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The Do Now: A Simple, but Effective Active Learning Strategy

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Abstract
Students often have difficulty applying concepts discussed in lectures. Using practical guidance that allows for flexibility in implementation, I highlight the Do Now as a short, practice exercise that promotes just-in-time instruction. My approach stresses application of course concepts to improve student self-efficacy and performance. A supplemental teaching note provides additional guidance on implementation.

1 Introduction

Think about it. You can take one route 10 times as a passenger, but you will not remember the directions until you drive the route yourself, usually more than once. Why, then, would we expect students to remember and drive routes if we do not give them time behind the wheel? It should not be surprising that what we discuss in lecture does not necessarily translate into learning. Students must work through examples themselves, see where they have made mistakes, and reflect on what they can do differently to get a better result (Prince 2004).

This article provides guidance on implementing the Do Now,[1] a one- or two-question practice exercise typically assigned at the start of class. The Do Now is common in elementary and secondary education, and there is some mention of its use in university teaching (Shen and Frances n.d.). As described informally online, the Do Now can range from lesson summaries to quizzes but normally includes written exercises that are completed individually.

Here, I provide *my take* on the Do Now as it applies to undergraduate teaching of math, statistics, or other problem-oriented courses that students tend to find inherently difficult. My approach is purposely less focused on logistics and purposely more focused on student learning objective. The benefit of the Do Now is in the "doing."

2 Background

The Do Now allows students to practice solving problems in a low-stakes environment, an experience that fosters self-efficacy (Bandura 1977), which is especially important when math (or, anything that resembles math) is involved (Pajares 1996). Relative to structured, in-class activities, the Do Now is easier to implement, requires less pre-class preparation, and uses less class time (typically, five to seven minutes). Given the dominance of lecture in the teaching of economics (Goffe and Kauper 2014) and many other disciplines (Jones 2007), the Do Now is a simple tool that may be used to make class time more interactive, regardless of class size. It allows instructors to assess students' progress toward meeting objectives and to provide timely feedback to advance the learning process (Cauley and McMillan 2010).

After realizing (the hard way) that students have difficulty applying concepts discussed in lecture, I introduced the Do Now in my econometrics course. As *anecdotal evidence* of its effectiveness, students'

[1] The original source of the term is unknown.

perception of whether they "gained a good understanding" of course content, as anonymously reported on course evaluations, increased from an average of 3.8 on a 5-point scale (response rate of 48 percent) in one semester to 4.5 (response rate of 65 percent) in the following semester during which the Do Now was implemented.

The following student comments (unadjusted for writing errors) provide insight regarding the importance of incorporating practice problems throughout the course. When describing the "weakest aspects of this course or instructor" before the introduction of the Do Now, one student stated, "I think that students could be much more prepared for her tests with practice problems, q&a's, and exercises ...." Another student commented that the instructor "rarely tries to keep students engaged with practice problems or applications." In contrast, when describing the "strongest aspects of this course or instructor" after the introduction of the Do Now, one student stated that "the practice problems and the case analysis helped me to get a feeling of how we can apply those concept in real life situations." Another student noted, "Doing practice in class was the most helpful thing that we did. Just listening to the slides on such a difficult subject is hard—it's better to see the concepts in action."

Although the Do Now is not mentioned explicitly, students' comments suggest that the inclusion (or lack) of practice problems affects their learning and ability to succeed. Because the words *hard* and *difficult* often appear in my course evaluations, my challenge is to find ways to help students meet the standards that I set when designing the course. The Do Now has helped in that process.

3 Implementation

The effectiveness of the Do Now depends in equal parts on (1) choosing the right problem and (2) spending adequate time debriefing.

3.1 Choosing the Right Problem

Designing a good Do Now problem requires some trial and error; and, depending on need, problems may take on various forms. A good problem has three basic characteristics:

1. *It is objective based*: Consider what you want students to accomplish. Then, identify an appropriate application problem. Avoid recall questions, opinion-based questions, and questions with yes/no answers.
2. *It is moderately challenging*: Remember, we want to build self-efficacy; overly difficult problems that result in repeated failures can have the opposite effect (Bandura 1977). In contrast, overly easy problems can be perceived as busy work.
3. *Its expected completion time is no more than two minutes*: Work through the problem yourself, step by step. Doing so helps you fully consider the time and process involved in completing the problem and provides a point of reference for debriefing. Expect students to take two to three times, or even as much as five times, as long as you do. If the expected completion time is more than two minutes, tweak the problem.

Presenting the problem is easy. Simply write "Do Now" on the board or PowerPoint slide with the question underneath. Limit your presentation of the Do Now to information, equations, or figures needed for problem solving (Beatty et al. 2006). Figure 1 provides textbook-based Do Now examples from my econometrics course and demonstrates how to apply the problem-selection criteria. Figure 2 presents an example incorporating peer-reviewed research. Each Do Now relates to a learning objective and requires an application of course concepts that is feasible in two minutes. When assigned, each Do Now would be considered moderately challenging.

While students work, walk around to observe. Since cooperative exercises are incorporated elsewhere in my course, I allow, but do not require, students to work together. That is, I do not impose structure on how students do the problem. In any case, I recommend consistency in your preference regarding individual versus group work so that you virtually eliminate time spent giving instructions. Students quickly realize that the instructions truly are in the name.

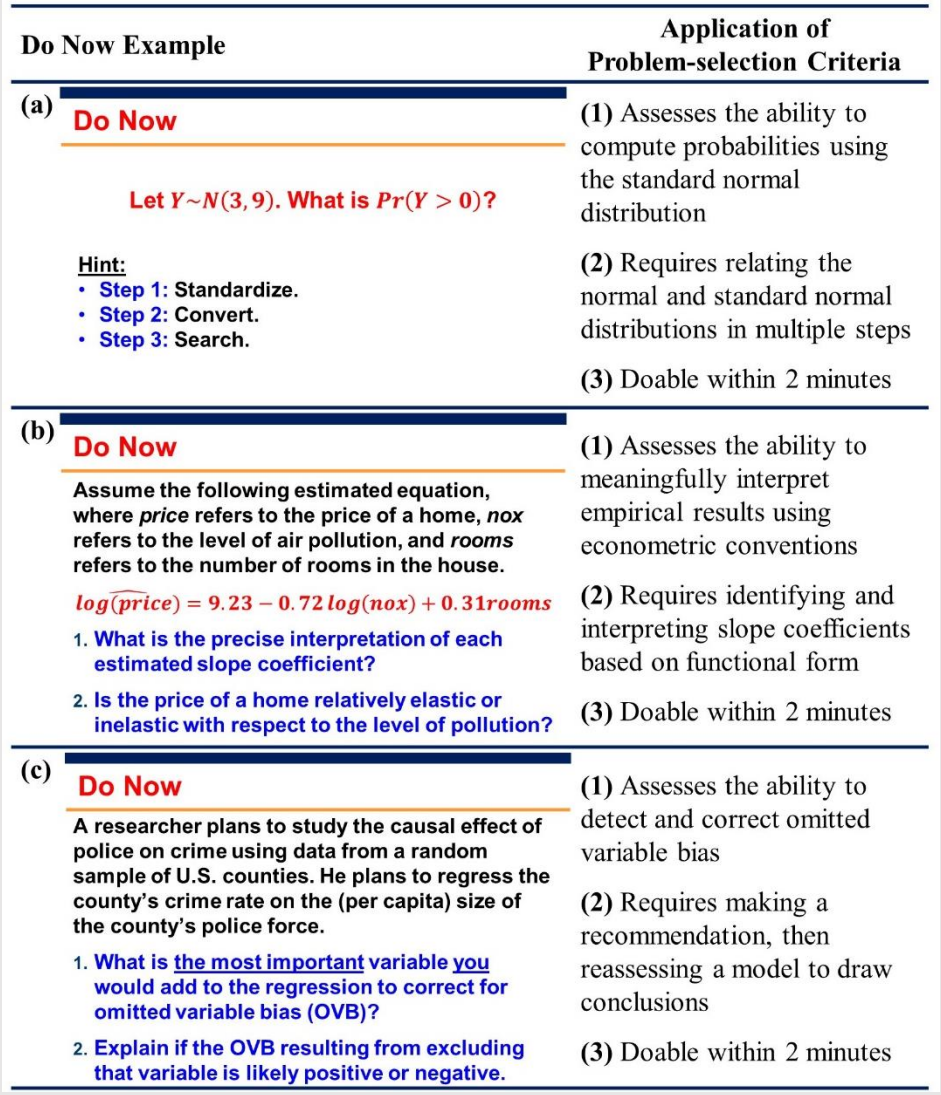


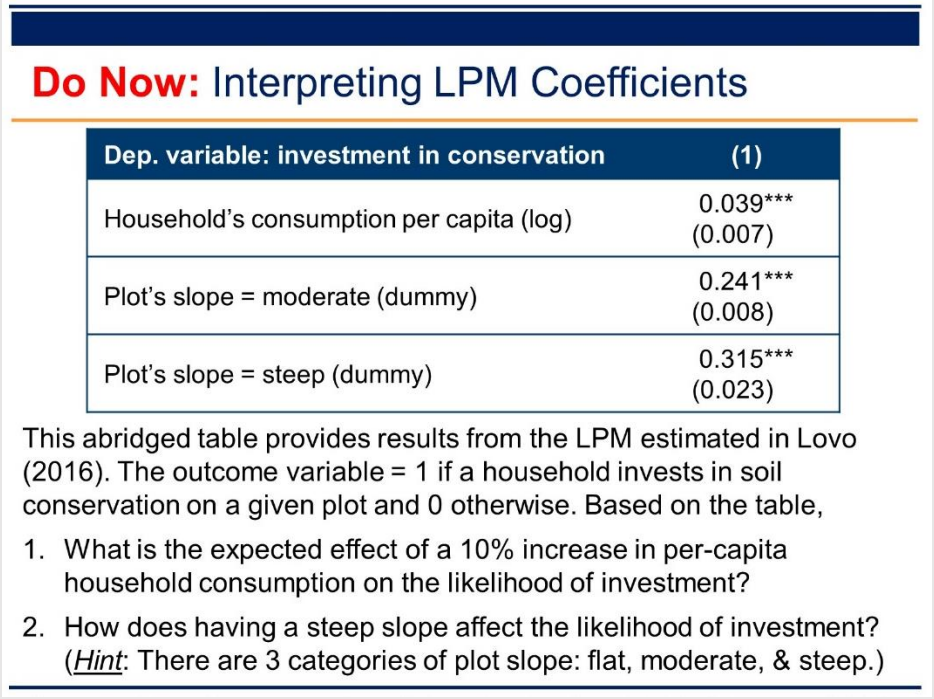
Figure 1: Application of Problem-slection Criteria to Do Now Examples

Note: The problem-selection criteria include choosing an application problem that is (1) objective based, (2) moderately challenging, and (3) doable within two minutes. Example (a) is adapted from Stock and Watson (2015, p. 58). Example (b) is adapted from Wooldridge (2016, p. 171). Example (c) is adapted from Exercise 6.6 in Stock and Watson (2015, p. 210), reprinted by permission from Pearson Education Inc., New York, NY.

3.2 Debriefing

Time spent debriefing varies but usually takes three to five minutes. In general, debriefings are R.A.D. and involve three steps: **R**eveal, **A**sk, and **D**emonstrate.

1. *Reveal the answer* (**R**): If there is not one right answer, open with a brief discussion of two or three student answers. Kindly acknowledge inaccuracies, and celebrate valid responses.
2. *Ask about process* (**A**): Doing so reveals how students are thinking about the problem and where they are having difficulty. Consider asking students to identify approaches to the problem, the most important information needed to solve the problem, or the hardest part of the process. Discussing why alternative responses are incorrect is also instructive, especially when many students arrive at the same incorrect answer.



Do Now: Interpreting LPM Coefficients

Dep. variable: investment in conservation	(1)
Household's consumption per capita (log)	0.039*** (0.007)
Plot's slope = moderate (dummy)	0.241*** (0.008)
Plot's slope = steep (dummy)	0.315*** (0.023)

This abridged table provides results from the LPM estimated in Lovo (2016). The outcome variable = 1 if a household invests in soil conservation on a given plot and 0 otherwise. Based on the table,

1. What is the expected effect of a 10% increase in per-capita household consumption on the likelihood of investment?
2. How does having a steep slope affect the likelihood of investment? (*Hint*: There are 3 categories of plot slope: flat, moderate, & steep.)

Figure 2: A Do Now Focused on Select Results from Table 3 in Lovo (2016): "Tenure Insecurity and Investment in Soil Conservation. Evidence from Malawi."

Note: LPM refers to the linear probability model. As an assignment, students read Lovo (2016). The table above is abridged to focus only on results needed to assess students' abilities to interpret estimated coefficients on variables of different forms. We discuss the paper at length. As initial practice, students interpret the results of the main variables of interest (not shown). This Do Now is used as a follow-up example for additional practice.

3. *Demonstrate the recommended approach* (**D**): Explain why the approach is recommended but acknowledge other possible approaches. Note that the recommended approach is not necessarily a sequence of required steps but rather a way of thinking through the problem-solving process. However, if explaining a multi-step problem, avoid skipping steps because doing so tends to confuse students, and remember to provide tips for aspects of the problem that students found difficult.

Debriefing is meant to be a fluid discussion, so try to be flexible in how you move through the different steps. Revealing the answer is normally the quickest part of debriefing. Devote more time to discussing process and recommended approaches to guide students toward self-regulation and to emphasize the evaluation of various problem-solving strategies (Schoenfeld 1987).

Since students may make incorrect statements or share strategies that you or others believe are relatively ineffective, the debriefing process is not always a "comfortable" one. As facilitator, you must create an encouraging environment both verbally and nonverbally so that students trust the process (Cauley and McMillan 2010). Rocca (2010) provides a summary of instructor behaviors that positively and negatively affect student participation (194–197). If you model supportive and respectful communication, your students will follow suit, and the integrity of the exercise will be upheld.

Be careful not to get lost in the discussion. To avoid spending too much time debriefing, keep in mind your original objective, and guide the discussion in that direction.

4 Guidance on Potential Variations

My principal recommendation is to strategically use the Do Now as a low-stakes, formative assessment that focuses on application. Below I provide general advice regarding five potential variations.

1. *Stagger with increasing difficulty*: Break up a lecture with a Do Now that mirrors an example you recently discussed, and consider displaying recommended steps along with the exercise. To start the next class, use a problem that requires the same knowledge but presents the information in modified form, requiring deeper thought about the content.
2. *Use a two-part problem to provide a hint*: The first part focuses on retrieval and the second focuses on application. For example, ask students to recall a formula or other critical information. Then, ask a question that requires them to apply that information.
3. *Embed the Do Now in a think-pair-share exercise to add structure* (Maier and Keenan 1994): Have students think about the problem for 30 to 60 seconds, then instruct them to work through the problem in pairs. Debriefing inherently includes a sharing aspect.
4. *Let students inform the topic*: At the end of class, assign a one-minute paper in which students identify concepts for which they would like additional practice or clarification (Stead 2005). Skim the responses after class to determine a common theme, and assign a Do Now to facilitate a mini review.
5. *Assign a challenging problem as a take-home exercise*: At the start of the next class, facilitate debriefing as a pair-share exercise, allowing students two minutes to compare work before engaging in whole-class discussion.

Lastly, because the Do Now is an early warning system, it could prove more difficult than expected. If so, one strategy is to stop the class at the two-minute mark, note points of confusion, and provide a quick redirection. Then, give students one or two minutes to continue working. If redirection is insufficient, consider walking students through the problem, reiterating important concepts. Then, move on with your lesson, but start the next class with a similar problem. If the Do Now was assigned toward the end of class, let students complete it at home, and use it as the starting point for the next class. Remind students why the exercise is important so that they perceive the use of class time as beneficial. For extrinsic motivation, consider awarding participation credit for completion of problems and including similar problems on exams.

5 Conclusion

The Do Now is simple, flexible, and effective. It is a one- or two-question practice exercise that requires less prep time and less class time than more structured, in-class activities; hence, it may be used in every class period or, as I recommend, selectively throughout the course. The Do Now provides opportunities to assess students' progress in meeting objectives and to provide just-in-time instruction. The keys to its effective use are choosing an appropriate problem and allowing adequate time for debriefing. Expected outcomes include increased student self-efficacy and, ultimately, improved student performance on summative assessments. A supplemental teaching note provides guidance to further assist in implementation.

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