PROFESSIONAL DEVELOPMENT WORKSHOP · SPRING 2006
ASSIGNMENT 12 · GRADING

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1. *One reason to grade homework is to provide students with feedback about their progress in the course. List some specific details about how you provide this feedback. (Your response might include such things as: written notes on individual papers, class sets of solutions, some problems done on the board, etc.)*

I do not hand out solution sets. Not only is the time required prohibitive, but also I don't think students learn much by watching or reading.

Doing problems on the board: My first semester teaching (waaaaay back when), I thought a good idea would be to lecture on the material, assign the homework, receive the homework, grade the homework, see what the students' strong and weak points are, then the next day talk about those strong and weak points. This was a well-intentioned but naïve idea. I gave out an informal evaluation at one month into the course (being a new instructor I was eager for feedback), and a nearly unanimous response was that the students felt I didn't tell them how to do something until after they'd already turned it in. This semester I'm spending more time talking about problems *before* the due date. If someone asks a question about a homework after it's due, I'll field it — but only upon request. As often as time allows, I get students working on a problem in class, right after lecturing on it, or the next day. I tell them I just lectured on the concept 5 minutes ago, so I don't expect mastery — I just want to get a feel for where they are. I pitch this as a learning experience *for me*. I don't want to have a horse race toward the correct solution; the stronger students would always win, and the weaker students would always feel stupid. Instead, I turn it around: I give them a problem and ask them to tell me what's hard, what's keeping them from solving the problem, if they're stuck at a certain step, if they don't know how to start, etc.

When I do grade the homework, I provide plenty of written feedback. I go ahead and tell them where they made their minus-sign error, where they went astray, how to start the problem, etc.

The first rule of parenting (which I learned from my pediatrician back in the early diaper days and have adhered to dearly) is **catch them being good**. That is, I make sure to give my children more positive feedback than negative. (Some days that's hard!) Of course, I often tell them I don't want them to do something, not to yell, etc. — but I make sure more often to compliment them when they're sharing nicely, tell them I've having fun with them, tell them they make me smile, hug them a lot, etc. Also I make sure to criticize the behavior, not the person: not *you naughty kid*, but rather *I don't like it when you do that.*

My students are not my children, nor are they children at all. However, the catch-them-being-good rule applies to *everyone*, in every kind of relationship, and certainly to written feedback on homework. When a student does something particuarly well, I tell them so: "Good!", "Nice!", etc. When a weaker student does anything well *at all*, I tell them so. I use lots of smiley faces — just a quick dot-dot-whoosh can turn a criticsim into an indication that we all make mistakes. Also I use check marks as I work my way through a computation, so the students know I'm really reading it and not just the final answer. Also, this gives them feedback on the steps that are *not* wrong. There's almost always something to praise, even if it's just a neatly drawn graph. It's easy in any class, particularly in math, for all the red ink on the homework paper to be of the form "Wrong, wrong, wrong." By including more positive feedback than negative, I hope to (at least partially) counteract some of the negative math experiences these kids have had. I make a particular

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effort for students who are doing poorly, or who are repeating math 110. It's all too easy to fall into despair and I don't want to push these kids over.

One might say, "But John, math 110 students don't read what you write; your time is wasted." Perhaps some of them do not. However, some do. I tell the students early on in the course that, while I don't grade all assigned problems, I'll read through all problems for comments written by them. If a student takes the time to write on their paper "I don't understand this", "I can never complete the square", "What went wrong?", etc., I will take the time to reply. There are some students with whom I have an ongoing written dialogue. Since I know these students do read what I write, I spend a little more time writing on their papers.

Another variable is the student's skill level. For some of the stronger students, I might just write "Solve for w and plug into the other equation." For a weaker student, I might (not on every problem) go ahead and solve the equation to show them how it's done. Also, for the weaker students, I will show many more steps. E.g. $\sqrt{48} = 4\sqrt{3}$ vs. $\sqrt{48} = \sqrt{16 \cdot 3} = \sqrt{16}\sqrt{3} = 4\sqrt{3}$.

2. *Describe the similarities and differences in your approaches to grading homework vs. grading tests.*

I assign homework every day. Each assignment is 10 points and I grade 5 problems per assignment. (Thus I grade 10-15 problems per section of the textbook.) This is 2 points per problem. Now, test problems are worth more points, so I need to think a little harder in deciding the point spread. Other than that, I grade homework and exams pretty much the same.

3. *How do you determine an appropriate partial credit scheme for a test question? Include comments on conceptual errors, major procedural errors, and minor errors.*

When I was a brand-new instructor — and I mean for the first homework or two — I committed what I call the *fallacy of the rubric*. That is, I wrote up solutions to problems, marked off the substeps, and gave weights to each substep. I figured that when grading, I'd just mark off which parts were right or wrong, then add them up. I found out *very* soon that this is completely ridiculous. Having used algebra for 25 years or so, I definitely know one good way to do any algebra problem. However I found out the first few weeks of class that my imagination was *staggeringly* inadequate in terms of predicting all the *wrong* ways to do a problem. It turns out I cannot plan for this at all. I can get 10 papers with 10 different solutions. Sometimes a student takes off in a completely different direction than I did. And sometimes it works for them. I have to give that full credit. In between ... it's hard. If they made just a minus-sign error, I mark the homework problem with a 2−: 2 for the points, and − for the complaint. (This mimics Larry Grove's grading scheme.) If they have — *in my subjective opinion* — got some of the concepts, or multiple math errors , I give them a 1 (or 1+ for something almost there). If they are way off target, I give them a zero.

4. *How do you make sure you are grading consistently for all students?*

See my answer to #3. Grading is subjective, no two ways about it. If I see a second student making a mistake similar to another student, I look back at the first paper and use the same point grade for the second student.

5. *Do you have a system of notation that tells you what was (or was not) on a student's test when originally graded? If you do, describe it.*

For blank answers, I draw a line or question mark through the blank. For multiple choice, I always circle the correct response, and X out any incorrect response. Other than that, I suppose I could be doing more to prevent eraser fraud.

6. *How do you use notation to convey information about mistakes? (Can students tell what was right and where a mistake occurred? Can students tell their score on each problem?)*

I use check marks and X's to indicate good and bad steps; when I find a mistake, I describe it verbally. For homework I use "plus" scoring; for exams, I use "minus" scoring. That isn't good psychologically — but it works out easier for me on exams. I write the points for each problem, so students can see that.