

## **Use It or Lose It: Teaching Literacy in the Economics Principles Course**

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Americans know little about economics. Recent surveys document shocking gaps in understanding of markets, macro policy, and the economics of government. Both the general public and college students, including economics course takers, do poorly on questions that check their knowledge.

In a Gallup survey (Walstad and Larsen, 1992), most knew that competitive prices are determined by supply and demand. But 65 percent of the public and 43 percent of college seniors believed that during a crisis in the Middle East "...government should prohibit oil companies from raising ... prices." (p. 65). In a Harris poll (Parade, 1999), only 58 percent of adults knew that people are likely to respond to a doubling in the relative price of beef by buying more poultry and less beef. Only one in three understood that those who borrow money at a fixed interest rate are most likely to benefit from inflation. In a Minneapolis Federal Reserve survey (Fettig, 1998), only 30 percent knew that government could reduce high inflation by decreasing spending and the money supply.

Taking a high-school or college economics course has little impact on economic understanding (Walstad and Rebeck, 2001). In a 15-question Gallup survey of college seniors, college economics course takers scored 9, high school economics course takers scored 8, and those who took no economics scored 7 (Walstad and Allgood, 1999).

There is hope. Test takers do better with questions that concern their day-to-day lives (Harris, 1999). And adults believe economics is important: 88 percent want politicians to have a good understanding of economics, and 96 percent think that basic economics should be taught in high school (Harris, 1999).

While objections can be raised about what questions were asked and how they were worded, national surveys administered by several respected firms support the same conclusion. Americans know little about economics.

### **I. The College Economics Principles Course: A Missed Opportunity**

The principles of economics course, as taught at most colleges and universities, is a missed opportunity to improve economic literacy. Calls to focus on literacy have been made before. In a 1950 report to the American Economic Association, Hewitt et al. recommended: “The number of objectives and the content of the elementary course should be reduced.” (p. 56), and “Students should be trained to follow current news [to enhance their interest in economics].” (p. 59). In 1963, George Stigler ( p. 657) complained:

“The watered down encyclopedia which constitutes the present course in beginning college economics does not teach the student how to think on economic questions.....The student will memorize a few facts, diagrams, and policy recommendations and ten years later will be as untutored in economics as the day he entered the class.”

In 1998, Robert Frank ( p. 13) suggested that the “...best way to teach introductory microeconomics...is to expose students to repeated applications of a short list of the core ideas of the discipline.” The rub, according to Frank, is whose short list to use.

A competing goal of the principles course is that students achieve a “viable foundation of economic understanding” for subsequent economics course work (McConnell, 1998, p. 39).

With the explosion in economic knowledge, pursuit of the foundation goal has led to fuller syllabi and larger texts. Many topics have been added: growth, monetarism, new classical economics, public choice, environmental economics, and game theory. Few have been deleted.

Principles texts, like the discipline in general, are ever more technical. McConnell (1998, p. 32) notes that Taussig's 1946 text contained about a dozen diagrams; today's standard texts contain 200 and more. Parkin (2000) laments that the treatment of macroeconomics in recent principles text has become overly complex.

Added topics and increased complexity carry high costs. Many students leave the course with little lasting knowledge of economic fundamentals. Boskin (1998) argues that the typical course should focus more on what it means for agents to make rational decisions. Taylor (2000) suggests that macro principles should be simple, memorable, and policy oriented. Kennedy (2000) argues that students would be more literate if they understood what the real rate of interest is and how it is determined. Becker and Watts (1996, 1998, 2001) report that principles instructors spend the vast majority of class time lecturing but almost no time using hands-on activities. Lecture dominates principles instruction at research, doctoral, masters, liberal arts, and associate-degree institutions. Covering a long list forces instructors to lecture.

Enrollment data support focusing the principles course on economic literacy. In 1998, of all undergraduate students at four-year institutions, 40 percent completed at least one economics course; 19 percent completed only one course (Siegfried, 2000). Only 2 percent major in economics (Margo and Siegfried, 1996). Students who take one economics course, take principles. Students who take two, almost always take a two-term principles sequence.

The principles course fails to improve economic literacy of not only those who take it but also those frightened away by its reputation as a technical course. The course fails because it does not teach students how to apply economics to their personal, professional, and public lives. The cost of jamming many topics into the course is that students never master the basics.

## II. Refocusing the Principles Course on the Principles of Economics

Here we offer a strategy for refocusing the principles course on economic literacy. We propose a one-term course that will improve economic literacy for students who take a single course in economics. We also propose a follow-on course (Principles Two) that will equip students for further work in economics, business, and other majors that require more background in economics.

### Whose Short List? The Voluntary National Content Standards in Economics

The Voluntary National Content Standards in Economics (National Council on Economic Education, 1997) are the building blocks of our principles course.<sup>1</sup> The twenty Standards provide an operational definition of economic literacy and may be grouped into seven topics: Scarcity and Choice, Economic Behavior, Allocation of Goods and Services, Markets, Factors of Production, Macroeconomics, and Government and Economic Institutions. The Standards include statements defining the core of economic knowledge and descriptions explaining what students should be able to do with that knowledge.

To illustrate how eight of the Standards define literacy, we explain what they have to say about three topics. The remaining 12 are listed in the appendix. The most basic economic idea is that **Scarcity** forces people to choose among competing resource uses. The first Standard says:

1. *Productive resources are limited. Therefore, people can not have all the goods and services they want; as a result, they must choose some things and give up others.*

Students could demonstrate mastery of Standard 1 by explaining why working twenty hours per week while in college may reduce lifetime income or by identifying what a community gives up

when it uses tax revenue to provide a rent-free stadium to a professional sports team.

Five Standards define rational **Economic Behavior** and thereby address Boskin's concern.

2. *Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are "all or nothing" decisions.*
4. *People respond predictably to positive and negative incentives.*
5. *Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and usually among individuals or organizations in different nations.*
6. *When individuals, regions, and nations specialize in what they can produce at the lowest cost and then trade with others, both production and consumption increase.*
8. *Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.*

Students could demonstrate mastery of the economic behavior Standards by explaining why it generally does not make economic sense to reduce pollution to zero, why allowing firms to trade "pollution rights" can lower the economic costs of reducing pollution, why it makes sense to have some firms specialize in reducing pollution, and why the prices of pollution rights provide incentives to firms to find cleaner technologies for production.

Together with 5, Standards 3 and 7 cover **Allocation of Goods and Services**.

3. *Different methods can be used to allocate goods and services. People acting individually or collectively through government must choose which methods to use to allocate different kinds of goods and services.*
7. *Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.*

Students could demonstrate mastery of the allocation Standards by describing the costs and

benefits of a market-based mechanism for allocating donor organs to transplant candidates.

Eight of 20 Standards focus on scarcity and choice, economic behavior, and allocation. In contrast, only 3 of 36 chapters of *Samuelson and Nordhaus (1998)* cover these basic topics while 8 are devoted to consumer behavior, production, business organization, cost curves, competitive markets, oligopoly, monopolistic competition, uncertainty and game theory. Coverage in most other books is similar.

Several texts have made a bow toward a short list. Baumol and Blinder (1999, pp. 4-9) list twelve “Ideas for Beyond the Final Exam” but then bury them in 800 pages of text, charts, graphs. The two-term textbook that comes closest to our vision is *Principles of Economics* by Frank and Bernanke (2001) which provides a list of seven “Core Principles”: Scarcity, Cost-Benefit, Unequal Costs, Comparative Advantage, Increasing Opportunity Costs, Equilibrium, and Efficiency, and repeatedly applies them to explain a student’s world.

Students are literate if they can use the Standards to describe costs and benefits, explain events, and make arguments. A principles course targeted to literacy must focus more on basic concepts than today’s courses and texts do. Educational resources released by limiting the number of topics must be used to deepen student understanding of core ideas. Students must apply the core ideas, again and again, to questions, puzzles, and problems of the sort they will encounter throughout their lives.<sup>2</sup>

### **The Budget Constraint: What's Gotta Go?**

What should be cut from the traditional principles course? We offer two guidelines and several recommendations.

*The binding constraint on learning is the students' ability to learn material, not the instructor's ability to cover it.* Economists typically describe their courses by the material they “cover.” We prefer the advice of Phillip Saunders: It’s not what **you cover**, it’s what **they learn**. When instructors choose broad coverage, students end up familiar with but unable to apply the covered concepts. Because the Standards describe 12th grade knowledge of economics, some may believe our approach will “dumb down” the principles course. It need not. We believe college students can achieve higher mastery of Standards content than 12th graders, just as 12th graders can achieve higher mastery than 8th graders. Principles instructors should be free to set higher goals than mastery of the Standards. We ask only that they teach the Standards and assure that students have thoroughly mastered them before moving on.

*What matters is how well students can apply their learning not only now but later, long after they complete their schooling.* To improve economic literacy, the principles course must focus on concepts that students can use throughout their lives, such as identifying the opportunity cost of a public spending proposal. In the course, students must practice using these concepts until they become a way of thinking.

To release the resources necessary for students to master the Standards, we recommend dropping some traditional topics from the principles course. Much of this dropped material can be shifted to the Principles Two course that we describe below.

*Drop Cost Curves.* Detailed understanding of cost curves does not contribute to economic literacy. Students can use cost curves to predict output levels for price-taking and price-setting firms, decide whether economic profits are earned, and determine whether firms will enter or leave an industry. The costs of mastering cost curves exceed the benefits. Most

students will have little post-college opportunity to apply marginal analysis with cost curves. Instead, students should practice comparing marginal benefits and marginal costs in problems like those they will face in later life. They should learn that agents seek rents, enter profitable industries, and exit unprofitable ones. They can do this without mastering cost curves.

*Limit graphs.* For students who catch on quickly, graphs are an effective way to represent functional dependence among variables. But many do not catch on quickly. They have not mastered graphs in the past and will not use them in the future. Most memorize required graphs and forget them shortly after the course. As P. J. O'Rourke (1998, p. 105) puts it: "This is how economics is understood after two semesters at most colleges: I. There are a lot of graphs. II. I'd better memorize them. III. Or get last year's test." Cohn et al. (2001) provide experimental evidence that students learn no more from lectures with graphs than from similar lectures without them. We recommend that instructors develop graph-free strategies for teaching most concepts.

*Drop comparisons of imperfectly competitive industries.* Students need to know the difference between price-taking and price-seeking behavior, not the difference between oligopoly and monopolistic competition. Students are more literate if they know how competition enhances welfare and how agents seek rents. They are not more literate if they can say whether the fast-food industry is more like an oligopoly or more like monopolistic competition or know the difference between Stackelberg and Cournot duopolists.

*Limit computations of elasticity.* Students should understand that an increase in price induces, in some cases, a small decrease in quantity, and, in others, a large one. They should know that the size of the quantity decrease determines the effect of the price increase on the

seller's revenue. They do not need to know how to compute a price, income, or cross elasticity by arc or point formulas. Literates know that price seekers who face inelastic demand can raise revenue by withholding output. They know that product demand becomes more price sensitive when buyers have better access to substitute goods. They understand why those who bring perishables to market may throw some away rather than sell at market clearing prices and why a hotel may earn more revenue at \$250 per night than sold out at \$100 per night.

*Limit coverage of national income accounting.* Literates know that economic activity is measured by gross domestic product, understand the difference between nominal and real GDP, and know the difference between income and wealth. They know that GDP is a measure of newly produced final goods and does not include all economic activity. They need not know the definition of national, personal, or disposable income or which of these measures allows for indirect business taxes.

*Drop formulas for multipliers.* Little in macroeconomics depends upon the consumption multiplier formula. Literates understand that policy-induced demand increases can trigger increases in private consumption. They need not learn a formula for the total increase in spending. Literates understand that the Fed increases the money supply through open market purchases of government bonds but need not know a deposit-multiplier formula. Asking students to memorize and manipulate multiplier formulas is too expensive.

*Drop aggregate demand and aggregate supply.* Aggregate demand and supply analysis is difficult to do correctly and too time consuming for the principles course. Students confuse the aggregate demand schedule with demand schedules they encounter elsewhere in the course. They think, for example, that an increase in the general level of prices lowers aggregate demand

because “goods are more expensive.” The real reason--a real wealth effect--is too subtle for a literacy-targeted course. Students are confused by aggregate supply because they must master both short-run and long-run schedules so they can understand why a one-time increase in the money supply can raise output but sustained increases lead only to higher inflation.

### **What Should Be Added**

How should instructors use the class time and study time made available by taking a short-list approach to the principles course? We offer two suggestions.

*Focus on problems, issues, policies, and puzzles.* Students should come away understanding that economic principles can explain important world events. Instructors should use recovered time to show how fundamental economic concepts can help explain issues covered by the *Economist*, *Wall Street Journal*, *New York Times*, and local and campus newspapers. They should help students learn which concepts and what kinds of evidence can be used to understand what they read and observe. For example, instructors might help students understand tradeoffs involved in the use of public funds (“Public Interests: In Toledo, a Tension between School Funds and Business Breaks,” *Wall Street Journal*, July 18, 2001) or those associated with banning an effective but dangerous pesticide (“Choice of Evils: As Tropical Scourge Makes a Comeback, So, Too, Does DDT,” *Wall Street Journal*, July 26, 2001).

*Create more opportunities to practice economics.* Instructors should use recovered time to shift away from “chalk and talk” and toward strategies that require students to work with economic concepts. Instead of lecturing three days on three topics, instructors could use the first day to introduce a concept, the second to work through an application, and the third to have students analyze a case, complete a cooperative learning exercise, or discuss a newspaper article.

Practice assignments should involve issues that are important and too complicated to be resolved by pat answers. Later in the term, assignments should require students to choose which economics tools to use as well as how to use them.

### **III. Other Necessary Changes**

To improve economic literacy without imposing unnecessarily large costs on other responsibilities of economics departments, several changes are required.

#### **Change Approaches to Teaching and Learning**

To achieve the potential of the literacy-targeted course, instructors must lecture less, use active learning, and focus on problems, issues, and policies. Students must participate actively. For some, substituting active learning for lecture may be difficult. The AEA Committee on Economic Education (CEE) can help by offering new Teaching Methods Workshops (Salemi, Saunders and Walstad, 1996). Two recent books (Becker and Watts, 1998 and Walstad and Saunders, 1998) discuss alternatives to lecture. A good place to start is for instructors to explain to students the benefits of active participation.

To measure how well students have mastered the Standards requires new tests. Mastery means the ability to apply content in new situations. Setting out “what the student should be able to do” is essential and lays the groundwork for assessment (Hansen, 2001). While how best to evaluate what students learn is an unresolved question (Walstad and Rebeck, 2001), tests and other assessment strategies should give students an incentive to learn how to apply the Standards.

#### **Provide Incentives for Instructors to Teach Principles**

Departments must find faculty who can teach a literacy-targeted principles course. The CEE can help by developing and disseminating sample courses that departments could adopt or customize. It could also provide instructors who have adopted active learning further opportunities to share what they have learned at national and regional association meetings. Even with such assistance, the costs of revising the principles course, preparing the right kind of exercises for students, and learning to use active learning are substantial. If the plan is to succeed, departments, colleges, universities and professional associations must jointly provide incentives sufficient to induce instructors to undertake these costs.

### **New Textbooks**

A literacy-based principles course must be taught with a text unlike the encyclopedic texts that currently dominate the market. The market has already produced some texts that take a short-list, issues-oriented approach.<sup>3</sup> The longer-run challenge is to induce well-known economists to produce Standards-based, single-semester principles texts suitable to the type of course we propose. Here we trust to the market.

### **Create an Advanced Principles Course**

Some departments may want to create a follow-on course, Principles Two (P2). To build a foundation for subsequent economics courses, students in P2 would derive demand and supply schedules, learn to use tools of the trade such as rules for optimization, micro foundations, graphs, and equations, and use the tools to work with the concepts they learned in the literacy-based course.

To illustrate the difference between the literacy-based principles course and P2 consider how supply and demand would be covered in each. In the first course, students would learn that

consumers purchase more of a good when its price falls because it becomes a “better deal” compared to alternative purchases, and that firms supply more goods at higher prices because they can cover the higher incremental costs of expanded production. In P2, demand would be derived from the behavior of utility maximizing consumers who equate the marginal utility per dollar spent on each purchase. Income effects would not be taught in the first course but would be taught in P2. Supply would be derived from a production function, factor prices, and cost curves that would not be covered in the first course. Diminishing marginal returns would be taught in P2 but not in Principles.

In the first course, students will know the definition of the real rate of interest, understand that the real rate measures the cost of borrowing and the benefit of saving, and recall stylized facts about the real rate. In P2, students will know why consumption and investment should be inversely related to the real rate, will understand that the real rate involves an expectation of future inflation, and will be able to describe the short- and long-run effects of monetary policy on the real rate.

Students should be able to learn a lot in P2 . P2 students are more likely to be enthusiastic about economics (or a related field) and to have mastered the Standards.

### **Adapt to Enrollment Changes**

Departments must adapt their staffing to enrollment changes induced by replacing traditional principles courses with our literacy-based Principles and P2 pair.

The fraction of undergraduate students who take at least one economics course is likely to rise above its current level of 40 percent once students become familiar with what the literacy-targeted course has to offer. The fraction who take P2 is likely to be less than the 21 percent

who currently take at least two economics courses but much greater than the 2 percent who currently major in economics.

Enrollment in the P2 course will depend importantly on whether business schools require it of their undergraduate majors. Business schools that currently require a traditional two-term micro-macro sequence are likely to consider our Principles-P2 pair a good substitute. Whether business schools that currently require a one-term course will require only the literacy-targeted course or both courses is harder to predict.

Our best guess is that departments currently offering a two-term principles course will experience a slight decrease in enrollments because non-business students who would have taken two terms will now take one. We guess that departments currently offering a one-term course will experience an increase in enrollments because business schools will require both principles and P2.

Our proposals have implications for economics major and minor programs. Departments must decide whether to require P2 or to permit students to proceed from principles directly to intermediate theory. If they choose the latter, they must decide whether to require another elective, an advanced theory course (Kasper, 1991), or reduce the courses required of a major. Our proposals also provide departments with an opportunity to establish a non-majors track in which students proceed directly from principles to policy-oriented courses. This track would provide lower-cost access to applied economics courses for majors such as international studies, public policy, urban studies, industrial relations, environmental studies, and health policy.

#### **IV. Final Thoughts**

Our proposal is not as radical as it may initially appear. The undergraduate economics curriculum is already hierarchical—principles, intermediate theory, and applied courses cover the same concepts at an ever deeper level. We propose adding a tier that builds on the hierarchical structure. The first principles course would teach the Standards to promote literacy. The advanced principles course would cover the Standards at a deeper level and build a foundation for subsequent courses.

Are economics instructors ready for a new approach to the principles course? After hearing earlier versions of this paper at Bowling Green State University and the University of Kentucky, conference participants completed a survey about our proposal. Of 80 respondents, 66 regularly taught principles; 62 said their department teaches a two-term course, 6 a one-term course, 9 both, and 3 did not respond.

There is both good and bad news. Respondents endorsed our view that the most important goal of the principles course is to enhance economic literacy, but they were less convinced than we that the literacy and foundation goals conflict. Participants supported teaching to the National Voluntary Content Standards. They were less convinced, however, that their departments' courses required substantial revision: 44 agreed or strongly agreed that substantial revision was needed, 16 were neutral, and 19 disagreed or strongly disagreed.

When asked what topics could be dropped from the principles course, respondents mentioned cost curves (28), market structure (21), indifference curves (13), the Keynesian macro model (18), calculation-intensive topics (17), and aggregate demand and supply (10). When asked what they would do with the course time and student effort recovered by dropping topics, 11 mentioned more work with demand and supply, 14 current events, 14 active learning, and 32

applications.

In summary, we believe that the 40 percent of undergraduates who currently take at least one economics course will be better served by a course that prepares them to apply core economic principles for the rest of their lives than by the typical, long-list course. The principles course should teach the National Voluntary Content Standards which provide a working definition of economic literacy and explain what students should be able to do with their economic knowledge. We understand that many colleagues want the principles course to prepare economics majors for future economics courses, yet we believe that majors will be better served by principles and advanced principles than by the traditional micro-macro sequence. These changes we propose should attract more students to economics. A realistic goal would be to teach the literacy-targeted principles course to at least half of all undergraduates.

In the past year, we encountered many colleagues who support a literacy-targeted principles course but believe it still has room for their favorite topics. Put all those colleagues together and you have what we have now—an unfocused, encyclopedic tour of the discipline. What we offer instead is a course that will help Americans learn the principles of economics and how to use them.

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## **Appendix: The Voluntary National Content Standards in Economics**

The Standards for **Scarcity and Choice**, **Economic Behavior**, and **Allocation of Goods and Services** are given in the text. The remaining Standards are listed below. For a complete list, see National Council on Economic Education (1997) or Siegfried and Meszaros (1997).

### **Markets (7, 8 and in addition)**

9. Competition among sellers lowers costs and prices and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.

### **Factors of Production**

13. Income for most people is determined by the market value of the productive resources they sell. What workers earn depends, primarily, on the market value of what they produce and how productive they are.
14. Entrepreneurs are people who take the risks of organizing productive resources to make goods and services. Profit is an important incentive that leads entrepreneurs to accept the risks of business failures.
15. Investment in factories, machinery, new technology, and in the health, education, and training of people can raise future standards of living.

### **Macroeconomics**

11. Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.
12. Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.
18. A nation's overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy.
19. Unemployment imposes costs on individuals and nations. Unexpected inflation imposes costs on many people and benefits some others because it arbitrarily redistributes purchasing power. Inflation can reduce the rate of growth of national living standards because individuals and organizations use resources to protect themselves against the uncertainty of future prices.
20. Federal government budgetary policy and the Federal Reserve System's monetary policy influence the overall levels of employment, output, and prices.

**Government and Economic Institutions (20 and in addition)**

10. Institutions evolve in market economies to help individuals and groups accomplish their goals. Banks, labor unions, corporations, legal systems, and not-for-profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.
16. There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also redistribute income.
17. Costs of government policies sometimes exceed benefits. This may occur because of incentive facing voters, government officials, and government employees, because of actions by special interest groups that can impose costs on the general public, or because social goals other than economic efficiency are being pursued.

## Endnotes

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1. The Standards were produced by a coalition formed to write guidelines for curriculum development of high school economics. Each standard is an essential, enduring principle of economics and a statement of what students should be able to do with an understanding of the principle. The writing and review committees were chaired by John Siegfried and Michael Salemi. See Siegfried and Meszaros (1997) for details.

2. Because they must apply the Standards repeatedly to master them, students may not be able to master all 20 in one-term. In our view, Standards 1-8, 9 (markets), 12 (interest rates), and 20 (macro policy) are more fundamental to literacy than the rest.

3. One is the previously mentioned Frank and Bernanke (2001) although it aims at a two-term course. Another is *Economics and Contemporary Issues* (Edgmand, Moomaw, and Olson, 2001) which is designed for a one-term course. Each of its 18 chapters is oriented around a single topic and provides background information, concepts, and tools of analysis required to understand the topic and its issues.