

ASSESSING ECONOMIC UNDERSTANDING IN THE EARLY GRADES

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ABSTRACT

The issue of assessment is becoming increasingly important to a society that is demanding more value for, and return on, their educational dollars. Educational reform measures, passed by state legislatures, typically include assessment and productivity requirements. Federal and private grant agencies are also including outcome assessment requirements as part of their submission criteria for funding requests. In all of these cases, the use of pre and post testing is considered a valuable method for measuring success.

In economic education assessment tools exist for use at a variety of educational levels. These include the Test for Understanding College Economics (for college principles courses), the Test of Economic Literacy (Grades 11 and 12), the Test of Economic Knowledge (Grades 7 to 9), and the Basic Economics Test (Grades 5 and 6). All of these are nationally normed and offer a basic evaluation of economic understanding, relevant to each specific education level. Consequently, each is a valid tool for assessing economic knowledge through pre and post test use.

Below the 5th grade level, however, no specific test exists for measuring economic understanding. Since each of the above mentioned tests have reading comprehension as a prerequisite, a lack of this ability in the lower grades may explain why we do not offer assessment tools for these grade levels.

In an attempt to bridge this gap, the authors of this paper are developing a testing device for use in the early grades that is not dependent on reading comprehension and ability. After reviewing the education literature on early grade assessment, a potential instrument is discussed for use as a pre and post testing device, based on the concepts included in the Voluntary National Standards. Finally, potential uses of this assessment device are posited.

INTRODUCTION

In contemporary society, it is becoming increasingly important for students to have a working understanding of the economic principles guiding the market. More often than not, educational institutions tend to focus economic teachings on secondary school students, who are closer to entering the market as independent consumers and/or producers. However, the foundation for an understanding in economics should begin much earlier than this; specifically the basic principles of economics should be implemented into curriculum for students as young as kindergarten. By introducing economics in these very early grades, students will be able to build on the principles they learn throughout their school years and more readily identify with these principles in their own experiences outside the classroom. However, educating elementary students in economics is not the norm; rather it is often ignored for many reasons, including a perceived lack of need for economic education, time constraints in the classroom, and inadequacy of teachers in the field.

Why is economic in the early years needed? According to Mark C. Schug, editor of *Economics in the School Curriculum*, teaching economics is laying the foundation for learning which policies are best, which economic alternative should be accepted, and for understanding the possible consequences of the resulting action (Schug, p. 21). Economics plays a direct role in our everyday lives, for we act as both consumers and producers; furthermore, it has great influences on local, state, and federal policy (*Voluntary National Content Standards*, Introduction). In our economy, where so much depends on the votes of the citizens in regards to economic policy, it is of major importance that voters be educated so they can make intelligent voting decisions (Schug, p. 32). Therefore, a better understanding of economic principles will benefit our democratic society, for “a democratic market economy” works better when its inhabitants are more knowledgeable in the area of economics (*Voluntary National Content Standards in Economics*, Introduction). It is an education which should begin in elementary school.

The reasons for economic education beginning as early as kindergarten seem very apparent. The argument for early childhood economic education is summarized in a statement made by William L. Goodwin and Laura A Driscoll in their book *Handbook for Measurement and Evaluation in Early Childhood Education*, where they speak of the early years of childhood as “the foundation for later competence and development” (Goodwin & Driscoll, p. 3). Why then is this type of education more often than not overlooked when teachers are planning their curriculum? There are two main reasons for neglecting to convey very valuable economic lessons to students.

The first of these concerns time. Teachers often find themselves constrained by time in the classroom, because they think their main responsibility lies in the

teaching of those basic traditional subjects that are required, whereas economics is not. For example, according to Schug, elementary teachers generally spend about twenty minutes a day on social studies courses, with only one-fifth of this time devoted to economic principles. This translates into a mere twenty-five minutes a week (Schug, p. 15). This is simply not enough time to convey economic principles effectively.

Secondly, teachers suffer from an inadequacy when it comes to the area of economics. Data show that about fifty percent of elementary educators have no background in economics, and only twenty-five percent have had just one course in the subject. Therefore, most teachers interviewed in the survey said they experience a severe lack of confidence in their abilities to teach economics well (Schug, p. 10).

The National Council on Economic Education has taken great strides to change this trend. The Council has developed several elementary school publications which are designed to aid teachers in implementing economics education in the classroom. A master curriculum guide gives educators a “detailed step-by-step lesson plan” to follow with simple participatory activities for the students. A book entitled *Economics for Kids* has also been written as a “practical guide to information pertaining to what, when, and how to teach economics to young children.” Included in the guide are possible ideas for utilizing resources found in the community in order to illustrate basic economic concepts. Finally, *Econ and Me* is a video composed of five, fifteen minute segments covering economic principles in terms with which elementary students can readily identify. Each segment focuses on a particular concept, including scarcity, opportunity cost, consumption, production, and interdependence. In order to help teachers further explain the ideas presented in the video, an instructional guide is included which gives examples of situations that can be used to reinforce the concepts introduced in the video.

Even with these relatively new tools for implementing economic education into elementary classrooms, there exists no direct way to evaluate how effective the tools are in conveying basic economic principles. We are developing a simple test of ten multiple-choice questions covering very basic economic principles which we plan to administer to several kindergarten through second grade classes, in a pre and post test format. We maintain that in doing this, we can begin to understand what children of this age know, what they are capable of learning, and how we can illustrate their understanding with a simple test.

TEST METHODOLOGY

Educational assessment, used to evaluate aptitudes, skills, knowledge, and abilities, is a tool that has been used by educators since the onset of teaching itself.

Although there is very little information in regards to the early history of testing, ancient records have been found which suggest that some sort of evaluation of academic achievement was utilized, even though it did not play a significant role. Most of these evaluations were oral in form; it was not until 1845 that the use of oral testing as the dominant measure of academic achievement began to decline. As the population of students in school grew, oral testing became more and more difficult and time-consuming. With the need for some other form of evaluation, Horace Mann, the Secretary of the Massachusetts Board of Education, used his influence to bring the earliest paper and pencil tests to the United States, which were first administered to pupils in Boston, Massachusetts. The ease of giving and benefits resulting from these examinations led Mann and others to develop similar tests for other areas of the curriculum, such as arithmetic, geography, grammar, and history (Ahmann et. al, p. 10).

The advancements that came from the written testing style of evaluation being utilized at Boston did not readily travel to other parts of the US. For practically the remainder of the nineteenth century, other school systems chose to ignore the existence of paper and pencil tests, opting instead for the familiarity of oral tests. It was not until the early twentieth century that great strides in educational assessment began to take place. It was then that a man later to be regarded as the “father of educational measurement,” E.L. Thorndike, published a book containing his views on the state of educational evaluation. In his book he included two tests, the Stone Reasoning Test in Arithmetic and the Thorndike Scale for Handwriting of Children. There was a tremendous response to his work, as many others followed in his path to produce similar tests and research on the subject of testing. Since then, there has been enormous growth in written testing (Ahmann et. al., p. 11). In fact World War I saw the first testing of large numbers of people at the same time after the Binet Simon scale of intelligence was originated in France. Lewis Terman introduced this idea to the US when he developed the Stanford-Binet test; this was the first test to be standardized, meaning it gave specific directions for test givers in both the areas of administering the exam and scoring and evaluating the results. As World War I loomed on the horizon, the need for a large population of people to be tested simultaneously became evident, and the Army Alpha test was introduced to satisfy this need. It consisted of “a group-administered, pencil-and-paper test, which became the prototype of virtually all ‘scientific’ testing today” (Wigdor & Garner, pp. 8- 9).

Since then, the ability test has come to be defined as the “systematic observation of performance on task” (Wigdor & Garner, p. 9) and can be administered in a number of ways, including pencil and paper group tests, oral question and answer tests, and physical activity tests. Three direct participants have been identified in this testing process: the test producer or developer, the person or institution basing decisions on the test, and the test taker. They are a measure of

several different areas of ability, including individual achievement, excellence, progress, student difficulties, competence, effectiveness of teaching technique, and specific skills (Wigdor & Garner, pp. 10-12).

Since the introduction of the ability test, standardized testing has not just become the norm but the major method of testing in schools. In fact, schools are the number one user of standardized tests in the US. According to the Association of American Publishers, ninety percent of standardized test sales are to schools (Wigdor & Garner, p. 153). However, even with the popularity of such tests, there lies much criticism in their widespread use, particularly in the areas of test construction, test use, and test interpretation. One main argument against standardized testing regards their primary measure of cognitive functions; they do not encompass other important areas of life, such as determination, motivation, interpersonal awareness, social skills, or leadership ability. All of these are vital contributors to good performance, yet they are neglected by standardized testing (Wigdor & Garner, pp. 12-15).

Specifically, multiple-choice tests have been the subject of much criticism over the years. However, as Phillip Saunders in his book *The Principles of Economics Course* suggests, the benefits of this type of testing far outweigh the disadvantages. As already discussed, teachers are under a strict time schedule. These time constraints are greatly reduced with the use of multiple choice testing because they are administered with ease and scored fairly quickly. Another criticism lies in the suggestion that multiple choice tests are less effective in measuring a student's achievement, however, Saunders states that there is virtually no evidence to support this argument. Multiple choice tests are able to include more of the covered material, and teachers are able to measure the depth of understanding by putting a series of questions on one topic on the exam, which leads to more reliable indications regarding what the students actually understand. Finally, another benefit implied by Saunders, is that no bias in multiple choice testing exists due to the limited vagueness in questions and answers (Saunders & Walstad, pp. 192-195).

After reviewing the benefits of multiple choice testing, we believe it is the most efficient manner in which to go about evaluating kindergarten through second grade students in their understanding of basic economic principles.

TEST CONTENT

Each question is designed to relate to one of the Content Standards included in the National Standards. Specifically, the questions address benchmarks to be attained at the completion of Grade 4 (the earliest grade listed). What follows is an example of a test question:

Content Standard 1:	Productive resources are limited. Therefore, people can not have all the goods and services they want; as a result, they have to choose some things and give up others.
Grade 4 benchmark:	People make choices because they can't have everything they want.
Question stem:	Which of the following best shows scarcity?
Answer:	Picture of three children and one ice cream cone.

In constructing multiple choice tests, a critical aspect is the validity of the distracters (incorrect responses). We plan on paying particular attention to these. Three distracters for this question might include pictures of a swing set, a cat and a dog together, and a mouse with a piece of cheese. Once trial testing and evaluations are performed, distracters will change, based on measures of validity.

Also included in the benchmarks from Content Standard 1 is the concept of opportunity cost. Here a question might ask: "Which of the following would be an opportunity cost of doing your home work?" The correct answer would be something like a kid on a swing set.

The other content standards that provide 4th Grade benchmarks are:

Content Standard 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.
Content Standard 3:	Different methods can be used to allocate different goods and services. People acting individually or collectively through government, must choose which methods to use to allocate different kinds of goods and services.
Content Standard 4:	People respond differently to positive and negative incentives.
Content Standard 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.
Content Standard 6:	When individuals, regions, and nations specialize in what they produce at the lowest cost and then trade with others, both production and consumption increase.

Content Standard 7:	Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.
Content Standard 8:	Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.
Content Standard 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.
Content Standard 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.
Content Standard 11:	Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.
Content Standard 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.
Content Standard 14:	Entrepreneurs are people who take the risk of organizing productive resources to make goods and services. Profit is an important incentive that leads entrepreneurs to accept the risk of business failure.
Content Standard 15:	Investment in factories, machinery, new technology, and in the health, education, and training of people can raise future standards of living.
Content Standard 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.

Content Standard 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.
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As should be evident, some of these standards are most likely more amiable to teaching children in the third and fourth grades, but our test will try to focus on as many of these standards as possible.

EXTENSIONS

Once developed, implemented on a trial basis, and adjusted in response to validity testing, we believe this test will provide educators with a valid pre and post testing device for assessing learning in the K to 2 classroom setting. This should prove useful to grant administrators seeking outcome measures to gauge project success. Further, it should also send signals to concerned teachers as to their effectiveness in covering particular economic topics.

Another use for this test would be to measure the effectiveness, depth, and breadth of existing curriculum materials that are used in the lower grades. This would give teachers some indication of what materials might be best suited for addressing specific topics or standards.

Finally, use of the pretest will provide information with regards to how much younger students know about economics before they are exposed to the subject in school. Also of interest will be the extent to which this knowledge varies based on age alone. Extensions of this might include examining other socioeconomic factors that might play a role in a young child's level of economic literacy.

CONCLUDING COMMENTS

Our testing device, tentatively titled, "Elementary Economics Test" is currently being evaluated for validity, and is entering a second round of experimental implementation. Once completed, we will publish the results of our experiments and make available the final version of the test.

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