattoo.

My family, both close and distant, have experienced enough of my eccentricity throughout the years so I think that those who find out about this will not be to shocked or upset. My main concerns are about the possible reactions of my future employers (both of my current bosses have multiple tattoos, so no problem there) and women who I will date.

As far as the employers go, this tattoo is easily hidden by a t-shirt. So, seeing that my career track isn't going towards any profession that would have me wearing less than a t-shirt, my rational side doesn't see any problems that this tattoo would cause in my career. Problem number one solved.

Relationships are somewhat of a thornier issue. Seeing how the Harris poll identified things like intelligence, sexiness and attractiveness that might be negatively affected by having a tattoo, I am somewhat worried about my 20-40% chance of dating a woman who would look down on me now.

However, when I do some amateur and unscientific statistical adjustments; figuring in my age group's larger acceptance of tattoos and my attraction toward open-minded, somewhat eclectic women, I'd put my chances at 10-20% of having my new tattoo negatively affect, end or prevent a relationship. Since I also figure that there is a 10-20% of any number of random things affecting, ending, or preventing a relationship, I'm happy to take my chances with my tattoo, rather than without.

Example #2: In "To Hunt or Not", Theodore Lane writes movingly about hunting deer for the first time. Note the following:

1. How the inclusion of data listing the growth of the deer population, and the dollar value of damage deer cause to agriculture, frame his activity as social necessity, and

2. How the numerical reasoning serves as a counterpoint to his own emotions, making them not only more powerful, but also more likely to be listened to.

I have always liked animals. When I was in third grade, I used to tell people in the class that I had one brother and one sister. The "sister" that I was referring to was our tabby cat, Toby, whom I truly loved and cherished as sibling. To this day I do not really enjoy zoos. It is so depressing for me to see the animals in their cages and paddocks. I am overcome with the urge to jump in and pet them or play with them. I do not have a problem with eating meat, however. I recognize that humans are at the top of the food chain and have been eating animals since before we walked fully erect and I have no desire to fight that instinct.

Additionally, I am realistic enough to know that it is necessary to cull the population of certain animals to prevent the problems of overcrowding. The deer population in the United States has been growing significantly over the last several decades and the cost to humans is tremendous. A 2002 article from the Associated Press states that,

> "The national deer population, now estimated at 25 million to 30 million, has been growing for decades. Not only have deer adapted to encroaching suburbia, but they have benefited from a series of mild winters, an increase in newly developed areas being declared off limits for hunters and a decline in hunting in some parts of the country . . . Some forecasters believe there could be a point when the deer population will become so large it just can't sustain itself. But no one knows when. "We're not certain when it will max out," Curtis [wildlife biologist Paul Curtis of Cornell University] said. "Deer populations are already at densities a biologist wouldn't have dreamed of 10 years ago."

Deer are also responsible for an incredible amount of damage to crops each year. The United States Department of Agriculture estimated that in 2002 alone, the total damage caused by deer, from auto collisions and crop and timber losses reached at least $1 billion a year. So what would be the harm in getting rid of one, little deer?

I was not thinking about population control or crop damage or anything so logical. I was experiencing a disconcerting mix of elation and guilt. I had hit the doe – one shot… make that one *lucky* shot – and had satisfied my inner caveman's need to hunt. But the flush feeling of success was immediately tempered by a wave of guilt for taking a life. I had never killed anything before. It was unnervingly easy to do, as the song from the Stephen Sondheim musical *Assassins* says, "All you have to do is squeeze your little finger….and you can change the world." Suddenly I was sorry I had gone hunting.

Example #3: In "Who Needs a Heart?", Ioannis Mookas describes how a cardiac emergency produced not only emotional trauma, but also financial fear as the hospital bills rolled in. He is rescued by an unlikely savior: New York State. Note the following:

1. How Ioannis carefully and accurately lays out details of the legislation—and then immediately lays out detailed information about how hospitals don't advertise this option. While we know his personal story from previous pages, this pull-back to two sparring, fact-based paragraphs hits us with force because we realize his story is but one of several.
2. How this data serves to inform us, ultimately serving as advocacy for change. He raises real facts about a real issue that we can act upon.
3. How he uses the fact that Mount Sinai received nearly $15 million in funds in 2003 to make a powerful close to his story, creating an indelible image of man vs. institution.

Among a very few states, New York indeed earmarks funding for so-called "charity care" provided in hospitals to those in financial need. For thousands like myself lacking private health insurance yet insufficiently poor to qualify for public assistance like Medicaid, uncompensated charity care stands as the recourse of last resort when the body fails or accident strikes. The legislature established the Bad Debt and Charity Care fund in 1983 to offset hospitals' unpaid expenses so that they might continue providing care regardless of patients' insurance status. Albany preserved this funding, relabeled the Indigent Care Pool, through the deregulatory fiasco of the 1996 Health Care Reform Act, and renewed the line item most recently in 2005. Charity care monies derive, *inter alia*, from statewide surcharges on all hospital fees and a 1% tax on inpatient gross receipts.

The only trouble is hardly anyone knows this, and hospitals themselves prefer it that way. A study conducted in 2003 by the Legal Aid Society's Health Law Unit found that none of the 22 major New York City hospitals surveyed kept any published, accessible policies or guidelines explaining how indigent or low-income patients could apply for charity care, or even to confirm that it exists. Although nearly $1 billion is distributed annually by the state for this purpose—some 75% of it coming to New York City—loopholes in the HCRA statute exempt hospitals from having to notify a patient of their eligibility, even once the provider has been reimbursed for that patient's care. Patient accounts and billing administrators interviewed by Legal Aid had no inkling that their charity care funds were available for the uninsured, and patients tagged as "self-pay" are routinely charged full prevailing market rates for services rendered.

A few months and several collection letters later, still knowing nothing about charity care beyond Dr. Bobby's nostrum, I faxed a one-page letter to someone named Iris in the billing department of Manhattan's Mount Sinai. It goes in part: "As I explained when we spoke, I have no medical insurance and due to my limited income over the past six months I have been unable to settle this account . . . If there is any humanly possible way to reduce the fees on the account in caption, I would be deeply grateful. Please be aware, however, that even if a reduction is possible I will still need to arrange a payment plan..." Today it strikes me as piteously naïve. Yet Iris must have forwarded the fax and five pages of temp-agency paycheck stubs to the right party, since the collection calls stopped and I haven't heard from them again.

In all likelihood the expense of my visit was easily recouped; in 2003 alone, Mount Sinai received nearly $15 million in charity care from New York state. I'll never know for sure, since the HCRA statute mandates no auditing of charity-care spending per patient, or even basic data about who or how many are served by the funds. What I do know is that the outcome had nothing to do with the "merits" of my case, or the keenness of my pleading. It was an executive's whim: arbitrary, unanswerable.