STUDENT PERFORMANCE IN ECONOMICS AND ECONOMIC EDUCATION COURSES IN ARKANSAS AND TEXAS: A COMPARATIVE STUDY

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ABSTRACT

The conventional wisdom is that many students have a perception of economics as both difficult to understand and biased in its predictions. To the extent that this opinion holds true it would translate into a negative attitude toward economics as a subject. The purpose of this study is to determine precisely what student attitudes toward economics are and if those attitudes are changed by formal exposure to the discipline. Further, were there any differences in attitude toward the teaching of economics and where economics belongs in the overall curriculum? Three very different groups of students were examined for this study.

INTRODUCTION

The purpose of this study is to determine precisely what student attitudes toward economics are and if those attitudes are changed by formal exposure to the discipline. Further, were there any differences in attitude toward the teaching of economics and where economics belongs in the overall curriculum? Three very different groups of students were examined for this study.

The first group consisted of in-service classroom teachers in grades Kindergarten through Junior College. These experienced educators were earning graduate credit for advanced studies in economic education. The majority, 87%, had some previous course work in economics or economics for teachers. A sub-group included in-service teachers attending a seminar or noncredit workshop in either Texas or Arkansas was included it the study. These workshops are sponsored by their respective state councils on economic education and by a center for economic education at either Arkansas State University in Jonesboro or Lamar University in Beaumont, Texas.

Group II consists of elementary education majors enrolled in a required course called Economics for Elementary Teachers. The purpose of this course is to provide preservice elementary education majors with some basic background in Economics and instruction in teaching materials and methods relative to economics in the Kindergarten through grade six curriculum.

Group III consists primarily of business students enrolled in a basic principles of microeconomics course. This class primarily served students pursuing a business major along with a few majoring in social studies and engineering. It would seem that the attitudes toward economics could vary dramatically among the three groups of students. They all had a significantly positive attitude toward economics in the curriculum, even though the teacher groups were more positive about its inclusion into the elementary level curriculum.

RESEARCH DESIGN

Eight different groups with five different instructors were the subjects of this study. A total of 306 subjects were included in the study, which was conducted during the Spring and Summer semesters of 1998. Group I consisted of 86 preservice teachers from 18 different school districts in northeastern and central Arkansas. Four different instructors were used in this course. Another 40 teachers, who were workshop participants from Texas, were joined by 52 teachers from Arkansas workshops in economics for teachers. Group II consisted of 26 preservice teachers, taught by Dr. Jerry Crawford, and another 85 preservice teachers taught by Dr. Larry Dale in economics for teachers at Arkansas State University. Group III contained 21 students enrolled in Microeconomics (Principles) and taught by Dr. Crawford.

The students came from varied backgrounds with different majors. The researchers were interested in exploring the values and characteristics that contribute to the attitudes and aptitude of students under these widely varied circumstances. The independent variables examined included; sex, age, occupation, previous courses in economics, previous courses in business, four attitudes toward economics in the curriculum responses, one personal attitude toward economics and thirty questions related to specific cognitive subjects in economics and the curriculum. These were compared against the dependent variable of the difference between the mean pre-course score and post-course test score.

The study included several additional attitudinal factors such as; enjoyment of the course, usability of the information and grade expected. All of the attitude factors were rated on a five-point scale from strongly agree strongly to disagree, with three representing no opinion. A list of twenty-one basic economic concepts was also presented and subjects were asked to identify where these should be placed in the curriculum, if at all. A response of 0 indicated this concept should not be placed

at the pre college curriculum, a response of 2 would indicate that the concept could be introduced in the primary grades, a 3 intermediate grades, a 4 grades seven-nine and a 5 at the high school.

RESULTS

First a standard t-test, testing the null hypothesis that the post course scores are equal to the pre-course scores, revealed that statistically significant improvements in the mean score of all three tested groups had occurred. A chi square comparison of the means for the three groups on the TEL suggested no significant difference in their performance. The highest posttest mean (31.41 or 74.8%) was for the In-service teacher group I followed by (30.77 or 73.3%) for the preservice teacher group and (28.46 or 67.8%) for the microeconomics students. This is an important finding since the economic education courses cover less cognitive material than the principles course, because they must include some coverage of curriculum matters. Past studies, conducted by this researcher, indicate that despite less coverage the teacher groups out perform regular principles groups because of the practical nature of the instruction.

When it was discovered that 32% of the microeconomics students had no previous courses in economics, possibly putting them at a disadvantage on this test of combined macro-microeconomics, they were run as a separate group. They had a pre-course mean of 21.22, as compared with 24.06 for those with previous courses, and a post-course mean of 22.02. Both differences proved to be statistically significant so that the two groups were run separately for the remainder of the study.

Personal Characteristics and Attitude Factors

An educational production function that allows for simultaneous determination of cognitive and attitudinal responses were conducted. Cognitive and attitudinal responses are assumed to be simultaneously formed as specified in Grimes ect. (1989). The estimated equation provided a significant F-statistic and acceptable cross-sectional Adjusted R2. Examination of the Adjusted R2 values reveals that both cognitive performance and attitude responses explain a greater proportion of the observed variations in student scores for the teacher groups than for the microeconomics groups. It appears that the learning and attitude formation process involves more complex factors among the group of microeconomics students. That would seem reasonable since the class is less focused and the interest, occupationally and intellectually, more varied among that group which included students from three colleges and 7 degree programs across campus.

The regression analysis also examined the influence of the following independent variables:

Sex

The in-service teacher and microeconomics groups were evenly matched, with females making up 56% of the subjects, which is consistent with the makeup of the general student population. The preservice teacher group, made up of future elementary teachers, was predominantly female at 94%. Sex was not a significant factor in either student performance or attitude toward economics.

Occupation

Occupational status was extremely significant in that educators were more likely to support the use of economics in the curriculum, particularly at the elementary grade levels, than were other occupations. The educators were also more likely to rate specific economic terms as usable at both the elementary and secondary levels. No significant difference in the ratings of teachers from Arkansas and Texas was discovered.

Despite the significant difference in the ratings, a majority of the members of all groups were supportive of the presentation of significant amounts of economic content at the precollege level. No significant difference was discovered in the performance of any occupational group on the standardized achievement tests at the .01 level.

Previous Course Work

Previous course work in economics was highly significant as a predictor of success on the TEL, as would be expected, but courses in other business fields was not significant at the .01 level. Student understanding of economics does not benefit significantly from courses taken in accounting, business computers, and other areas of the general business curriculum.

Attitude Toward Economics in the Curriculum

The three groups universally agreed that all students should have some exposure to economics before graduating from high school, with 91% of all respondents agreeing. The mean response on this question was 4.79 on a five-point scale with 5 representing strongly agree.

The attitudes of the microeconomics students did differ significantly from the teacher groups on the importance of teaching economics in the elementary

grades. However, 80% of that group still believed that some economics should be taught prior to the secondary grades. There seems to be a universal recognition that economic subject matter is important enough that all citizens should have a basic understanding of economic concepts and issues.

A standard t-Test, testing the null hypothesis that post-course attitude scores are equal to pre-course attitude scores, determined that attitudes toward economics had proved statistically significant improvements. Not only were people more favorable toward economics as a subject [76.71%] but students came out of the course experience believing that they needed some background in as an individual [63.89%]. They also believed that economics was important in the general curriculum [67.13%] . The teacher groups showed a much stronger gain in favorable attitudes toward economics than the microeconomics group [91.08% compared with 52.66%]. They also were more likely to include economics in the curriculum and at lower grades than were the microeconomics group. If the economic education program is to be successful, it is critical that teachers have a good attitude toward economics .

Attitude Toward the Personal Value of Economics

Students overwhelmingly believed that economics instruction and knowledge had been valuable to them personally [92.34%]. This positive attitude supports the idea that everyone needs some economics instruction. No statistically significant difference was discovered between the attitude rating of high and low achievers on this question.

Attitude Toward Specific Economic Issues

Students were asked to examine a list of economic concepts, from the National Council on Economic Education Framework, and to rate where each concept should be included in the curriculum. The choices included; elementary level (grades K to 6), secondary level (grades 7 to 12), College level, College level (majors only) and none. Less than 3% of the respondents selected the “none” option on any concept so that option was excluded from the study and the table of results (see table 2). A chi square test of significance, at the .01 level, was conducted to determine if there was any significant difference in the way the three groups rated each concept in terms of grade level placement. The teacher groups were much more likely to introduce concepts into the precollege curriculum than were microeconomics students. Since they had been exposed to grade level appropriateness during the course, they were more familiar with the teaching methods and materials available at all level. The in-service teachers had frequently taught some economics in their classrooms making them more accepting of early

placement of economics. Interestingly, no significant difference between the pre and post course ratings was indicated. Exposure to economics concepts did not make any of the students more or even less accepting of the role economics should play in the overall curriculum. This is due to the fact that students gave economics an extremely high rating on both the pre and post course survey.

The teacher groups were significantly more favorable to the introduction of all economic terms than were the microeconomics group, especially at the elementary level. The preservice teachers were significantly more likely to introduce the following terms at an earlier age than were the more seasoned in-service teachers; scarcity & choice, productivity, institutions & incentives, supply & demand, income distribution, gross domestic product, trade and inflation. The in-service teachers were more likely to introduce the following terms than were the preserves teachers; opportunity costs & trade offs, economic systems, exchange, markets & prices, market structures, market failures, government, unemployment and exchange rates.

The teacher groups were in relative agreement on most economic topics and differed significant from the microeconomics group on both elementary and secondary level placement of terms and concepts. The micro group stated that ten concepts should not be introduced until the secondary curriculum including; productivity, markets, market structure, income distribution, market failures, GNP, inflation, trade, stabilization and exchange rates.

Trained teachers have a more positive and realistic attitude toward economics in the k-12 curriculum. Their opinions about economics are in close agreement with the placement advice offered by economics expert from the National Council on Economic Education as represent in the Scope & Sequence book.

The difference between teachers in Arkansas and Texas was not significant except on three concepts; Gross Domestic Product, market failures and aggregate supply and demand. Teachers from Arkansas were more likely to attempt those concepts at an earlier point in the curriculum. The Texas teachers' opinions' on those three topics was more in keeping with that of the economics experts. This is a sign that we are teaching the same basic ideas in different center-sponsored programs in these states.

A special survey was conducted with the subset of group I, preservice teachers enrolled in a seminar or workshop, with some interesting results. Table III displays the difference between the Texas and Arkansas Group on these special topics. Arkansas teachers were more likely to include some emphasis on economics in their curriculum, but both groups agreed that they would include the study. The Arkansas teachers were more aware of state requirements in economics instruction. Arkansas has embarked on a statewide campaign and most districts are required to hold workshops in which attendance is mandatory for all faculty. This has proven advantageous in recruitment of teachers for workshops since economics is a

significant part of the required social study's curriculum and student testing for grades Kindergarten through eight. Otherwise, there was no significant difference between teacher attitudes on economics in the curriculum. All groups of teachers planned to include more economics in their class lessons as a result of the workshop by an overwhelming 92%

CONCLUSIONS

Studying economics had no statistically significant effect on the attitude of students toward the importance of economics or on their grade level placement in the curriculum. This was primarily because students were very positive in their attitude toward economics on both the pre and post course survey. Evidently all students are becoming more aware of the important role that economics plays in current affairs and have discovered the value of universal economic literacy.

This study does suggest that teachers, and those training to be teachers, have more confidence in the ability of younger students to understand basic concepts than students in the regular principles course. Interestingly, little disagreement was noted over the introduction of most of the basic concepts listed for the secondary curriculum.

This study discovered very little difference in attitude as the result of sex or previous courses taken. It is significant that the main predictor of success on the TEL was the number of previous economics courses taken. Obviously the more economics one is exposed to the more they learn and retain.

The result of the concept placement analysis indicates that the economic education program is helping education majors with the appropriate grade placement of material. Student findings correspond closely with grade placement decisions made by experts as suggested by the Scope and Sequence evaluation of selected economic education experts. Overall, Teachers in both in-service and preservice programs had a good understanding of the grade appropriateness of most concept after completing a course or seminar in economics. Previous studies have shown that this is not true of the general teacher population (Becker, 1983 and Gilliard, 1989). We are making a difference in preparing teachers for the global economy so that they may prepare their students.

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TABLE I
PLACEMENT OF ECONOMICS CONCEPTS IN THE CURRICULUM

Post Course Attitude Survey

CONCEPT	GROUP I			GROUP II			GROUP III		
	K-6	7-12	COLL	K-6	7-12	COLL	K-6	7-12	COLL
SCARC & CHOICE	*52%	26%	17%	*65%	12%	24%	24%	48%	
OPPORT. COSTS & TRADE OFFS	*62%	19%	15%	*56%	22%	6%	6%	56%	31%
PRODUCTIVITY	*44%	31%	23%	*58%	17%	5%	0	57%	23%
ECONOMIC SYS.	41%	12%	4%	*35%	35%	23%	11%	51%	29%
INSTIT. & INC	66%	12%	16%	*76%	5%	5%	23%	52%	11%
EXC MONEY & INTER.	*57%	29%	14%	*47%	29%	11%	17%	47%	22%
MARKETS/ PRICE	*44%	26%	26%	*29%	35%	17%	0	51%	29%
SUPPLY/DEMAND	*48%	30%	19%	*76%	11%	5%	4%	40%	40%
MARKET STRS	*37%	27%	33%	*17%	41%	17%	0	35%	35%
INC DISTRN	*27%	45%	30%	*35%	23%	23%	0	40%	29%
MKT FAILURES	23%	30%	30%	*17%	11%	47%	0	40%	29%
ECONOMIC ROLE OF GOVERNMENT	19%	33%	37%	*17%	22%	51%	0	70%	17%
GDP	*11%	37%	41%	*41%	29%	17%	0	23%	47%
AGGREGATE SUPPLY/DEMAND	11%	30%	12%	*17%	29%	23%	0	16%	45%
UNEMPLOYMENT	*37%	30%	30%	*35%	41%	11%	5%	70%	11%
INFLATION	*27%	37%	23%	*41%	29%	17%	0	47%	29%
MONETARY/ FISCAL POLICY	11%	37%	41%	*5%	52%	17%	4%	16%	51%
TRADE	*48%	19%	27%	*49%	21%	11%	0	51%	28%
EXCHANGE RATES	19%	27%	41%	*17%	35%	23%	0	22%	51%
NATIONAL DEBT	15%	41%	30%	11%	5%	29%	4%	47%	23%

*Significant at the .01 level.

TABLE II
STUDENT RESPONSES

	SEX	OCCUPATION				PREVIOUS ECONOMICS				
	% FEMALE	STUD.	EDUC.	RETL.	MAN/ SER.	0	1	2	3	4& Up
GRP I	56.5%	13%	87%	-	-	31%	45%	20%	-	4%
GRP II	94%	76%	24%	24%	-	75%	19%	6%	-	-
GRP III	56%	81%	-	6%	12%	25%	56%	6%	6%	6%

	PREVIOUS BUSINESS COURSES				
	0	1	2	3	4 & UP
	AGREE	NO OPINION			DIS-AGREE
GRP I	33%	46%	21%	88%	12%
GRP II	75%	19%	6%	87%	13%
GRP III	25%	56%	6%	100%	-

ALL STUDENTS SHOULD HAVE BASIC ECONOMICS BEFORE GRADUATION

TABLE IIIA
STUDENT OPINIONS ON INCLUSION IN THE CURRICULUM

	ALL ELEMENTARY STUDENTS SHOULD HAVE SOME BASIC ECONOMICS INSTRUCTION			ALL TEACHERS SHOULD HAVE BASIC ECONOMICS BEFORE GRADUATION		
	AGREE	NO OPINION	DISAGREE	AGREE	NO OPINION	DISAGREE
GRP I	88%	-	12%	92%	-	8%
GRP II	87%	-	13%	93%	-	7%
GRP III	80%	-	20%	88%	6%	6%

LESS THAN 10% OF THE RESPONDENTS FELT THAT THEY HAD NOT BENEFITTED FROM INSTRUCTION IN ECONOMICS.

TABLE IIIB
STUDENT OPINIONS ON INCLUSION IN THE CURRICULUM

	COGNITIVE PERFORMANCE		ATTITUDE RESPONSE		PREVIOUS ECONOMICS
	F	ADJUSTED R2	F	ADJUSTED R2	
GRP I	15.622	.506	12.444	.571	
GRP II	18.055	.521	13.899	.603	
GRP III	13.553	.434	9.877	.462	

TABLE IIIC
SPECIAL STUDENT SURVEY

Prior to this conference, which of the following best describes your experience with economics?

Opinion	Texas	Arkansas
1. Never included Economics	8.2%	11%
2. Include little Economics	-0-	2.3%
3. No opinion	-0-	-0-
4. Include some Economics	74.52%	21.3%
5. Include a great deal	8.2%	65.4%

Has this workshop changed your attitude toward including economics in your curriculum?

Opinion	Texas	Arkansas
1. No, No Econ. included	-0-	-0-
2. Some what, some	4.8%	2.1%
3. No opinion	-0-	1.8%
4. Yes, Include some	19.01%	11.14%
5. Yes, Include a great	76.12%	83.6%

Were you aware of state requirements regarding student testing and the teaching of economics?

Opinion	Texas	Arkansas
1. No	11.03%	.98%
2. Some what	21.07%	1.86%
3. No opinion	-0-	1.86%
4. Yes, not to extent	45.83%	22.14%
5. Yes	21.07%	73.16%