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ABSTRACT

"Trade-offs" is an instructional television series of 15 programs designed to improve and expand economics instruction in fifth and sixth grade classrooms in the United States and Canada. This paper reviews 15 studies that have examined the impact of the "Trade-off" series, and seeks to determine how the series affects student and teacher knowledge of and attitudes toward economics and whether they enjoy the "Trade-offs" programs. The studies reviewed examined diverse variables and used a variety of designs and instruments. They include three studies on cognitive, attitudinal, and inservice training effects; one report on the development and validation of the Basic Economics Test; five local evaluations; and two studies of teacher and administrator ratings of the series. Findings led to the following conclusions: (1) the series significantly improves students' knowledge of and attitudes toward economics; (2) the series significantly improves teachers' attitudes toward economics; (3) student cognitive and attitudinal gains were further increased with teacher inservice training; (4) teacher attitudinal gains were further increased with inservice education; and (5) the series is appealing to students, teachers, and administrators. Notes, references, and a comprehensive chart of studies reviewed are included. (THC)

What the Research Is Saying

Agency for Instructional Television
Canadian Foundation for Economic Education
Joint Council on Economic Education

About 'Trade-offs'

"Trade-offs," a series in economic education for nine-to-thirteen-year-olds, consists of fifteen 20-minute television/film programs and related materials. Using dramatizations and special visuals, the series considers fundamental economic problems relevant to everyday life.

In its first year, "Trade-offs" was used by approximately 500,000 students and their teachers in about 25,000 fifth- and sixth-grade classrooms. This more than quadrupled the amount of teaching of economics as a subject.

"Trade-offs" was produced under the direction of AIT by the Educational Film Center (North Springfield, Virginia), The Ontario Educational Communications Authority, and public television station KERA, Dallas.

Programs are available on film, videocassette, and broadcast videotape.

"Trade-offs" was developed cooperatively by the Joint Council on Economic Education, the Canadian Foundation for Economic Education, the Agency for Instructional Television, and a consortium of fifty-three state and provincial education and broadcasting agencies.

The Consortium

Alabama ETV Commission
Alaska Department of Education
Alberta Education
Arizona Department of Education
Arkansas Economic Education Council
British Columbia Department of Education
California Consortium on Economic Education
Colorado Department of Education
Connecticut Educational Television Corporation through the Calvin K. Kazanjian Foundation
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Trade-offs: What the Research Is Saying

Agency for Instructional Television
Canadian Foundation for Economic Education
Joint Council on Economic Education

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James Shea

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Summary

This paper reviews 15 diverse studies that have examined the impact of the *Trade-offs* series. The diversity encompasses variables examined, designs employed, and instruments used. There are certainly common elements to some of the individual studies, but the diversity of the entire set allows a comprehensive examination of the series beyond the scope of any single study.

The studies reviewed have led to the following conclusions about the impact of *Trade-offs*:

1) The series significantly improves students' knowledge of and attitudes toward economics.

2) The series significantly improves teachers' attitudes toward economics.

3) Student cognitive and attitudinal gains were further increased with teacher in-service training.

4) Teacher attitudinal gains were further increased with in-service education.

5) The series is appealing to students, teachers, and administrators.

INTRODUCTION

Trade-offs is an instructional television series of 15 programs designed to improve and expand economics instruction in fifth- and sixth-grade classrooms in the United States and Canada. The series was developed by the Agency for Instructional Television (AIT), The Canadian Foundation for Economic Education (CFEE), and the Joint Council on Economic Education (JCEE), with fiscal support from 53 state and provincial agencies, 2 foundations, and 12 corporations. In 1975, these organizations joined together to create a series that would "help students think their way through economic problems and increase their understanding of economics" (*A Guide to Trade-offs*).

The result of this three year collaborative effort was the release of *Trade-offs* in 1978. One indication of the impact of *Trade-offs* is the number of students who have viewed the series. In its initial year of use (1978-79) *Trade-offs* was broadcast on 158 non-commercial television stations and was seen by over 500,000 students in almost 25,000 fifth- and sixth-grade classrooms. In the second year of use non-commercial television broadcasts had increased to 274 stations and student viewers were also substantially increased (AIT, 1980). Additionally, while *Trade-offs* was designed for grades five and six, there is substantial evidence of widespread use in the seventh-grade classrooms.

Beyond utilization figures for *Trade-offs*, a considerable amount of data concerning its effects and appeal has been gathered by a variety of projects in the United States and Canada. Some of this data has been the result of rigorously designed, quantitative research that has examined the cognitive and attitudinal effects of *Trade-offs* on student viewers. Other projects have gathered information that relates to teachers' and students' subjective ratings of each program in the series. Although perhaps not the result of rigidly structured research, the data from such studies add to our understanding of the reception of *Trade-offs* by teachers and students. This paper reviews a broad base of information to form tentative answers to the following questions:

1) How does *Trade-offs* affect student and teacher knowledge of and attitudes toward economics?

2) Do students and teachers enjoy the *Trade-offs* programs?

This report is not intended to be a critique of methodologies, although they will be discussed. It is an attempt to assimilate and synthesize the results of the research that has been completed on *Trade-offs* so that we can gain a more comprehensive understanding of its impact.

Fifteen separate studies will be examined. A summary of these studies can be found in the chart in Appendix A.

THE RESEARCH

Cognitive, Attitudinal, and In-service Training Effects

One of the most extensive and rigorously structured studies of *Trade-offs* was conducted by William Walstad (1979). His investigation examined: (1) the effects that *Trade-offs* had on student economic understanding and attitudes toward economics and (2) the effects that teacher in-service instruction in both basic economics and in the use of *Trade-offs* had on student learning and attitudes. This examination of the effects of teacher in-service on student economic understanding and attitudes is particularly relevant since many school systems have devoted considerable resources and time to training teachers for *Trade-offs* use.

Walstad utilized a non-equivalent control group design in this study. He divided 22 teachers and 563 fifth- and sixth-grade students from 15 St. Louis-area elementary schools into 4 groups, 2 experimental and 2 control, as follows:

Experimental Group 1: The students of volunteer teachers who participated in a 30-hour in-service course in economics. These students then viewed *Trade-offs* and participated in limited pre- and post-lesson activities outlined in the teacher's guide for *Trade-offs*. The total student instructional time over the 15 week treatment period was 10 hours. N=149

Experimental Group 2: The students of volunteer teachers who did not participate in an in-service course. These students did view *Trade-offs* and also participated in the pre- and post-lesson activities. Total student instructional time over the 15 week treatment period was 10 hours (the same as Experimental Group 1). N=106

Control Group 1: Students of volunteer teachers who participated in the in-service course but did not show *Trade-offs* to their classes. These students received no direct instruction in economics, other than the teacher's use of the economics presented in the district social studies text. N=115

Control Group 2: Students of randomly selected teachers who neither participated in an in-service course nor showed *Trade-offs* to their classes. Again, these students received no direct instruction in economics. N=193

Walstad used the *Test of Elementary Economics* (TEE)[1] as his measure of knowledge of economics. The TEE measures general knowledge of economics and was not specifically designed to evaluate *Trade-offs*. Walstad used a semantic differential instrument to assess student attitudes toward economics.[2]

In analyzing the data, Walstad used a multiple linear regression analysis. This analysis controlled for age, sex, composite scores on an SRA achievement test, pretest economic understanding, and pretest attitude toward economics. By using multiple regression analysis Walstad ensured a more carefully controlled scrutiny of the effects of *Trade-offs*.

Walstad's results "offer good evidence for the value of *Trade-offs*. Both the experimental groups (groups viewing *Trade-offs*) showed significant positive differences in economic understanding and attitudes toward economics when compared to the control groups" (Walstad & McFarland, 1980, p. 411). In addition, very interesting comparisons were also made between the two experimental groups and between the two control groups.

The comparison between the two experimental groups helps us understand the effect that teacher in-service training has on student economic knowledge and attitudes. The in-service training that Experimental Group 1 received consisted of a 30-hour course for which they received two hours of college credit. This group's students showed significant improvement in both economic understanding and attitudes toward economics compared to Experimental Group 2, who received no in-service training. In fact, "the contribution of teacher training represents a 93% increase in economic achievement and a 57% improvement in attitudes toward economics for students in Experimental Group 1, on average, over the gain for students in Experimental Group 2" (Walstad, 1979, p. 10). Although a 30-hour course is costly both in time and money, the concomitant increases in student cognitive and attitudinal scores were certainly impressive.

The data indicated no significant differences between the two control groups. Control Group 2 teachers were

not volunteers (the other three groups consisted entirely of volunteers) and did not receive in-service training nor show *Trade-offs* to their students. Control Group 1 teachers, on the other hand, received the in-service training but did not show *Trade-offs* to their students. Walstad concluded from these results that, "Apparently, trained teachers are most effective when what is learned in in-service courses is directly applied to classroom instruction" (Walstad & McFarland, p. 411). This finding is probably equally pertinent to the field of in-service education as a whole as it is to *Trade-offs*.

These results led the researchers to conclude:

> Trade-offs" was effective in all classes, whether or not the teacher participated in an in-service course in economics. The study also provides support for the link between knowledge and skills acquired by teachers during in service training and added quality in classroom instruction and motivational benefits to students.
>
> Given the minimal classroom time required to use "Trade-offs," this series provides a significant new resource for instruction in elementary social studies (Walstad & McFarland, p. 411).

In a study that closely parallels Walstad's, Steven Van Bockern's doctoral dissertation (1979) examined: (1) the effects of *Trade-offs* on student economic understanding and on attitudes toward economics; and (2) the effects of teacher in-service training on student learning and attitudes.

Van Bockern's study was conducted with 21 sixth-grade classrooms in Sioux Falls, South Dakota, randomly selected from the 42 sixth-grade classrooms in the city. They were then, in turn, randomly assigned to 3 groups as follows:

Group 1 (Control):
Classes did not view *Trade-offs* and teachers did not participate in in-service session. (7 teachers, 153 students)

Group 2 (Experimental):
Teachers did not receive teaching guides or participate in in-service instruction, but students did view *Trade-offs* with no follow-up activities. (7 teachers, 185 students)

Group 3 (Experimental):
Teachers participated in a six-hour in-service workshop on *Trade-offs*. These teachers viewed *Trade-offs* with their classes and presented selected activities and discussions from the teacher's guide. (7 teachers, 167 students)

Van Bockern measured the economic understanding and the attitudes toward economics of both students and teachers. For the student cognitive measure he used the *Trade-offs Student Evaluation—Form A*, which was developed by John Redmond of the North Carolina Council on Economic Education.[3] This 25-item multiple choice test measures students' cognitive outcomes after viewing *Trade-offs*. Since Van Bockern could locate no measure of student attitudes toward economics, he constructed an attitudinal test that he called the *Student's Economic Attitude Survey*.[4] This survey contained eight statements reflecting negative attitudes toward economics and eight statements reflecting positive attitudes toward the subject. Student responses to these statements were recorded on a Likert-type scale. The teachers' attitudes toward economics were measured with the *Questionnaire of Economic Understanding*.[5] This 17-item instrument measures teachers' attitudes toward the study of economics utilizing a Likert-type scale. The teachers' economic knowledge was measured with the *Test of Economic Literacy* which was developed by the Joint Council on Economic Education.[6] It is composed of 46 multiple choice questions to measure learning of economic concepts.

In analyzing the data for his study, Van Bockern used multiple regression analysis to control for students' sex, intelligence quotients, *Iowa Test of Basic Skills* reading scores, pretest scores, and their teachers' past economic preparation. This data indicated that viewing *Trade-offs* alone, with no follow-up discussion or activities, produced significant positive effects on students' economic attitudes and knowledge when compared to the control group. Furthermore, spending a greater amount of time with *Trade-offs* "through discussion and activities and having teachers attend an in-service workshop on the series increased the students' economic attitudes . . . and economic knowledge when compared with students simply viewing the series" (pp. 96-97). He also found that the series had

a measurable, positive impact on the teachers' economic attitudes, and the teachers' attitudes were even more substantially improved by the in-service workshop. However, *Trade-offs* did not, either alone or in conjunction with the in-service workshop, have a measureable effect on the teachers' knowledge of economics.

A study by William Rohrer of the Washoe County Schools (Reno, Nevada) examined the effects of *Trade-offs* on sixth-grade students' understanding of economics. The purpose of this study was to investigate the effects of *Trade-offs* upc... 'ermediate students and "to compare effects of economic understanding with problem-solving ability and attitudinal changes" (p. 2). Rohrer also examined the effect socioeconomic status had on the results.

His sample included an experimental class (total N = 126) and a control class (total N= 92) at each of four middle schools. The teachers of these eight classes had no previous economic in-service training (their level of pre-service training in economics was not specified). The experimental groups used all 15 *Trade-offs* programs with the accompanying materials from the teachers' guide. The control groups consisted of the traditional social studies classes.

Students' economic understanding was measured with the *Trade-offs Test*.[7] The *Trade-offs Test* is a measure of students' understanding of the economic principles presented in the series. The problem-solving test was adapted from Shann's *Measuring Problem Skills and Processes in Elementary School Children*.[8] Semantic-differential instruments patterned after Walstad's (1978) were used to measure attitudes toward free enterprise, free market, and large corporations/big business. No reliability data was provided for these instruments.

To determine socioeconomic status, "weighted ratings were assigned for parents' occupation, parents' incomes, parents' education, and dwelling place" (p. 4). Rohrer then used these ratings to determine the relationship of socioeconomic status to the other variables in his study.

Rohrer utilized both an analysis of covariance and a multiple regression analysis to analyze test results and variable interactions. The multiple regression analysis examined the interactions of socioeconomic status, *Trade-offs* instruction (yes or no), problem-solving pretest, attitude toward free enterprise pretest, attitude toward free market pretest, attitude toward big business pretest, and economic understanding pretest on the changes (from pretest to posttest) in economic understanding, problem-solving ability, attitude toward free enterprise, attitude toward free market, and attitude toward big business.

The data indicated that *Trade-offs* definitely increased the economic understanding of these sixth-graders. The difference in the means of the experimental and control groups was significant. The multiple regression analysis revealed that the differences were due neither to socioeconomic status nor to attitudes.

The results were somewhat mixed when Rohrer tried to determine the relationship of economic understanding to problem-solving ability. The analysis of covariance revealed no significant differences in means of the control and the experimental groups. The multiple regression analysis, however, revealed that the posttest score for students viewing *Trade-offs* and the change in economic understanding from pretest to p' :st have a significant regression coefficient with the change in problem-solving skills. Rohrer hypothesizes, "*Trade-offs*, itself, may not have a positive effect, but economic understanding does show some positive relationship to gain in problem-solving ability" (p. 8). More research is needed, according to Rohrer.

Finally, Rohrer found that *Trade-offs* instruction significantly increased the students' positive attitudes toward free enterprise and the free market. Attitudes toward big business were not significantly affected.

Thus, Rohrer's study revealed significant increases in students' economic understanding when *Trade-offs* was used. The data were inconclusive in determining the relationship of these cognitive increases to problem-solving ability. Attitudes toward free enterprise and the free market were significantly more positive while attitudes toward big business were not.

Norming Data—Basic Economics Test

In a study of a decidedly different nature, Chizmar and Halinski (1979) gathered considerable data in the course of validating an achievement test that would update the *Test of Elementary Economics* (TEE). The TEE is an achievement test of basic economics principles developed in 1971 for intermediate grades. (The TEE was employed in the study by Walstad reported on p. 1. See note 1.) In light of the many curricular advances in economics over the past decade the Joint Council on Economic Education decided in 1978 to revise the TEE. The *Basic Economic Test* (BET) was the result of this effort. It was developed by John Chizmar and Ronald Halinski with "in-

put from a variety of professionals, both within and without economic education, at each stage of development" (1979, p. 2). Additionally, a working committee, consisting of public school teachers, university professors, and other educational specialists, was formed for the initial writing of items and selection of items from the item pool for the pilot instruments.

One of the curriculum developments of the past decade that greatly affected the development of the BET was the release of *Trade-offs* in 1978. In fact, *A Guide to Trade-offs* was one of "three source documents, descriptive of current curricular thinking in economic education" (Chizmar and Halinski, p. 3) used as a basis for developing test items (the other two being *The Master Curriculum Guide in Economics for the Nation's Schools, Parts I and II*). Development of a national achievement test of this scope is a massive undertaking requiring an extremely large pilot testing of the two forms of the instrument for norming purposes. Towards this end, "20,000 tests were mailed out; 9,000 for students with instruction in economics and 11,000 for students without such instruction. . . . Approximately 53% of economic education in the norming group was *Trade-offs*, while approximately 46% was identified as 'other'" (p. 5 and p. 13). This is an indication of the widespread use of the series as a primary means of economic education. This norming data was collected from classes in 56 school districts.

One of the guiding principles in the developmental process of the test was that, "since the test would occupy a major role in evaluating the effect of economic instruction, the items . . . needed to be responsive to classroom instruction" (p. 2). Since *Trade-offs* represented the primary means of economic instruction for over half of the norming group classified as "with instruction," a considerable amount of data (much more than any study reported in this review) was gathered on *Trade-offs* during the development of the BET.

In analyzing the response of the BET to instruction, the researchers controlled for several intervening variables by utilizing an analysis of variance. The analysis of variance used the variables of score (individual student score on the BET), instruction (defined as at least 1 week of instruction, 13 or more weeks of instruction, or otherwise), sex of student, grade level (five or six), and the interaction of the sex of student and instruction. The first analysis of variance indicated that the BET does indeed respond to instruction. This first analysis did not, however, allow Chizmar and Halinski to examine the impact of extensive instruction on BET scores. A second analysis of variance was performed that indicated the BET does increasingly respond to increasing amounts of instruction. The authors then performed a t-test of the differences between the mean scores of the *Trade-offs* students and the students identified as "other." "On both forms, the results indicated that those receiving *Trade-offs* instruction did significantly better" (Chizmar and Halinski, p. 32). In probing for confounding variables, however, the authors hypothesized that perhaps students using *Trade-offs* received more instruction than students using other instruction. They performed a t-test comparing the differences between the groups in mean weeks of instruction. "indeed, students using *Trade-offs* did receive significantly more instruction" (Chizmar and Halinski, p. 33).

Thus, the results of this most extensive data gathering effort by Chizmar and Halinski indicated that *Trade-offs* significantly improved student scores on the BET. It also indicated that the *Trade-offs* group received more instruction. One must bear in mind, however, that gathering data on the effectiveness of *Trade-offs* was not their primary purpose. Their primary purpose was to demonstrate the development of a reliable and valid achievement test. Nonetheless, a considerable amount of data regarding *Trade-offs* was gathered that helps us to understand the effects of the series.

Local Evaluations

Two studies, one from Kansas City, Missouri and one from Minnesota, were produced as part of larger television evaluation activities in those locations.

The Kansas City, Missouri public school system implemented the *Trade-offs* series as part of a large-scale instructional television project. The programs were viewed by approximately 1,400 students in 17 schools. The majority of these students (89%) were in grades four, five, or six, with 54% in grade five. A considerable amount of data on *Trade-offs* was gathered in the course of the evaluation of the television project. These data included students' pretest and posttest scores and surveys of both teachers' and students' reactions to the series. The data are detailed in a report prepared by James Roleke, the Evaluation Coordinator for the school district.

The students completed a pretest in September and a posttest in May, in between testing the students viewed the series, but the extent of follow up activities was not specified. On the Missouri Council on Economic Educa-

tion's *Test of Economics in Trade-offs*,[9] the average gain achieved by the students was 18%. Although no control group was used, the scores of the students who viewed the series were increased.

In addition to the cognitive testing, a survey was completed by 1,206 of these students. The students indicated whether they agreed with, disagreed with, or had no opinion about each of ten statements. Since not all of the statements related directly to *Trade-offs*, we will report only the results that did. Most of the students (84%) agreed with the statement, "I enjoyed the *Trade-offs* programs." Even more (86%) agreed with, "I think learning about economics is important." Many (75%) agreed they had learned a lot about economics during the year. However, 52% indicated some of the *Trade-offs* programs were difficult for them to understand (the majority of the students surveyed were fifth graders). Thus, even though over half of these students said some of the programs were too difficult for them, the majority (75%) indicated they had learned a lot about economics during the year.

Additionally, teachers responded to 35 statements using a 5-point scale from "strongly agree" to "strongly disagree." Most of these items did not relate directly to *Trade-offs* so we will report only those that did. The overwhelming majority of teachers (98%) either strongly agreed or agreed with the statement, "The *Trade-offs* series, in general, was an effective instructional tool." However, the teachers were clearly divided on the item, "Some of the *Trade-offs* programs were too difficult for the students." Although 36% agreed or strongly agreed with this statement 42% disagreed or strongly disagreed. Another 24% had no opinion on this item. Interestingly, only 26% agreed or strongly agreed with the statement, "Most fifth graders are not able to understand the economic concepts presented in *Trade-offs*." A majority of the teachers (67%) disagreed with this statement. These data suggest that teachers believe fifth-grade students understood the overall concepts presented in the series, but the content of certain individual programs was too difficult for their students. Generally, however, teachers were unanimous in declaring *Trade-offs* "an effective instructional tool."

Thus, the results of the ITV evaluation in Kansas City showed that *Trade-offs* increased students' economic understanding—as shown on the *Test of Economics in Trade-offs*—by an average of 18%; that students enjoyed the series and thought they had learned a lot about economics from it; and that teachers overwhelmingly agreed the series was an effective instructional tool. However, data from both student and teacher surveys indicated that some of the programs were too difficult for fifth-grade students.

A report by Allen Stern (1980) of the Center for Economic Education at the University of Minnesota presents a wealth of data concerning *Trade-offs* activities in Minnesota. Stern's report examined "the number of cooperating schools and school districts, the amount of television broadcast time devoted to the series, the number, locations, and effects of economic education graduate level courses and awareness workshops relating to *Trade-offs*, and the impacts of these activities on the teachers and students involved in the effort" (p. 10). The report is comprehensive in detailing the impact of *Trade-offs* in Minnesota. Sections of the report that are of interest here are two quantitative studies and the subjective ratings of the series by teachers. Readers interested in other data are referred to the full report by Stern.

Teachers' ratings of the series were gathered from a sample of over 500 teachers in Minnesota who had been introduced to the series through one-day workshops. These workshops were designed to familiarize teachers with the series by "demonstrating *Trade-offs* films and associated learning activities, and by providing participants with supporting curriculum materials" (p. 5). Of these teachers 252, who were pre-selected for evaluation, completed a standard form. The teachers rated the series on a 1-to-4 scale, from "very worthwhile" to "worthless." All teachers rated the series as "very worthwhile" (69.9%) or "worthwhile" (30.1%). These subjective teacher ratings of the series are certainly impressive for their unanimously positive results.

The Minnesota Center also conducted two studies to determine the effects of the series, in addition to its teacher appeal. One study sought to determine the impact the series had on teachers' knowledge of economics and on their attitudes toward teaching economics. The other study sought to determine the effect of the series on student economic literacy.

The teacher study included 25 elementary and middle school teachers from 21 schools. The teachers volunteered for a 30-hour 12-day course in economics at the University of Minnesota. The in-service course covered the teaching of basic economic concepts; the use of the *Trade-offs* series; and discussion strategies and supplemental activities. The focus was *Trade-offs*, although supplementary materials were introduced.

The teachers were pretested on the first day of class. The cognitive measure employed was *The Test of Eco-*

Economic Literacy (see note 6). The TEL is a measure of general economic ability not specifically designed to assess *Trade-offs*. The attitudinal measure employed was *The Teaching Economics Test*.[10] This test is a semantic differential instrument that measures teachers' attitudes toward the teaching of economics. The teachers were posttested on the final day of class.

The group means were compared using a simple t-test. Both teachers' knowledge of economics and attitudes toward the teaching of economics were significantly improved by the workshop, of which the central focus was *Trade-offs*.

The student study involved 173 fourth-grade students from 3 elementary schools. The experimental group contained 90 students and the control group contained 83 students. The experimental group was taught by 4 teachers who had been trained in either a 1-day workshop or in the 30-hour course described above. The study did not compare the scores of students whose teachers had received one of the two types of training (1-day workshops or 30-hour course). Although it would have been interesting to compare the results with variable amounts of training, the small number of teachers in each group precluded a reliable comparison. The control group was taught by teachers who had not received any *Trade-offs* related instructional training. These teachers used only traditional district materials in their classrooms. Both groups of students were pretested and posttested with the *Primary Test of Economic Understanding* (PTEU).[11] The PTEU is a measure of general economic cognitive ability and was not specifically designed to measure the effects of *Trade-offs*. There was a 4-month interval between pretesting and posttesting.

Both groups' scores increased on the PTEU. Even though the scores of both groups increased, "the students using *Trade-offs* exhibited significant growth over and above the growth which occurred in students using only traditional materials" (p. 12).

Based on the results of these two studies, Stern concludes:

> that "Trade-offs" can be an effective tool for raising the economic knowledge of both teachers and students. "Trade-offs" also improves teachers' attitudes about teaching economics and thus contributes positively towards teacher's inclination to use more economics in their classes (p. 13).

Stern goes on to strongly recommend that the use of *Trade-offs* in Minnesota classrooms be continued.

In a study on a much smaller scale, Thomas McKinnon examined the effects of *Trade-offs* with a group of 63 seventh-grade students and 1 teacher. The teacher was assigned to teach an orientation course that included instruction in economics, but she had neither pre-service nor in-service training in economics. "The objective of this study was to determine if teachers untrained in economics could effectively teach economics with the use of the *Trade-offs* films and teacher's manual. A secondary objective was to determine if students develop favorable attitudes toward economics under these circumstances" (p. 2). In the context of this review, the most interesting variables of the study are: (1) it was conducted with seventh-grade students and (2) the teacher had neither pre-service nor in-service training in economics.

The design was a simple pretest/treatment/posttest design. No control groups were used. The methodological limitations and small sample severely restrict the extent to which these results may be generalized. Nonetheless, information was gathered that will add to our growing bank of knowledge about the variety of conditions under which *Trade-offs* has been implemented and the results obtained under these various conditions.

McKinnon, like Van Bockern, used the *Trade-offs Student Evaluation* developed by John Redmond of the North Carolina Council on Economic Education as his cognitive measure (see note 3). McKinnon developed his own attitude scale containing eight items that examined students' reactions to the series. Since it was series-specific, the attitude scale was administered only after the students had viewed *Trade-offs*.

McKinnon found that on the cognitive measure the students' "posttest was a statistically significant improvement over the pretest" (p. 4). On the average, the students' scores improved by 19%. Cognitively, these students made significant gains.

Since comparative data were not available for the attitude scale, this information was simply tallied. McKinnon concluded from the tally that, "On the whole students indicated that they found the films about average. However, they felt that they had learned a good bit about economics and thought that all students, even their younger

brothers and sisters should see the films" (p. 4). Certainly, the scores on the cognitive measure support the students' feeling that they "had learned a good bit about economics."

McKinnon concludes from these results, "This study indicates that teachers untrained in economics can effectively teach economics principles utilizing the *Trade-offs* film series. . . . However, further evidence is needed before strong conclusions can be drawn" (pp. 4-6). Indeed, the methodological limitations and small sample preclude any widely generalizable conclusions being drawn from this study. For purposes of this review, however, McKinnon's study demonstrates that *Trade-offs* can be applied in some seventh-grade settings and that a teacher untrained in economics can successfully implement the series.

In a Canadian study, Ken Van Apeldorn conducted a pilot test of *Trade-offs* with 12 teachers and 285 students in 4 school districts in British Columbia. This pilot study sought to determine students' and teachers' reactions to the series so that specific recommendations could be made for most effectively implementing the series in these districts.

The teachers in this study attended a one-day orientation meeting where they were introduced to the series, were given some background information, and watched two of the programs. Following this, the teachers "were asked to take the programs with the guide and apply them as they saw fit" (p. 1). No control groups or cognitive measures were employed in this study; implementation, not research, was the primary motivation.

This project included grades 4 (N = 22), 5 (N = 78), 6 (N = 74), and 7 (N= 66). Both students and teachers in these grades were given questionnaires to determine their interest in the series and its relevance to them.

Since this project was to make specific implementation recommendations, a steering committee was formed. It was composed of four teachers and a faculty member from the University of Victoria. Based on the information Van Apeldorn and his associates gathered, the steering committee concluded:

> The response of the 12 participating teachers and 285 students to *Trade-offs* was overwhelmingly positive.
>
> The series is consistent with the core curriculum emphasis on developing problem-solving skills.
>
> The series is generally most appropriate to students at the grade-seven level.
>
> Teachers generally felt comfortable using the programs and guide.
>
> The series comes closest to conforming in content and methodology (i.e. the inquiry approach) to Social Studies curriculum.
>
> The guide, although generally well-organized, should be revised to incorporate changes agreed upon by the steering committee.

Many fourth- and fifth-grade students indicated on the questionnaires that some of the programs, particularly the later ones, were too difficult for them. Additionally, five teachers in the fourth and fifth grades indicated their classes had difficulty with the later lessons. Based on these results, the committee recommended the series be used in seventh-grade classes.

An extension of Van Apeldorn's pilot effort was conducted in British Columbia by Arlene Zuckernick during the following year (1979-1980) and sought to further clarify and extend the information that was gathered in the pilot year. In all, 15 teachers from 3 cities participated in the evaluation, which involved 324 students in grades four through nine. Due to absences, 286 sets of student questionnaires were returned, of which 115 were coded and analyzed. These students represented 7 different schools. The grade distribution was as follows: fourth—10.4%; fifth - 16.5%; sixth—9.6%; seventh—44.3%; and ninth—19.1%. In terms of the current review this sample is unique in that it includes grades four and nine.

The students completed a pretest, a midpoint test (after viewing programs one through eight), and a posttest (after viewing programs nine through fifteen). The tests were investigator-developed and no reliability data were provided. The instruments were surveys, not cognitive measures. Viewing situations and frequency of viewing were not controlled, although 75% of the classes viewed one program per week.

The teachers completed a pretest, a weekly checklist after each lesson was complete, and a final questionnaire at the conclusion of the 15-program unit. Although 80% of these teachers had taught five years or more, most (88%) had not taught economics previously; half of them had taken university level courses in economics. "The

teachers were encouraged to discover or develop additional material during the experimental period. It was also left to the individual teacher's discretion to eliminate any program deemed inappropriate for their class use" (p. 4). In general, the teachers were provided a considerable amount of freedom in this design. The intent of Zuckernick's evaluation, like that of Van Apeldorn's, was to provide information to local decision-makers.

During the course of the 15-program unit, there was a significant increase in the students' perception of the importance of understanding economics. The students were also asked "if and with whom they discussed economics" (p. 7). Student responses indicated a significant increase in the discussions of this topic with parents and teachers although they reported little change with respect to friends or siblings. Thus, according to student results, "*Trade-offs* increased the students' positive attitude towards economics and their actual discussion on economic issues" (p. 7).

Furthermore, there was a highly significant increase in the students' perception of how much they learned about economic principles during the course of *Trade-offs*. The students also responded to an item that attempted to measure their comprehension of the decision-making model presented in the series (neither reliability nor validity data were presented for this item). No significant change was found in responses to this item from pretesting to posttesting. Even though the students' perception of how much they learned during the course of *Trade-offs* increased significantly, no significant change was noted in "their ability to state the decision-making model enumerated in the *Trade-offs* episodes" (p. 8).

Generally, the *Trade-offs* programs were favorably received by the students, especially in comparison to other classroom lessons. Half of the students indicated they would like to have more *Trade-offs* lessons if they were available. Half of the students also indicated they had told friends in non-*Trade-offs* classes about the series. Finally, 45% thought the unit was "more enjoyable" than other classroom lessons. An additional third (32.3%) thought it was at the "same level of enjoyment."

The teachers, who completed a pretest, a checklist after each lesson, and a final questionnaire, "initially underestimated the length of individual classes" (p. 11). In the lesson plans the average time allotted for a class was 55 minutes, but the average lesson took 80 minutes, plus 30 additional minutes of teacher preparation. Since the programs are only 15 minutes, an additional 65 minutes, on average, were devoted to each lesson. Even though each lesson took a fair amount of planning and classroom time, the teachers seemed to feel it was time effectively spent. "The majority (75%) felt that the *Trade-offs* lessons were 'more' or 'equally' enjoyable to teach than similar units and 'equally successful' in comparison to similar units" (p. 12). Teachers indicated that the length of preparation time was the most difficult aspect of each unit, while "the motivational aspect of the programs to stimulate the students' interest was consistently cited as its greatest strength" (p. 12). Finally, 80% of the teachers indicated they thought grade seven was the most appropriate grade for implementation of the series, regardless of what the teacher's own grade was during the project.

Teacher and Administrative Ratings

In another study, Michael Watts (1979) examined teachers' and principals' reactions to the *Trade-offs* series in a 2-day workshop totally removed from the classroom setting. The 39 teachers and 3 elementary principals from Indianapolis, Indiana viewed each program in the series and completed an evaluation for each program and for the entire series. Since this workshop was a brief, intense experience for the participants, the ratings had to be assigned with little time for reflection. But Watts notes that:

> these teachers should be seen as trained professionals with respect to materials evaluation, and 11 of the participants had attended formal workshops on economic education where other economic education materials had been examined and evaluated. In other words the participants' ratings should be taken as important evidence on the effectiveness of these materials—certainly the group's responses can be seen as important in that if classroom teachers and principals reject a set of materials it is unlikely they will ever be used (p. 2).

Additionally, the ratings of this group are interesting because of the variety of grade levels taught by the teachers and because the group included administrators. The distribution of participants by grade taught was as follows: Primary (first through third)—3; Intermediate (fourth through sixth)—21; Junior High (seventh through ninth)—

14; Senior High (tenth through twelfth)—1; Principals—3. With this range of participants Watts tried to determine:

1) Do teachers and principals like the films?

2) Do they agree that the economic content of the films is meaningful?

3) Is the teacher's manual adequate?

4) In what grade levels can the series be most effectively used?

Watts collected background data on the participants' sex, prior participation in economic education programs, test scores on the JCEE's *Test of Economic Literacy* (see note 6), grade levels taught, and rough data on the reading levels of the students in the participants' classrooms. He used a multiple regression analysis in examining his results, which "do not suggest that these personal characteristics are systematically related to selected measures of the participants' evaluations of the materials" (p. 2).

Watts had the participants rate each program of the series on a 5-point scale with 5 = excellent, 4 = good, 3 = fair, 2 = poor, and 1 = bad. The average rating for all the films was 4.1. "In general, then, the films scored very high marks from these teachers and principals" (p. 2). Participants completed these ratings at the conclusion of each of the 15 programs shown.

The teachers also indicated what they thought the most appropriate grade level for each program would be; Watts concludes from these results:

> Clearly the films are perceived by this group as suitable for junior high grades. . . . Responses to this item in the questionnaire were typically given as some range of grades (e.g. 4-7), and taking the average of the lower end of these ranges indicates that the participants did feel that most of the films could be used at the (targeted) intermediate level (p. 3).

These participants felt the series could be used for junior high as well as intermediate levels.

In addition to rating each program, the participants completed a summary questionnaire. On this summary questionnaire the teachers indicated that:

1) The economic content of the series was important and effectively presented.

2) The teacher's manual was useful and usable.

3) Their overall rating of the *Trade-offs* material was high (4.2 on the 5-point scale).

Also, based on their experiences in this workshop, "the teachers strongly indicated that they would use at least some of the *Trade-offs* films in their classes" (p. 3).

Eleanor Vargo (1979) of the Lambton County Schools in Ontario, Canada gathered teachers' reactions to the series by piloting the series with 14 fourth-, fifth- and sixth-grade teachers. Working with these teachers on a regular basis, Ms. Vargo regularly received feedback on the series. Based on these experiences, she drafted the following:

> The consensus of this group was that the series was highly useful, appealing, and stimulating. The students were involved in discussions and follow-up activities which focused on decision-making skills and the introduction of economics concepts such as money, prices, employment, production, etc. It also aided students in understanding human behavior. All the teachers involved indicated their willingness to use the series again and to recommend it highly to other teachers. They felt the teacher's guide to be very useful and appropriate. There was some feeling that programs nine through fifteen, although still enjoyed and discussed by the students, contained more advanced concepts and the classes could not make as full use of the follow-up activities. These programs might be more useful in intermediate grades. This would present no problem as the material is not sequential (p. 1).

Vargo goes on to recommend that programs one through eight be viewed in grades five and/or six and that programs nine through fifteen be viewed in grades seven and/or eight.

As part of her report, Vargo included some comments by teachers who had used the series. Since this review

has reported so much "second-hand" evidence of *Trade-offs* effectiveness, it seems fitting to include some "first-hand," personal responses by a group of teachers. These comments by a group of Canadian teachers included:

—My Grade Fours enjoyed discussing the shows and learned something from each one.

—The Grade Fives really enjoyed the techniques of dramatizing a situation.

—The student interest and excitement of the programs was more than encouraging.

—The programs were extremely relevant.

—My students willingly missed recess to see it.

—We solved classroom problems using the techniques dramatized—with excellent results.

—Many values issues were raised and discussed with encouraging results.

—I would gladly use further programs of this type.

DISCUSSION AND CONCLUSIONS

This review has examined information from 15 separate studies and/or surveys. The stated purpose of reviewing this diverse mass of information was to form tentative answers to two questions:

1) How does *Trade-offs* affect student and teacher knowledge of and attitudes toward economics?

2) Do students and teachers enjoy the *Trade-offs* programs?

In this section we will integrate these findings and draw some conclusions based upon the results of these studies.

Seven studies (Walstad, Van Bockern, Rohrer, Roleke, Stern, Chizmar, and McKinnon) that examined *Trade-offs* effects on students' economic knowledge were reported. Five of these seven studies (Walstad, Van Bockern, Rohrer, Stern, and Chizmar) compared the performance of students who were in classes viewing *Trade-offs* with classes using traditional materials. In each of these studies, students who viewed *Trade-offs* performed significantly better than their counterparts who used the traditional materials. The remaining two studies (Roleke, McKinnon) compared the pretest and posttest scores of students who had viewed the series; no control groups were used. Again, these results indicated statistically significant improvement in the students' scores. Based upon these consistent findings of seven researchers in seven different locales, there is ample evidence that *Trade-offs* improves student understanding of economics and that this improvement is statistically significant when compared to students being taught with traditional materials.

Two of those six studies (Walstad and Van Bockern) investigated the effects of teacher in-service training on students' economic knowledge. The in-service training the teachers received ranged from a 6-hour workshop which covered only *Trade-offs* use (Van Bockern) to a 30-hour course that covered basic economics principles in addition to the use of the series (Walstad). Both studies indicated further increases in student cognitive gains, with Walstad's study indicating a 93% increase in student cognitive test scores over students viewing the series with untrained teachers. Although each of these studies needs to be replicated before firm conclusions can be drawn, their preliminary findings indicate that teacher in-service training in the use of *Trade-offs* produces further significant gains in student economic knowledge.

Three studies (Walstad, Van Bockern, and Zuckernick) that examined *Trade-offs* effects on students' attitudes toward economics were reported. Walstad and Van Bockem both found significant positive changes in students' attitudes toward economics. In both studies these changes were further increased when the teachers involved received in-service training. Zuckemick also found the series significantly increased students' positive attitudes toward economics. Students also reported increases in their actual discussion of economics with parents and teachers. Additionally, Rohrer examined student attitudes toward three specific variables, free enterprise, free market, and big business. He found the series significantly increased students' positive attitudes toward free enterprise and free market, while no change was found in their attitudes toward big business. Thus, the evidence indicates *Trade-offs* produces significant positive change in students' attitudes toward economics, and even greater positive change when their teachers receive in-service training.

Two studies (Van Bockem and Stern) examined the effects of the series on teachers' knowledge of and attitudes toward economics. Stem measured teachers' economic knowledge and attitudes before and after a 12-day workshop devoted to economics education that highlighted the series. At the conclusion of this workshop both the teachers' economic knowledge and their attitudes toward economics were significantly increased. Van Bockem found that the series alone produced significant gains in teachers' attitudes toward economics and that these gains were further increased by in-service training. However, he found that the series did not, either alone or in conjunction with in-service training, produce significant gains in teachers' knowledge of economics. Thus, these two studies both point to significant positive change in teachers' attitudes toward economics when the series is used in conjunction with in-service training. However, they produced inconsistent results in comparing teachers' knowledge of economics: Stern found significant improvement in teachers' knowledge of economics while Van Bockern found no measurable differences in teachers' knowledge. These findings should be interpreted very cautiously since the difference in designs, particularly the length and content of the teacher training, probably preclude direct comparisons.

Certainly, all of the research that was available to us points to significant increases in students' understanding of and attitudes toward economics when *Trade-offs* is used, with further increases when the teachers involved received in-service training.

Yet even with these documented increases in student attitude and understanding, it is important that students and teachers like the series to insure its continued use. Accordingly, several investigators examined students' and teachers' subjective reactions to the series.

Six investigators (Stern, Roleke, Vargo, Van Apeldorn, Watts, and Zuckernick) surveyed teachers for their reactions to the series. The results of all six teacher surveys were very positive. All of the 225 teachers surveyed by Stern rated the series "very worthwhile" (69.9%) or "worthwhile" (31.1%). The 39 teachers and 3 principals surveyed by Watts rated the content of the series as important and effectively presented and strongly indicated they would use the series. The overwhelming majority (98%) of the 42 teachers surveyed by Roleke indicated the series was an effective instructional tool. The 14 teachers contacted by Vargo indicated the series was highly useful, appealing, and stimulating. The 15 teachers surveyed by Zuckernick generally enjoyed the *Trade-offs* unit and cited the motivational aspect of the series, its ability to stimulate the students' interest, as its greatest asset. Thus, the series was very highly regarded by a most important audience, classroom teachers.

Teachers surveyed by Roleke, Van Apeldorn, Vargo, and Zuckernick indicated some of the programs, particularly the later ones, were too difficult for fourth- and fifth-grade students. Over a third (36%) of the teachers surveyed by Roleke said some of the programs were too difficult for fifth-grade students (this finding was substantiated by his student survey in which 52% of the fifth-grade students indicated some of the programs were too difficult for them). Based on the data he had gathered, Van Apeldorn's steering committee recommended the series be used at the grade seven level. Zuckernick's follow-up study one year later concurred with Van Apeldorn's recommendation of grade seven use. Vargo struck a compromise by recommending the first eight programs be used with grades five and/or six and programs nine through fifteen be used with grades seven and/or eight.

Finally, three investigators (Roleke, Van Apeldorn, and Zuckernick) surveyed students. Roleke found the 1,206 students he surveyed had enjoyed the series and thought they had learned a lot about economics. However, as mentioned above, 52% of these fifth-graders indicated some of the programs were too difficult for them. Van Apeldorn's survey revealed that the majority of 225 students found the series to be easy to understand, interesting, and important to learn. Zuckernick found that the series increased the students' positive attitude toward economics and the discussion of economic issues with parents and teachers. She also found that the series was, in comparison with other classroom lessons, generally favorably received by students.

Several areas have emerged from this review that suggest a need for further research. One of these areas is the effect the series has on teachers' knowledge of economics. Only two studies (Van Bockern and Stern) examined this as a variable and they produced inconsistent results. Of course, one would have to consider the level of previous training in economics as a variable in a study of this type. Interestingly, Van Bockern's study showed significant increases in both student economic knowledge and attitude using only the series with no follow-up activities or discussion. This suggests that even teachers untrained in economics can successfully use the series. Also, information from teacher surveys (Roleke, Van Apeldorn, and Vargo) suggests that some of the later programs are perceived by teachers as too difficult for fourth- and fifth-grade students. Of course, this would vary with the ability levels of the students, but further research is needed to determine the most appropriate grade levels for different uses of the series. Finally, more research is needed which examines students' understanding and internalization of the decision-making model presented in the series.

In conclusion, the information reviewed has clearly indicated that use of the *Trade-offs* series significantly improves both student knowledge of and attitudes toward economics. Furthermore, the evidence suggests that *Trade-offs* also improves teacher attitudes toward economics. This might be equally important to the student cognitive and attitudinal gains, since teacher attitudes toward the so-called "dismal science" of economics have traditionally been very poor. Finally, the studies reviewed here suggest that the series is very appealing to both teachers and students, which should help to insure its continued use in classrooms throughout the United States and Canada. The bulk of evidence has certainly supported the claim of Walstad and McFarland that "this series provides a significant new resource for instruction in elementary social studies" (p. 411). In light of the information which has been presented, it appears that this claim may be extended to the junior high levels as well.

NOTES

[1]*Test of Elementary Economics*, West Springfield Public School, Economic Education Enrichment Program (New York: Joint Council on Economic Education, 1971). This test contains 29 items with a reliability of .71 (K-R 20).

[2]The same semantic differential instrument was used as a pretest and posttest of student attitudes toward economics. The reliability of this instrument was .82 (Cronbach Alpha) for intermediate elementary students.

[3]Redmond, John. *Trade-offs Student Evaluation* (Greensboro, NC: North Carolina Council on Economic Education, 1979). Reliability data were not presented for this test.

[4]The *Student's Economic Attitude Survey* had a test-retest reliability (one-week interval) of .86. Since only one form of this survey existed it was used for both pretesting and posttesting.

[5]Vines, Carolyn. *Questionnaire of Economic Understanding* (no information was presented by the author on the location or publication date of Dr. Vine's instrument.) An item-test homogeneity analysis revealed a coefficient of .93.

[6]Soper, John. *Test of Economic Literacy* (New York: Joint Council on Economic Education, 1979). Forms A and B were used as pre- and posttest measures of teachers' economic knowledge. The reliability (using the Cronbach Alpha) is .875 for Form A and .872 for Form B.

[7]Klockars, Alan J., & Leonard, Ken. *Trade-offs Test*, revised edition, (Seattle: Washington State Council on Economic Education, 1979).

[8]Shann, Mary E. *Measuring Problem Skills and Processes in Elementary School Children* (Boston Univ.: School of Education, 1976). The test for problem solving ability was developed from Part II of this work. Reliability data were not presented for this instrument.

[9]*Test of Economics in Trade-offs* (Missouri Council on Economic Education). Location, date of publication, and other pertinent data were not provided by the author.

[10]Kogan, John. *The Teaching Economics Test*. This instrument was adapted from William Walstad's (1978) dissertation work. Reliability data were not available.

[11]Dawson, Donald G., & Kilgore, John H. *Primary Test of Economic Understanding* (Iowa City, Iowa: University of Iowa, 1971). The reliability of the PTEU is .78 (Cronbach Alpha).

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APPENDIX
Comprehensive Chart of Studies Included

Comprehensive Chart of Studies Reviewed

PRINCIPAL AUTHOR LOCATION	SAMPLE SIZE	DESIGN/METHOD	VARIABLES	INSTRUMENTS	FINDINGS
William Walstad St. Louis, Missouri	Students = 563 (fifth and sixth graders) Teachers = 24	Non-equivalent control group design	1) *Trade-Offs* effects on students' economic knowledge and attitudes. 2) In-service training of teachers for *Trade-Offs* use and its effects on student economic knowledge and attitudes. 3) Multiple regression controlled for age, sex, achievement score, pre-test economic understanding and pre-test attitude toward economics.	*Test of Elementary Economics* (*TEE*) Investigator-developed semantic differential for attitude scale.	Both experimental groups (viewing *Trade-Offs*) showed significant improvement over control groups (not viewing *Trade-Offs*) in economic understanding and attitudes toward economics. These gains were further increased with teacher in-service training.
Steve Van Bockern Sioux Falls, South Dakota	Students = 505 (sixth graders) Teachers = 21	Experimental: pre test/treatment/post test Control: pre test/post test	1) *Trade-Offs* effects on student and teacher economic knowledge and attitude. 2) The effects of in-service training for *Trade-Offs* use on student and teacher economic knowledge and attitudes. 3) Multiple regression controlled for: student pre-test attitudes and knowledge, teacher pre-test attitudes and knowledge, reading scores, IQ, teacher post-economic preparation, sex, socio-economic background.	Student: *Trade-Offs Student Evaluation*. Investigator-developed student's *Economic Attitude Survey*. Teacher: *Questionnaire of Economic Understanding, Test of Economic Literacy*.	1) *Trade-Offs* alone, with no follow-up activities or discussion, had a significant, positive effect on students' economic attitudes and knowledge. 2) Student gains in economic understanding and knowledge were further increased with teacher in-service training and follow-up activities. 3) *Trade-Offs* alone produced significant positive gains in teachers' attitudes toward economics. These gains were further increased with in-service training. 4) Neither *Trade-Offs* alone nor in conjunction with the in-service workshop had a measurable effect on teachers' knowledge of economics.
William Rohrer Washoe County Schools, Nevada	Students = 218 (sixth graders) Teachers = 8	Non equivalent control group design	1) *Trade-Offs* effects on economic understanding. 2) The effects of economic understanding on problem-solving ability. 3) *Trade-Offs* effects on student attitudes toward free market, free enterprise, and big business.	*Trade-Offs Test*. Adaptation of *Measuring Problem Solving Skills and Processes in Elementary School Children*. Adaptation of Walstad's semantic differential instrument used to measure attitudes.	1) *Trade-Offs* significantly improved students' economic understanding. 2) *Trade-Offs* significantly increased positive attitudes toward free market and free enterprise, but did not change attitudes toward big business. 3) The results when examining the effects of economic understanding on problem-solving ability were inconclusive: analysis of covariance revealed no significant differences while a multiple regression analysis revealed a significant regression coefficient.
Jack Chizmar 76 school districts throughout the United States	9000 students (grades 4-6)	Data gathered in the process of validating an achievement test for economics (Basic Economics Test)	1) *Trade-Offs* cognitive effects compared to other instruction. 2) Length of instruction when *Trade-Offs* is used compared to other instruction.	*Basic Economics Test*.	Students receiving *Trade-Offs* instruction performed significantly better than students receiving other instruction. Students receiving *Trade-Offs* instruction also received significantly more instruction.

PRINCIPAL AUTHOR: LOCATION	SAMPLE SIZE	DESIGN/METHOD	VARIABLES	INSTRUMENTS	FINDINGS
James Roleke Kansas City, Missouri	Students = 1400 (mostly fifth grade)	Pre test/treatment/post test	*Trade-Offs* effects on students' economic knowledge.	*Test of Economics in Trade-Offs.*	*Trade-Offs* use increased student scores by 18%.
James Roleke Kansas City, Missouri	Students = 1206 (mostly fifth grade students)	Survey	*Trade-Offs*' appeal to students.	Investigator-developed survey.	1) The students indicated they enjoyed the series and thought they had learned a lot about economics. 2) Over half (52%) said some of the programs were too difficult for them.
James Roleke Kansas City, Missouri	Teachers = 42	Survey	*Trade-Offs*' appeal to teachers.	Investigator-developed survey.	1) The overwhelming majority of teachers (98%) indicated the series was an effective instructional tool. 2) Over a third (36%) said some of the programs were too difficult for fifth grade students.
Allen Stern Minneapolis, Minnesota	Teachers = 225	Survey of teachers who had participated in a one-day workshop on the series.	Teachers' perceptions of *Trade-Offs*' worth.	One question scale: Teachers rated series from "very worthwhile" to "worthless."	The majority of teachers (69.9%) rated the series "very worthwhile." The remaining teachers (30.1%) rated the series "worthwhile."
Allen Stern Minneapolis, Minnesota	25 elementary and middle school teachers	Pre test/treatment/post test	*Trade-Offs* effects on teachers' understanding and attitudes.	Cognitive: *Test of Economic Literacy* Attitude: *Teaching Economics Test.*	Teachers' knowledge of economics and attitudes toward economics were both significantly increased by the 12-day workshop (the treatment).
Allen Stern Minneapolis, Minnesota	Students = 173 (fourth grade) Teachers = 8	Experimental: pre test/treatment/post test Control: pre test/post test	*Trade-Offs* effects on students' knowledge of economics when the series is used with trained teachers.	*Primary Test of Economic Understanding.*	Students using *Trade-Offs* exhibited significant growth over and above the growth which occurred in students using only traditional methods.
Thomas McKinnon Fayetteville, Arkansas	Students = 63 Teachers = 1	Pre test/treatment/post test	Student knowledge of and attitudes toward economics when *Trade-Offs* is used with a teacher untrained in economics.	*Trade-Offs Student Evaluation.* Investigator-developed attitude scale.	Students showed significant cognitive improvement when *Trade-Offs* was used with a teacher untrained in economics. No comparative data was available for the attitude scale, but students thought other students should see the series.
Ken Van Apeldorn British Columbia CANADA	Students = 285 (grades 4, 5, 6, 7) Teachers = 12	Teachers attended a one-day workshop after which they used the series with their classes. Students and teachers completed questionnaires and teachers regularly submitted comments to the project coordinator.	Student and teacher reaction to the series.	Investigator-developed questionnaire.	The response of the teachers and students to the series was overwhelmingly positive. Since some of the later programs were too difficult for fourth and fifth graders, the steering committee recommended it be used at the grade seven level.

PRINCIPAL AUTHOR LOCATION	SAMPLE SIZE	DESIGN/METHOD	VARIABLES	INSTRUMENTS	FINDINGS
Arlene Zukernick British Columbia, CANADA	Students = 115 (grades 4-7 and 9) Teachers = 15	Surveys at pre-, mid-, and post-viewing. Pre test, checklist after each lesson, final questionnaire.	Student and teacher reaction to the series.	Investigator-developed surveys.	1) *Trade-Offs* increased students' positive attitude toward economics and their actual discussion on economic issues. 2) There also was a significant increase in the students' self-perception of how much they learned during the course of series. 3) Teachers indicated the motivational aspect of the films to stimulate students interest was its greatest asset. 4) They indicated they thought grade 7 was the most appropriate grade for implementation of the series.
Michael Watts Indianapolis, Indiana	Teachers = 39 Principals = 3	Participants viewed each program in the series and rated it. They also rated the entire series and the Teacher's Manual.	Multiple regression analysis examined scores on the *Test of Economic Literacy*, whether or not they had attended a workshop on economic education, sex, grades taught and reading level in their classes.	Investigator-developed rating scale.	1) On a five-point scale (5 being the best possible ranking) the series was rated 4.2 by these participants. 2) They rated the *Teacher's Manual* as useful and usable. 3) They rated the content of the series as important and effectively presented and strongly indicated they would use the series.
Eleanor Vargo Sarnia, Ontario CANADA	14 teachers	Personal contacts with teachers and written comments provided by teachers.	Teachers' subjective reactions to the series.	Open-ended questionnaire and personal contacts with teachers.	1) The consensus of these teachers was that the series was highly useful, appealing, and stimulating. 2) The recommendation was made to use the first eight programs with grades five and/or six and programs nine through fifteen with grades seven and/or eight.

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AGENCY FOR INSTRUCTIONAL TELEVISION, a nonprofit American-Canadian organization established in 1973 to strengthen education through television and other technologies. Its primary function is the development of joint program projects involving state and provincial agencies. It also acquires, adapts, and distributes a wide variety of television, audiovisual, and related print materials for use as major learning resources. AIT's predecessor organization, National Instructional Television, was founded in 1962. The AIT main offices and midwestern office are in Bloomington, Indiana. There are regional offices in the Atlanta, San Francisco and Washington, D.C. areas.

CANADIAN COUNCIL FOR ECONOMIC EDUCATION
252 Bloor Street West, Toronto, Ontario M5S 1V5
416/968-2236

CANADIAN FOUNDATION FOR ECONOMIC EDUCATION, a federally-chartered nonprofit organization dedicated to strengthening economics instruction in Canada. It aims to promote greater economic awareness by assisting and encouraging the educational systems to improve the quality and expand the quantity of economics now being taught in Canadian elementary and secondary schools. The Foundation produces educational materials and provides resources and programs to facilitate the teaching of economics and economics-related subjects throughout the country.

JOINT COUNCIL ON ECONOMIC EDUCATION
1212 Avenue of the Americas, New York, New York 10036
212/582-5150

JOINT COUNCIL ON ECONOMIC EDUCATION, an independent, nonprofit, nonpartisan, educational organization incorporated in 1949 to encourage, improve, coordinate and service the economic education movement. Its principal medium for expanding and improving economic education is a network of Affiliated Councils functioning at the state level and Centers for Economic Education on college and university campuses. The American Economic Association and American Association of Colleges for Teacher Education are formally affiliated with the Joint Council, as are other national professional groups concerned with economic education.