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Group Problem-Solving Exercises: An Application in Economics

Yngve Ramstad

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Yngve Ramstad
University of Rhode Island

I often teach Intermediate Macroeconomic Theory, one of the courses economics majors are required to take. Macroeconomic theory is primarily directed to questions concerning inflation, employment, and economic growth. Currently, there are two professionally sanctioned "ways of thinking" about these issues—"Keynesian economics" and "monetarism".

Intermediate macroeconomics is of little value to our majors if they leave the course unable to "think like an economist". Accordingly, it is my principal objective in this course that, by the end of the semester, students be able to "do" both Keynesian economics and monetarism —that is, to think their way through concrete issues from either perspective.

Unfortunately, this has not proven an easily achieved goal. I am made painfully aware each semester, while reading answers to the final exam, that most of my class, while able to regurgitate skillfully memorized information, are no more capable of "doing" economics (applying economic theory to specific problems) than they were on

the first day of class. In short, I am momentarily brought face to face with the fact that I have once more failed to achieve my objective in this course.

Like most college-level teachers, I am unsure what to do when confronted with this failure. Because the theories accepted by economists are outside my personal control, the course content is in large part given. Furthermore, what I know about teaching I learned by watching my own teachers. They all lectured, so I lecture. They all provided in-class examples of problem-solving via theory, so I present similar examples. They all posed insightful questions for the class, so I ask insight-provoking questions. Given my "training," what could I do when confronted with my own failure except to lecture better, provide better examples, and ask better questions? Only gradually did it begin to pierce my (thick) skull that a change in those teaching methods themselves would be necessary if I were to have any chance at all of achieving my primary objective.

THE SOLUTION?

After several semesters of vowing to try something different but, in fact, proceeding in the usual manner (peer pressure, no doubt), I last year modified my approach substantially by incorporating frequent small-group exercises into the classroom experience. Beginning at the first class meeting, even before syllabuses are passed out and roll is taken, and continuing throughout the semester, I generally proceed as follows:

1. First, I pass out a written problem (samples are attached). Each student is instructed to take five minutes to formulate individually the approach which is needed to answer the problem.
2. Students are then instructed to break into small groups (usually three per group) and to develop one written group "solution" to the problem. Depending on the difficulty of the problem, 10 to 30 minutes are allowed for this task.
3. At the conclusion of the alloted time period, one of

the groups is selected to present its answer to the class; then, a second group is asked to provide a critique of the solution. Sometimes I let the group select its own spokesperson; other times, to ensure that all ultimately have their turn at being put on the spot, I select the spokesperson.

4. Finally, after the solution and critique have been presented to the class and after other views have been solicited and discussed, I offer my ideas on how economic theory can be used to structure one's thoughts about the problem. (At last, I get to "teach"!) To the best of my ability (and this often takes enormous self-control), I refrain from saying anything substantive during the two student presentations.

Clearly, these exercises are not evaluative devices and, therefore, cannot be graded per se. Nonetheless, I consider participation to be a course requirement and link up to 10% of the grade to it. Students who participate in 90% or more of the exercises are awarded a grade on them equal to their test average for the course. For example, an 87 test average equals 8.7 on in-class exercises. For each exercise missed (beyond the 10% "grace"), one point is deducted from the grade based on test average (8.7 becomes 7.7). Non-participation can cost the student up to one letter grade (using the 90%, 80%, 70%, 60% scale). In other words, it's all stick. A potentially higher test average is the only available carrot, aside from the fact that most students appear to enjoy the activity of participating in these group problem-solving exercises far more than they do sitting still for 75 minutes listening to my lecture and passively watching others answer my "probing" questions.

RESULTS? THE JURY'S STILL OUT.

Well? Do my students now "do" economics beautifully on the final exam? Am I ecstatic over my course objective at last being attained? Hardly. I have yet to find the magic elixir. But, while it's still too early to make any definitive assessment, some preliminary observations may be of interest.

First of all, my students do seem to perform better than before on questions essentially identical in nature to ones "solved" in class by the small groups. In other words, almost all the class can answer "familiar" questions adequately; formerly, only a few were able to answer successfully questions similar to examples I worked through in lectures. Practice apparently does have an impact. From my point of view, this improvement is not a trivial gain.

Second, and perhaps more important with respect to my objective, I must reluctantly acknowledge that I detect little or no change in performance on novel questions (ones not similar in form to any solved in class). This is discouraging. At this point, I would be prone to say that with respect to general problem-solving skills, "You either got 'em or you ain't." It's too early in my career, though, to give up yet. Maybe better questions . . . (Haven't we heard this before?)

Third, students seem to enjoy class more. There's evident camaraderie that was not there before, more enthusiasm, and, yes, students pay much more attention to my explanations. (I suspect this may be the real reason for the improved test performance noted above.) In fact, they actually appear to be interested now when I explain how I would have gone about solving the assigned problem. Anyway, even though the Puritan in me recoils at the thought, maybe it's a gain in and of itself that students should enjoy coming to class to learn "hopelessly dry" economic theory.

Finally, group exercises obviously use up huge blocks of class time. This creates two problems. Less important is the matter of how the instructor can keep occupied. It hardly seems appropriate to sit there reading a newspaper. I walk around the room to make sure everyone is actually discussing the assignment, but I seldom "instruct" while groups are buzzing with activity . . . which, surprisingly, they generally are. Truthfully, there's lots of (boring) thumb-twiddling here. More important is the impact on course content. Less class time means less material covered in lectures. I've uneasily told myself that it's better to know how to "do" a little macroeconomics than to know

about, but not know how to do, the macroeconomics normally considered part and parcel of this course. I remain unhappy about the loss of course content, however.

To sum up, group discussion exercises appear to have improved test performance, to have created a more satisfactory experience for the average students (they now can actually answer with confidence some of the complex analytical questions on the final), and all students appear to have more fun in the course (is this really a sin?). Unfortunately, there are costs. Not least is the fact that the top students now learn less (they, like me, can learn how to do by watching someone else and can skip all the practice). Perhaps most telling to the critic, however, is the apparent reality that real problem-solving skills (applying general principles to novel situations) may not be significantly furthered by this approach. Yet, weighing both the pros and cons, I'm likely to stick with this new approach for several more semesters.

Group Exercise No. 1

The situation.

The Humphrey-Hawkins Act of 1978 supplemented the Employment Act of 1946 by mandating a reduction in the nation's unemployment rate to 4% within five years. You are a member of the House of Representatives. Suppose Speaker Tip O'Neill, arguing that "late is better than never," urges you to vote for additional government spending in order that this goal be met.

Your task.

1. You have decided to base your vote strictly on the economic merits of Speaker O'Neill's proposal. Indicate how you would vote.
2. Carefully explain your reasoning.
3. Supplement your explanation with an appropriate diagram.

Group Exercise No. 3

The situation.

You are members of the Council of Economic Advisors. Suppose the president has just left a meeting with Milton Friedman and Walter Heller, where they offered their respective analyses of the economic consequences of a "deficit reduction plan" (raise taxes and/or reduce Federal outlays). Perplexed, the President comes to you: "Heller says the plan will cause a sharp increase in unemployment. Friedman, however, says this plan will have no effect on employment. It drives me crazy to get such contradictory advice. I know both are educated, clear-minded individuals. Can you tell me why their advice differs so much?"

Your task.

1. What would you tell the President? (Use the IS-LM framework to organize your thinking.)
2. Provide a diagram to illustrate the logic of your analysis.

Group Exercise No. 5

The situation.

You are the Chairman of the Council of Economic Advisors. You're in your office, adjacent to the Oval Office, when the President suddenly rushes in, his face flushed with excitement. "Doc," he says, "Jack Kemp was just in my office, excoriating me for permitting the Federal Reserve—as if I actually had any control over Volcker—to increase the nation's money supply too rapidly. Word for word, that $*†/&* just said to me, 'A nation cannot become richer by creating more money, just as the owner of a theater cannot increase its seating capacity by printing more tickets.' How does one respond to an idiotic statement like that? Anyway, I pretended I had to go remind Nancy of something and managed to get away for a minute. When I get back, though, I'll have to respond. What can I say to Kemp without making an ass of myself;"

Your task.

1. Develop a brief response for the President to make.
2. Develop a diagrammatic analysis to illustrate the logic underlying your analysis.

Group Exercise No. 7

The situation.

You are the President's chief economic advisor. He comes to you, deeply disturbed about the size of the deficit being forecast for the upcoming fiscal year. His instincts are that such a large deficit, adding about $150 billion to the national debt per year, has to wreak considerable damage on the economy. His political advisors, however, say "not to worry, the deficit hurts no one."

Your task.

1. Suppose the President asks you to explain carefully the economic consequences of a large budget deficit. Outline what you would tell him.
2. Supplement your explanation with (an) appropriate diagram(s).

Group Exercise No. 9

The situation.

You are members of the council of Economic Advisors. The President is under attack by business groups to make American industry more competitive (as compared to foreign firms). A group of business leaders is meeting with you, and its spokesman proposes a liberalization of investment depreciation laws, arguing such an action will be of help both to business and the general performance of the economy. The President, regrettably, remembers little he learned as an economics major at Wheaton College and has no idea whether such a claim is right or wrong.

On the pretense of having to go to the bathroom, the President, ever a quick thinker, rushes into the adjoining office where you are having your regular weekly meeting.

He nervously "requests" that you inform him what the likely macroeconomic consequences of liberalized depreciation laws would actually be. To keep his visitors from catching on (cartoonists are already having a field day with his predilection for not knowing what is going on), he must return with the answer in ten minutes.

Your task.

1. Develop the SR and LR macroeconomic consequences, *ceteris paribus*, of enacting liberalized depreciation laws. Be as specific as possible, given the short amount of time available.
2. Develop a diagrammatic analysis to illustrate the logic underlying your conclusions.

Group Exercise No. 10

The situation.

Assume that you are members of the Council of Economic Advisors. At the last minute, the President comes to you, wanting advice for a meeting with the Fed chairman. The meeting is scheduled to start in 15 minutes. The President is up for reelection next year and is obviously interested in ensuring a robust economy during the election year. He states that he has enough "rapport" with the Fed chairman to increase the growth rate of the money supply. Will this be a wise action (given his goal of reelection)? You are asked to advise him in that regard.

Your task.

1. What are the likely macroeconomic consequences of increasing the rate of growth of the money supply?
2. Develop a diagrammatic analysis which illustrates your reasoning.

Group Exercise No. 12

The situation.

During the past decade, high rates of unemployment

and high rates of inflation have plagued the U.S. economy. Assume you are the President's chief economic advisor; you've been assigned the task of developing a logical, cohesive program to reduce the rate of unemployment to below the 6% level without rekindling inflationary forces.

Your task.

1. What would you tell the President to do (include any advice to the Fed)?
2. Carefully outline the reasoning underlying your advice.
3. Provide diagrams as appropriate.

NOTE TO WORKSHOP PARTICIPANTS: This question actually requires about the same analytical explanation as Group Exercise No. 1. When I point this out to students, they are able to get a sense of how much their grasp of macroeconomics has improved during the semester. (This, of course, does not imply anything about their ability to "do" economics.)