

Teaching the Ethical Foundations of Economics: Assessing a Curriculum for Middle and High School Students

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Abstract

This paper describes a pre- and post-test design, with control group, used to evaluate the educational effectiveness of Teaching the Ethical Foundations of Economics, a ten-lesson set of curricular materials published in 2007 by the National Council on Economic Education (NCEE). Using a sample of 875 students from diverse U.S. states, the report finds positive and statistically significant effects on a 25-question test of student learning about economics and ethics. It also finds generally positive results on an attitude survey about ethics given before and after exposure to Ethical Foundations. A regression analysis shows positive effects on student achievement related to the number of lessons taught and the students' educational aspirations.

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I. Introduction

Does ethics – the consideration of right and wrong – matter to the study of economics? The answer is “yes,” according to the authors of *Teaching the Ethical Foundations of Economics*, a set of curricular materials published for middle and high school use by the National Council on Economic Education in 2007. Even if it matters, though, it may be difficult to get students to learn ethics. This paper uses a pre- and post-test design to evaluate the effectiveness of the

Ethical Foundations materials in changing students' levels of knowledge and attitudes on ethical issues in economics.

The materials confront students with important ethical issues in economics, including: the morality of markets, the moral limitations of markets, the sale of human organs, sweatshop labor, social responsibility, and justice. Their production was funded by a grant from the John Templeton Foundation to the NCEE, since renamed the Council for Economic Education (CEE).

There is significant debate among scholars and educators about the teaching of ethics in K-12 classrooms. Educators differ on techniques and responsibility for teaching character development or ethics to school-age children (Halverson, 2004). Nonetheless, nearly everyone agrees that teachers are in a key position to deliver this information directly to students (Halverson, 2004). Furthermore, research demonstrates that waiting for college is likely to be too late. A 2006 study by Barbara Ritter suggests that a person's understanding of ethics and character development have already been solidified by the time students enter college.

As many studies have demonstrated, the economic literacy of many American students is lacking. Addressing this problem is the primary mission of the CEE. Studies also confirm that high school students today are also lacking in their knowledge of ethics. One study suggested that the declining influence of families and churches in teaching ethical standards has had a negative impact (Vincent and Meche, 2001). More than 25% of the high school students that participated in this study could not accurately identify unethical behaviors and activities. Like many studies in the area of economic and financial education, Vincent and Meche did find that when students were exposed to ethics instruction their knowledge and understanding of such issues improved significantly. This suggests that a curriculum like *Teaching the Ethical Foundations of Economics*, if infused into economics and social studies courses, has the potential to have a positive effect on both economic and ethics education.

For all of the reasons above, this current study should be of importance to economic educators at both the college and pre college levels. If *Teaching the Ethical Foundations of Economics* can improve students' knowledge of economics or ethics or both, these materials will be of great value to teachers as they attempt to help their students learn these important subjects.

II. Method

This project evaluated student knowledge on ethics and economics before and after classroom use of the *Ethical Foundations* materials. This pre- and post-test design with an attitude survey employed a treatment group (those who used *Ethical Foundations*) and a control group (other students who did not participate). The research method used in this project was similar to processes used in like assessment projects of economic education materials and whose results have been published in peer-reviewed economics journals (Niederjohn and Schug, 2008; Schug, Niederjohn, and Wood, 2006; Schug and Niederjohn, 2006). In total, 17 teachers from different schools were recruited for participation in this project.

Teachers were chosen to participate in the project via a random process. Initially, 390 teachers from across the country that had attended an NCEE-sponsored teacher workshop on the *Ethical Foundations* materials were invited to participate. From this group, 53 teachers volunteered to participate. Then, from this list of 53, a random number process was implemented to select 18 teachers for the project (one teacher dropped out midway through the project, leaving the final sample with 17 teachers). Each teacher received further training in the winter of 2008 in the use of the materials and a briefing on the test instruments and processes via email and phone conversations. They returned to their classrooms in the spring of 2008 and administered pre-tests and attitude surveys before teaching the materials. The participating teachers also completed and returned questionnaires about their background and their teaching of *Ethical Foundations*. Finally, after completing the lessons with their students, participating teachers mailed back the post-tests, attitude surveys, and related materials.

By the end of the assessment project, there were 875 complete and useable matched-tests received. The final sample included 789 students exposed to the *Ethical Foundations* materials and 86 students in control groups. Although the study did not measure the possible exposure of control group students to other materials on ethics and economics, the dearth of other such materials makes it unlikely. The publisher refers to the *Ethical Foundations* materials as a reintroduction after a long absence, “in the tradition of Adam Smith, who believed ethical considerations were central to life” (NCEE 2007, p.v).

The ethics knowledge test instrument – a mix of ethics and economics questions – was developed from assessment questions in

the lessons, suggestions from the original curriculum authors' conference, and staff work at two centers for economic education. Examples of questions from the knowledge test included:

Which of the following is a normative economic statement (and not a positive economic statement)?

- a. The rate of unemployment in the U.S. for 2006 was 4.2 percent.”
- b. More highly educated people tend to receive higher incomes than those with less education.”
- c. The tax laws should be reformed to make the wealthy pay a greater share.”
- d. “Higher fuel efficiency in cars reduces the amount of gasoline consumed.”

Which of the following behaviors would not be rewarded by competitive markets?

- a. providing quality at relatively low cost.
- b. serving other people.
- c. using force to achieve economic progress.
- d. tolerating the values and opinions of customers.

Which of the following positions about the desirability of a legal market in kidneys would be consistent with outcome-based ethics?

- a. Such a market would be morally objectionable because it would interfere with the development of sacrifice and virtue.
- b. Such a market would be morally justified because it is consistent with the teachings of major world religions.
- c. Such a market would be morally objectionable because it would erode people's sense of duty to others.
- d. Such a market would be morally justified because more kidney transplants would occur.

A first draft instrument with 50 questions was developed and was used by a cooperating high school teacher as a class activity in the summer session of 2007. This class activity, in addition to formal reliability testing, helped identify suitable questions to drop in order to bring the final test to 25 questions. Minor improvements in wording were also made as a result of this pilot test process. Included at the end of the knowledge test was a set of four questions

to gather information on grade level, gender, background in economics, and educational plans.

III. Test Results on Knowledge of Ethics and Economics

Table 1 shows the results of the 25-item test on knowledge of ethics and economics, including the results of statistical t-tests designed to show whether the change in knowledge went beyond what could be attributed to chance. For the overall test, students who were exposed to the *Ethical Foundations* curriculum saw a statistically significant increase in knowledge of ethics and economics. That is, their increase was beyond what could be attributed to chance. In contrast, the control group (as expected) showed no statistically significant increase in knowledge.

The 789 students who took the pre-test scored an average of 10.24 out of 25 questions correct, or approximately 41 percent. After exposure to the *Ethical Foundations* curriculum, the students scored an average of 11.68 out of 25 questions correct, or approximately 47 percent. This amounted to an improvement of just over six percentage points. As Table 1 indicates, a change in knowledge this large could be expected to occur by chance less than one ten-thousandth of the time. That is, the change was statistically significant with a p-value of 0.000. Standard deviations are included in parentheses in Table 1.

Table 1: Descriptive Statistics for Pre- and Post-Test

Group	Mean Score Before <i>Ethical Foundations</i>	Mean Score After <i>Ethical Foundations</i>	Change in Predicted Direction?	t-statistic on Difference of Means	p-Value (2-Tailed Test)
Control Group	10.38 (3.69) n=86	9.69 (4.27) n=86	Yes (no statistically significant improvement)	-1.75	p=0.084
Group that Used <i>Ethical Foundations</i>	10.24 (3.85) n=789	11.68 (4.52) n=789	Yes	9.820	p=0.000

Granted that the improvement in knowledge was statistically significant, was it also economically significant (McCloskey and Ziliak, 1996)? While a larger change in knowledge would have been

more satisfying, the noted improvement came from teachers using only 4.8 lessons on average – and these from a lesson book that included simulations and activities but had no supporting computer games or audiovisual materials. Additional improvements could be expected from teaching a larger number of lessons, as noted below. And although each teacher must make a decision about the opportunity cost of instruction forgone when new ethical material is introduced, the emphasis of the new materials on critical thinking suggests that instructional gains may extend beyond economics proper to other subjects and skills.

IV. Attitude Survey Results

Table 2 shows the results of the ethics attitude surveys that students completed before and after their exposure to the *Ethical Foundations* curriculum. Statement responses were provided on a Likert scale with “1” representing “Strong Disagreement” and 5 representing “Strong Agreement.” Three of the fifteen items on the attitude survey showed a statistically significant change after exposure to the *Ethical Foundations* materials.

- On the statement, “Competitive markets promote morally positive values,” a statistically significant and positive change was found. That is, after exposure to the materials, students more strongly agreed with this statement.
- On the statement, “The best strategy for improving labor conditions in countries characterized by abusive workplaces (sweatshops) is to boycott products of sweatshops,” a statistically significant and negative change was found. That is, after exposure to the materials, students more strongly disagreed with this statement.
- On the statement, “People should be allowed to buy and sell organs such as kidneys for transplantation,” a statistically significant and positive change was found. That is, after exposure to the materials, students more strongly agreed with this statement.

Compared with changes in knowledge, the changes in attitudes are smaller statistically and less important to the stated goals of *Ethical Foundations*. The *Ethical Foundations* exercises are not intended

to sway students but instead to “encourage people to exercise their moral imaginations and develop an analytical perspective” (NCEE, 2007, p.vii). Even so, the limited evidence of pro-market attitude change on three statements may well be evidence of greater critical thinking. It is easy for students to continue in a prevailing anti-market bias (Caplan, 2007) but they must “exercise their moral imaginations” even to understand the arguments for markets on controversial issues such as sweatshops.

V. Regression Results

In order to incorporate teacher performance and student characteristics into a comprehensive model of final (post-test) achievement in *Ethical Foundations*, a regression model was estimated. This model helps to control for the differences in time and effort the teachers put forth in teaching the lessons (For example, teachers were asked to teach as many lessons as possible; however, the maximum taught was eight whereas the minimum taught was four) as well as the student’s differences in ability and background. The dependent variable of the equation was the post-test score. Explanatory variables were the pre-test score, number of economics courses students had taken (1=none at all; 4=complete course in economics), student grade level (1=9th or below; 4=12th), a measure of the student’s educational plans (1=no education planned beyond high school; 5=complete college degree plus professional or graduate school), teacher-reported number of lessons taught from the curriculum, teacher-reported hours spent on *Ethical Foundations* per week, and student’s gender. These results of this regression model are displayed in Table 3.

The results indicate positive and statistically significant effects for the number of lessons taught from the *Ethical Foundations* materials. Each additional lesson of instruction was associated with a gain of 0.773 correctly answered questions, holding other variables constant. There were also, as expected, statistically significant differentials for students with higher educational aspirations. Interestingly, students in higher grades did worse on the tests, holding other variables constant, perhaps suggesting this curriculum is most effective with

Table 2: Results of Testing of Attitude Survey Statements

Attitude Statement	Pre-test mean	Post-test mean	Statistically significant?
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1.	Scientific and economic research is unaffected by the researchers' moral values	2.68 (1.01)	2.59 (1.03)	No p=0.059
2.	People's perception of facts can be altered by what they are told before they go searching for facts	3.75 (1.07)	3.73 (0.96)	No p=0.633
3.	There is no difference between self-interest and greed.	2.17 (1.04)	2.10 (1.07)	No p=0.171
4.	If there is an unusually high demand for heating oil because of a cold winter, heating oil dealers are justified in raising prices.	3.08 (1.13)	3.07 (1.05)	No P=0.734
5.	Professionals such as doctors and attorneys are morally obligated to put the interests of those they serve ahead of their own interests in making money.	3.52 (1.14)	3.59 (1.07)	No p=0.147
6.	Competitive markets promote morally positive values.	2.79 (0.93)	3.02 (0.94)	Yes p<0.0001
7.	The profit motive generally leads to more, rather than less, racial discrimination.	2.88 (0.96)	2.86 (0.94)	No P=0.647
8.	A market economy is unjust in the way that it rewards people.	2.90 (0.88)	2.84 (0.91)	No p=0.148
9.	The best strategy for improving labor conditions in countries characterized by abusive workplaces (sweatshops) is to boycott products of sweatshops.	3.13 (1.15)	2.96 (1.13)	Yes p<0.0001
10.	People should be allowed to buy and sell organs such as kidneys for transplantation.	2.86 (1.18)	2.96 (1.13)	Yes p=0.041

Table 2: Results of Testing of Attitude Survey Statements, cont.

Attitude Statement	Pre-test mean	Post-test mean	Statistically significant?
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11.	In a disaster at sea with insufficient life rafts to go around, I would favor giving the rafts to women and children first, rather than men.	3.48 (1.12)	3.42 (1.07)	No p=0.218
12.	Businesses can promote social responsibility better by concentrating on improving their products rather than by donating money to charity.	2.92 (0.97)	2.95 (0.92)	No p=0.612
13.	Businesses have responsibilities to society at large that go well beyond their responsibility to make profits for the owner.	3.29 (0.95)	3.30 (0.94)	No p=0.877
14.	The more people know about their own personal interests, the better equipped they are to say what is fair for society as a whole.	3.29 (1.27)	3.37 (1.19)	No p=0.195
15.	The disparities between the rich and the poor in the United States today are morally unacceptable.	3.15 (1.10)	3.16 (1.02)	No P=0.909

students in the earlier high school grades. The authors have no further explanation for this result, which differs from findings on other assessments of economic education curricular materials. There was no statistically significant gender difference or effect of students having taken more economics course work; however, all else constant, the females did significantly better on the assessment. The overall equation was statistically significant with a reasonable fit for a model of this type (adjusted $R^2 = .390$).

VI. Conclusion

This assessment suggests that Ethical Foundations is effective in promoting student learning about ethics and economics when it is used by trained teachers – the usual model of the National Council on Economic Education. A pre- and post-test design with a control group suggests that statistically significant learning took place among the 789 students who participated fully in this activity. Positive

attitude change also appears to take place, although here the results are not as strong as are the results for change in knowledge. Equally importantly, a regression model indicates that, as expected, students learn more about these topics as they are exposed to more of its lessons.

Table 3: Regression Results with Dependent Variable = Post-Test Achievement

Explanatory variables	Coefficients (standard errors in parentheses)
Constant term	4.69*** (1.18)
Economics Courses	0.019 (0.317)
Grade level	-0.614*** (0.123)
Educational plans	0.303* (0.155)
Lessons taught	0.773*** (0.132)
Hours per week	0.064 (0.048)
Male student	-1.13*** (0.316)
*=p<0.05	F=44.56 (p=0.000)
**=p<0.01	R ² = 0.389
***=p<0.001	Adjusted R ² = 0.390
	n = 627

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