

# A Comparison of the Effectiveness of Two Social Studies Instructional Programs Upon First-Grade Level Pupil Achievement in Economics

ROBERT F. DEROSIER \*  
ROBERT F. SCHUCK

PERHAPS more clearly than in past times, economic education has been expected to contribute to the national goals of security and general welfare. The study of economics in the elementary and secondary schools was expected to build economic literacy among a majority of our citizenry. It was hoped that such study would lead directly and indirectly to the establishment of a sizable reservoir of economically competent manpower.

In the past 40 years, many individuals and organizations have manifested considerable interest in advancing economic education. Shortly after World War II, the Joint Council on Economic Education was founded. It provided outstanding leadership in supplying new materials, new curricula, and better trained teachers. There appeared to be a general agreement that there is a low level of economic literacy among students. Many studies indicated, however, that efforts, if started at the elementary grade levels and continued through high school, could do much to eradicate this problem.

While a review of pertinent literature showed a number of studies concerned with teaching economics at the elementary level, empirical research, which has measured the effectiveness of instruction, has, until most recently, been virtually nonexistent. The 1960 volume of the *Encyclopedia of Educational Research* does not list a single study of economic education at the elementary school level. The considerable disparity in the number of research programs devoted to the elementary grades, as compared to intermediate, secondary, and adult levels, is due

in part to the requirements for testing first-grade pupils. For example, criterion instruments and research designs have to be substantially different in testing first-grade pupils as compared to testing adolescents.

Jefferds was among the first of the investigators attempting to measure empirically first-grade pupil achievement in the understanding of economics (2: 41). His study was the first to attempt to measure a specific and widely used set of instructional materials—the Senesh materials—published by Science Research Associates, to determine if children being instructed by new “packaged” materials received any educational advantages over those received by children taught by conventional methods. Based upon his finding, Jefferds concluded that: (a) “children did no better on the criterion test with packaged instructional materials than with local materials”; and (b) “there were no significant differences in children’s understanding of economic concepts regardless of how the instructional unit was presented.”

Recognition of this lack of effective measuring instruments for economic education influenced the Spears study, conducted in Culver City, California (4: 89). Based upon the data collected, he concluded that: (a) under appropriate instructional pro-

\* Robert F. Derosier, Chairman, History and Social Studies Department, William Hall High School, West Hartford, Connecticut; and Robert F. Schuck, Post-Doctoral Fellow, School of Medicine, University of Southern California, Los Angeles

grams, first-grade pupils can learn sophisticated economic concepts; (b) experimental subjects' learning of economics was significantly different from chance performance at the knowledge level; (c) experimental subjects' learning of economics was not significantly different from chance at the application level; and (d) the study indicated that the learning style of low socioeconomic pupils places them at a disadvantage in the first-grade curriculum of Culver City, California.

While there is existing empirical evidence that first-grade pupils can comprehend economic concepts, no attempt has been made to differentiate among the increasing number of instructional programs at the elementary level. The rejection or adoption of instructional programs by school districts is frequently based only upon the opinion of teachers, and not upon empirical evidence.

While the SRA materials have been assessed by Jefferds and Spears, neither of these studies compared SRA materials to the materials of another major publishing house. Furthermore, in the studies mentioned above, none of the teachers involved were given any intensive training in economics.

*Statement of the problem.* The basic purpose of this study was to compare the effectiveness of two widely used sets of social studies instructional materials in teaching economics to pupils at the first-grade level.

The following null hypotheses were tested: There will be no significant differences in achievement in economics for first-grade pupils among groups which are instructed:

1. With SRA materials for two semesters (Group A) and a group instructed with Follett materials (Group B) for two semesters
2. With SRA materials for two semesters (Group A) and a group instructed with Follett materials for one semester and SRA materials the other semester (Group C)
3. With Follett materials for two semesters (Group B) and a group instructed with Follett materials for one semester and SRA materials the other semester (Group C)

4. There will be no significant differences in achievement in economics among pupils in different socioeconomic levels within each of the groups and among the groups.

*Design of the study.* This study utilized six intact, first-grade classes from four elementary schools of West Springfield, Massachusetts. Pupils from the six classes were combined into three groups, and each group was instructed with a different set of social studies instructional materials. The instrument used to measure the effectiveness of the three programs of instructional materials was Spears' *Test for Achievement in Economics*.

The scores of the 116 pupils in the study were analyzed according to the program with which they were instructed, and their socioeconomic status. Pupils were pretested in January 1969, and post-tested in May 1969.

Pupil social position was determined by using Hollingshead's *Two Factor Index of Social Position*. This method utilizes the occupational and educational levels of the family's main wage earner as determinants of social position. A pupil information form was developed to secure this information. Scale values were found for the two factors, and these values were then statistically treated to provide an index of each pupil's social position. Pupils were classified into three socioeconomic levels: (a) level one represented pupils of the upper middle class; (b) level two represented pupils of the middle class; and (c) level three represented pupils of the lower middle class.

Analysis of variance was used for determining if significant differences in achievement in economics existed among the groups. Two-way analysis of variance was used for determining if significant differences in achievement in economics, based on socioeconomic status, existed within and among the groups. Analysis of covariance treatment was used to secure statistical equalization on certain relevant variables which could have confounded the relationships under investigation.

*Determining test instruments.* The instrument designed and used to measure

achievement of first-grade pupils in economics was developed by Sol Spears. The test consisted of 26 multiple choice items. Each item, placed on a separate sheet of 8½" x 11" white paper, consisted of four pictures for the first 12 items, and three pictures for the last 14 items. The 26 pages, with one plain white sheet added as a cover, were stapled together in the form of a booklet.

In consideration of the maturity and attention span of first-grade pupils, this test takes approximately 30 to 33 minutes to administer. Due to the limited reading ability of first-grade pupils, instructions must be given orally for each item. The instructions for the pre- and post-test were tape recorded in order to make them identical for all groups. The instructions are designed to be simple to administer and to understand. For example, the examiner on the tape asks the pupils to look at the pictures on page 1, and then to mark with an "x" the picture which best shows a consumer. This type of procedure is followed throughout the test.

Items for the instrument were obtained from a review of sources, including textbooks, course outlines, statements of objectives, and questions from other tests. A jury of economists who are subject matter experts in economic education—Norman Townshend-Zellner and John Lafky—examined the economic content aspects of the test, and endorsed it for face validity. With regard to validity, only those items on which there had been complete agreement on the part of both judges were included in the test.

Scoring of items was done by assigning a "right" or "wrong" to each of the 26 items. Each item was equally weighted and pupils could achieve a zero to 26 raw score on the test. The reliability coefficient for Spears' *Test for Achievement in Economics* is .78, which is acceptable for group testing purposes.

*Selection of instrument measuring social position.* Hollingshead's *Two Factor Index of Social Position* was chosen as the instrument for determining pupil social position (1: 116). This instrument met the need for an objective, easily applicable procedure to estimate

the position individuals occupy in the status structure of our society. According to Hollingshead, the following breakdown is meaningful for predicting the social class position of an individual:

Social Class	Range of Computed Scores
1	11-17
2	18-27
3	28-43
4	44-60
5	61-77

Social Class 1 has the highest social position, and Social Class 5 represents the lowest social position. For purposes of this study, an arbitrary delineation was made for pupil groupings. Level one was composed of pupils falling within Social Classes 1 and 2. Level two was composed of pupils located within Social Class 3. Level three was composed of pupils falling within Social Classes 4 and 5.

To determine the socioeconomic status of the subjects, information was needed concerning the main wage earner in the family. A pupil information form was developed to meet this need, and all pupils were requested to take the form home for a parent (or guardian) to complete. In order to secure parent cooperation, a covering letter which briefly described the purposes of the study, and also firmly assured the parent that no names would be used in the study, was sent to each pupil's home. All the forms were returned, and every parent, without exception, supplied the desired information. The data obtained from the form were used to establish a scale score which was then weighted to give pupils a social class position.

*Pupil population.* The subjects for this study were selected from the first grades of four elementary schools in West Springfield, Massachusetts. West Springfield, a suburb of Springfield, Massachusetts, had a population of 26,070 in 1965. The district has nine elementary schools with an enrollment of 3,097 pupils. There are 18 first-grade classes in the district. In this study, intact classroom groups had to be used. In using intact classes,

the researcher usually faces certain sampling problems. For example, an attempt may be made by school authorities to group pupils homogeneously by intelligence scores.

*Selection of teachers.* The six teachers who participated in the study were selected at random. All of the 18 first-grade teachers had indicated a willingness to participate in the study. However, only 15 met the following criteria (in addition to teacher willingness) which had been established for teacher selection: (a) completion of three or more years of successful teaching; and (b) a rating, by their administrators, of above average or excellent.

Course background in economics was very sparse for the six teachers. Two teachers had had a three-hour course more than 10 years before, two teachers had had an in-service course in economics offered by Boston University in 1964-65, and two teachers had never had any course work in economics. Thus, the mean hours of college course work completed in economics by the six teachers was less than three.

Part of the program in West Springfield was to prepare all teachers in economic education. As a result, all elementary teachers in the system experienced a 30-hour, in-service training program in the teaching of economics. The same economist taught all the teachers, and at the conclusion of the training program, all teachers were given the Teacher's Economic Understanding Test. The results of this test provided data used to equate, statistically, the influence of any variance in teacher knowledge of economic materials.

Prior to the actual pupil testing time, the researcher met with each participating teacher to explain the purposes and procedures of the testing program. At that time it was made clear that only the effectiveness of the instructional materials, not teacher competence, was to be measured.

*Administration of test instrument.* The days of January 16 and 17, 1969, were selected for the administration of the pretest to all subjects. Because no preliminary instructions to prepare the subjects for the ac-

tual test were available, it was necessary for the investigators to construct them. General directions, sample items, and answers to anticipated questions were presented to the subjects prior to the actual testing.

In order to secure as much uniformity as possible in the actual testing situation, all the formal directions for the test were tape recorded and the same tape was used with all pupils. In addition, the same investigator administered the pre- and post-test to all subjects.

Each pupil was seated at an individual table, thereby minimizing pupil exchanges during the test by maximum use of the physical area of the classrooms. Thirty to 33 minutes constituted the testing period for each test administration. The same procedures were utilized in the administration of the post-test on May 28 and 29, 1969. The teachers never saw the measuring instrument used in the study, nor were there any meetings between the teachers and investigators from January to May.

The investigators scored all of the tests in order to maximize consistent scoring. All of the 116 tests were usable, and formed the basis from which data were obtained.

## Analysis of the Data

*Major hypothesis.* There are no significant differences in pupil achievement as measured by the Spears test among pupils exposed to SRA materials for two semesters (Group A), pupils exposed to Follett materials for two semesters (Group B), and pupils exposed to SRA materials for one semester and Follett materials the other semester (Group C).

*Findings.* Using the raw scores pupils received on the Spears test, an analysis of variance was applied to determine the F value of the difference. The data cited in Table 1 show the test of significance with the Spears test among the groups. The F value for the difference was determined to be 8.84, and the F table indicated that 7.37 (an approximate interpolated value) was needed to be significant at the .001 level of confidence. The

null hypothesis of no significant differences among Groups A, B, and C was, therefore, rejected.

Source of variation	Degrees of freedom	Sum of squares	Mean sum of squares	F ratio
Instructional materials	2	107.83	53.92	8.84 *
Error	113	688.96	6.10	

\*  $p < .001$

Table 1. Analysis of Variance Findings on Post-Test Achievement Scores Grouped According to Instructional Materials

When an F test is performed for multiple groups, the findings may indicate that the null hypothesis must be rejected because significant differences exist among the groups. However, the F test does not tell which groups are significantly different from each other.

The Scheffé method was applied to the post-test scores of all the groups and the findings were:

1. Group A (SRA materials all year) scores were significantly greater than Group B (Follett materials all year) scores.

2. Group A scores were not significantly different from Group C (Follett materials one semester and SRA materials one semester) scores.

3. Group B scores were not significantly different from Group C scores.

The null hypothesis of no significant difference in achievement in economics between pupils of Group A and Group B was, therefore, rejected.

The null hypothesis of no significant difference in achievement in economics between pupils of Group A and Group C failed to be rejected.

The null hypothesis of no significant difference in achievement in economics between Group B and Group C failed to be rejected.

At first glance, the strong findings favoring the SRA materials appear convincing. However, tests were conducted on relevant variables to determine whether or not the groups were truly matched. Therefore, analy-

ses of variance were conducted for age in months, intelligence scores (IQ), socioeconomic status (SES), and pretest scores. These variables were chosen because much of educational literature is concerned with the relationship of chronological age, intelligence, and socioeconomic status to learning ability. Pretest scores were used because they are also significant measures of the groups' equivalence at the start of the study.

Table 2 presents the means, standard deviations, and F ratios of the variables mentioned above, grouped according to instructional materials (IM).

	Group A (n=38)		Group B (n=40)		Group C (n=38)		F ratio
	$\bar{X}$	sd	$\bar{X}$	sd	$\bar{X}$	sd	
Age	86.00	3.61	84.03	4.67	84.03	5.24	2.39 NS
IQ	106.03	12.07	109.21	9.22	101.69	10.03	4.69*
SES	2.45	0.76	2.40	0.87	2.58	0.68	0.55 NS
Pretest	11.74	2.40	10.43	2.07	9.89	2.56	6.21**

\*  $p < .05$

\*\*  $p < .01$

Table 2. Summary of F Values for Variables Grouped According to Instructional Materials

No significant differences based on age or on socioeconomic status were found among the groups. Significant differences were found among the groups for intelligence scores and pretest scores. Again the Scheffé method was applied to the intelligence scores to determine which group was significantly different from another. The findings were:

1. Group A was not significantly different from Group B.

2. Group A was not significantly different from Group C.

3. Group B was significantly greater than Group C.

When the Scheffé method was applied to the pretest scores, the findings were:

1. Group A was significantly greater than Group B.

2. Group A was significantly greater than Group C.

3. Group B was not significantly different from Group C.

	n	Level I		n	Level II		n	Level III		F ratio
		$\bar{X}$	sd		$\bar{X}$	sd		$\bar{X}$	sd	
Age	20	84.35	4.58	21	84.09	4.01	74	84.93	4.80	0.33 NS
IQ	20	110.60	8.22	19	104.58	9.29	71	104.69	11.61	2.51 NS
Pretest	20	10.70	2.34	21	11.29	2.53	75	10.51	2.46	0.83 NS
Post-test	20	11.60	3.00	21	12.42	2.04	75	11.42	2.67	1.20 NS

Table 3. Summary of F Values for Variables Grouped According to Socioeconomic Status

*Socioeconomic status.* Table 3 presents the number of subjects, mean scores, standard deviations, and F ratios for the variables—age (in months), intelligence scores, pretest scores, and post-test scores—grouped according to socioeconomic status.

No significant differences were found for the variables listed in Table 3, when pupils were grouped according to socioeconomic status (SES). An F ratio of 3.11 (an approximate interpolated value) at the .05 level is needed for significance. The data cited in Table 3 show none of the F ratios to be significant. The null hypothesis of no significant differences in achievement among pupils grouped according to socioeconomic status failed to be rejected.

*Possible interaction between socioeconomic status and teaching materials.* Popham stated on interaction: "The general principle involved in interaction effects is the same in all analysis of variance models, when the researcher is testing for the existence of a relationship between the dependent variable and another variable" (3: 129). In accordance with Popham's observation, tests were performed, and F ratios were obtained to determine possible interaction of socioeconomic status and instructional materials with age, intelligence scores, pretest scores, and post-test scores (See Table 4).

Variable	Sources of variance	F ratio
Age	SES $\times$ IM	0.65 NS
IQ	SES $\times$ IM	0.54 NS
Pretest	SES $\times$ IM	0.02 NS
Post-test	SES $\times$ IM	0.76 NS

Table 4. Summary of F Ratios for Possible Interaction Between Socioeconomic Status and Teaching Materials

*Sex.* No significant differences were found for the variables listed in Table 5 when the pupils were grouped according to sex. To be significant at the .05 level, an F ratio of 3.11 (an approximate interpolated value) is needed for significance. The data cited in Table 5 show none of the F ratios to be significant.

	Male (n=63)		Female (n=53)		F ratio
	$\bar{X}$	sd	$\bar{X}$	sd	
Age	84.61	4.63	84.75	4.62	0.03 NS
IQ	104.86	9.92	106.76	11.86	0.84 NS
SES	2.38	0.79	2.58	0.75	2.02 NS
Pretest	10.76	2.22	10.58	2.72	0.15 NS
Post-test	11.59	2.76	11.70	2.50	0.05 NS

Table 5. Summary of F Values for Variables Grouped According to Sex

*Discussion.* Data resulting from this study indicate that the pupils of Group A, who were instructed with the SRA materials for two semesters, scored significantly higher on the post-test of *Spears' Test for Achievement in Economics* than the pupils of Group B, who were instructed with Follett materials for two semesters. However, Group A did not score significantly higher on the achievement test when compared to pupils of Group C, who were instructed with Follett materials for one semester and SRA materials the other semester. Also, Group C did not score significantly higher than Group B on the post-test.

No significant differences were found to exist among the groups on age, intelligence scores, socioeconomic status, pre- and post-test scores when two-way analysis of variance was applied to pupils' scores, within and among the groups, for possible interactions between socioeconomic status and the in-

structional materials. No significant differences were found to exist among the groups on age, intelligence scores, socioeconomic status, pre- and post-test scores when the data were analyzed according to sex.

*Treatment of rival hypotheses.* As Table 2 indicates, significant differences did exist among groups in the variables of pupil intelligence and pretest scores. This being so, two rival hypotheses for the differences found among the groups on the post-test could be formulated, that is:

1. The differences noted were not due to the instructional program employed, but rather to the differences in pupil intelligence.

2. The differences noted among groups were not due to the instructional program employed, but rather to the fact that the groups were not equal at the start of the investigation.

An additional rival hypothesis also presents itself, that is:

3. The differences among groups noted was not due to the instructional program employed, but rather to the fact that the teachers varied in their understanding of the substantive material taught (economics).

Each of these rival hypotheses was investigated, using analysis of covariance to hold constant the effect of the variable in question.

*Rival Hypothesis 1.* The differences noted were due to the differences in intelligence of pupils, not the instructional program employed.

*Findings.* Table 2 indicates that the three groups were not equivalent ( $p$  less than .05) with respect to intelligence scores. Therefore, analysis of covariance method, which partialled out pupils' intelligence scores on post-test results, was applied to analyze this difference.

The data cited in Table 6 show that a significant difference ( $p < .001$ ) still existed among the groups for post-test scores, with the effects of intelligence scores partialled out. Again, as in the analysis of the data presented in Table 2, it was not possible to determine which group was significantly different from

Source of variation	Degrees of freedom	Corrected sums of squares	Corrected mean square	F ratio
Instructional materials	2	114.33	57.16	10.23*
Error	112	625.70	5.59	

\*  $p < .001$

Table 6. Analysis of Covariance Findings on Post-Test Achievement Scores Grouped According to Instructional Materials with Intelligence Scores Partialled Out

another without application of the Scheffé method. The Scheffé method yielded the following findings from the post-test scores:

1. Group A was significantly greater than Group B.

2. Group A was not significantly different from Group C.

3. Group C was significantly greater than Group B.

These findings indicate that pupils instructed with SRA materials for two semesters, and pupils instructed with Follett materials for one semester and SRA materials the other semester, achieved higher scores on the achievement test than pupils who were instructed with Follett materials all year.

*Rival Hypothesis 2.* The differences noted were due to the fact that groups did not start at an equal point (as demonstrated in the pretest analysis), not due to the instructional program employed.

*Findings.* Table 2 indicates that the three groups were not equivalent ( $p$  less than .01) with respect to pretest scores. Therefore, analysis of covariance method, which partialled out pupils' pretest scores on post-test results, was applied to analyze this significant difference.

The data cited in Table 7 show that a significant difference still existed among the groups for post-test scores with the effects of pretest scores partialled out. Again, as in the analysis of the data presented in Table 2, it was not possible to determine which group was significantly different from another, without application of the Scheffé method. The findings from post-test scores, with pretest scores partialled out, were:

Source of variation	Degrees of freedom	Corrected sums of squares	Corrected mean square	F ratio
Instructional materials	2	82.41	41.21	7.17*
Error	112	643.33	5.74	

\*  $p < .01$

Table 7. Analysis of Covariance Findings on Post-Test Achievement Scores Grouped According to Instructional Materials with Pretest Scores Partialled Out

1. Group A was significantly greater than Group B.
2. Group A was not significantly different from Group C.
3. Group C was significantly greater than Group B.

These findings indicate that pupils instructed with SRA materials for two semesters, and pupils instructed with Follett materials for one semester and SRA materials the other semester, achieved higher scores on the achievement test than pupils who were instructed with Follett materials all year. These indications were also shown by the findings presented in Table 6.

*Rival Hypothesis 3.* The differences noted were due to the differences which existed in the teachers' understanding of the substantive material taught (economics), and not due to the instructional material employed.

Although the data of Table 8 do not contain any tests relating to teachers' understanding of economics as a variable, which could confound the results of the study, it seems that observation of the findings might pose the hypothesis that teacher understanding of economics would have an effect. As

Source of variation	Degrees of freedom	Corrected sums of squares	Corrected mean square	F ratio
Instructional materials	2	81.55	40.78	6.69*
Error	112	682.90	6.10	

\*  $p < .01$

Table 8. Analysis of Covariance Findings on Post-Test Achievement Scores Grouped According to Instructional Materials with TEU Scores Partialled Out

mentioned earlier, each pupil was assigned a score indicating his own teacher's level of understanding of economics. Teachers' level of understanding of economics was measured by the *Test of Economic Understanding*.

The data showed an F ratio of 6.69. For the F ratio to be significant at the .01 level, an F ratio of 4.89 (an approximate interpolated value) was needed. Therefore, the data showed that differences among the groups on post-test scores were still significant with the teachers' understanding of economics partialled out. However, as in the cases of the intelligence scores and the pretest scores, it was not possible to determine which group was significantly different from another without application of the Scheffé method. The findings from post-test scores, with teachers' TEU scores partialled out, indicated:

1. Group A was significantly greater than Group B.
2. Group A was not significantly different from Group C.
3. Group B was not significantly different from Group C.

These findings indicate that pupils instructed with SRA materials for two semesters achieved significantly greater scores than pupils instructed with Follett materials all year. However, in this instance (TEU scores partialled out of post-test scores), pupils who were instructed with Follett materials for one semester and SRA materials the other semester did not achieve significantly higher scores than pupils instructed with Follett materials all year.

## Summary

*Pupils' scores on achievement post-test, based on instructional materials.* Data resulting from this study indicate:

1. First-grade pupils of West Springfield, Massachusetts, who were instructed with SRA materials all year achieved consistently higher scores on the measuring instrument than pupils instructed all year with Follett materials.
2. In two out of three instances (when

intelligence scores and pretest scores were partialled out of post-test results), pupils who were taught with both Follett and SRA materials achieved higher scores on the measuring instrument than pupils instructed all year with Follett materials.

3. In one case out of three (when TEU scores of teachers were partialled out of post-test results), pupils who were instructed all year with Follett materials equaled achievement of pupils taught with Follett materials one semester and SRA materials the other semester.

*Pupils' scores based on socioeconomic status.* Data resulting from this study indicate that no significant differences existed within and among the groups in post-test achievement when students were grouped according to social position.

*Pupils' scores based on sex.* Data resulting from this study indicate that no significant differences existed among the groups in post-test achievement scores based on sex.

*Conclusions.* Based upon the data collected and analyzed in this study, the following conclusions were drawn:

1. Pupils instructed with SRA materials achieved consistently higher scores on a test of achievement in economics than did pupils who were instructed with Follett materials.

2. The socioeconomic status of the pupils did not affect performance on the achievement test. This result does not support the results of another study involving SRA materials, which found that pupils of lower socioeconomic status performed at a lower level than pupils of middle socioeconomic levels.

3. A combination of instructional materials—one semester with SRA materials and the other semester with Follett materials—seems to result in a level of achievement in economics equal to that of pupils instructed with SRA materials all year.

4. The evidence provided by this study indicates that pupils can learn economics through an interdisciplinary approach.

*Implications of the study.* This study did not attempt to assess the SRA or Follett materials *in toto*. This study was concerned only with comparing the effectiveness of the mate-

rials on achievement in economics. However, these materials are concerned with much more than economics—geography, anthropology, political science, sociology, and history are interrelated parts of each set. Thus, a need exists to investigate how these interrelated parts work together—as a whole—to accomplish the purposes for which the materials exist.

Systems analysis asks the educator to see his activity as a whole—not only the instructional materials but also the child, the curriculum, the media, the teacher, and the management network which puts these and other resources together into a functional system. Educators might then acquire needed measurements on expenditures of energy and resources. Therefore, a new approach to the materials problem might be to think assiduously in terms of the way materials relate to the entire educational process.

*Recommendations for further research.* Recommendations based on the data and observations of this study are as follows:

1. Using these first-grade social studies instructional materials, a full year study should be made to determine the effect of greater time duration on achievement in economics.

2. A study should be made involving the Follett and SRA materials with groups selected by a random sampling method. As noted in the study, even with intelligence scores statistically equated, the pupils instructed with SRA for one semester and Follett the other semester achieved scores on the achievement test significantly greater than pupils who were instructed with Follett materials all year. More data should be obtained on this variable, because the pupils instructed with Follett materials possessed significantly higher intelligence scores. In addition, the variable's "suppressing" or "moderating" effect on the post-test scores needs more investigation.

3. A study should be conducted to assess more precisely the effect of teacher training on the teaching of these materials. "Teacher proof" instructional materials need much more empirical examination to warrant that label. Therefore, further research on the SRA and Follett materials should involve both teachers who have experienced in-service training in teaching eco-

nomics, and teachers who have experienced no training at all in teaching economics.

4. Both the instructional materials investigated in this study pursue the learning of economics through an interdisciplinary approach. A study which compared the achievement of first-grade pupils who were taught economics as an independent discipline to pupils who were taught economics through an interdisciplinary approach could provide evidence of the effectiveness of the two methods.

5. As stated elsewhere in the study, both the SRA and Follett materials are concerned with attitudes and values. There has been virtually no research on the effectiveness of these materials in the areas of attitudes and values. It would be of considerable interest to investigate whether or not affective changes take place with pupils who have been taught with these materials.

6. There is a need to assess these materials with urban pupils, because most of the studies which have measured first-grade pupil achievement in economics have focused on white suburban children.

7. In order to confirm or reject the findings of this exploratory study, parts of it should be replicated in other sections of the country with new variables introduced. There is great need for more empirical evidence on other materials, other methods, and other objectives. The major problems of educational research are so big and so complex that breakdowns into minor problems might yield findings which are significant for solving the grand problem.

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## A Call for Papers

FREDERICK A. RODGERS \*

THIS RESEARCH SUPPLEMENT is not designed for publishing reviews of research issues, calls for needed research analysis, or analysis of widely quoted research studies. It has been established for the reporting of data. Criteria for selecting articles include:

1. The manuscript must report data. Included in the article must be some evidence to support the reliability of the measures used in the study.

2. The article should concern itself with the behavior of teachers (or their surrogates) and that of students as dependent variables. Behavior is taken to mean achievement scores, responses to questionnaires, etc.

3. The article should present a discussion of the results in such a manner that the meaning of the research is clear to readers. Some suggestions to meet this criterion include: a discussion of threats to the validity of the study's conclusion; an unambiguous definition of the independent variable; a distinction between the findings (data) of a study

and the conclusion pertaining to the research hypotheses; a distinction between testing research hypotheses grounded in theoretical frameworks and answering research questions for which there exists no known theoretical base; and finally establishing a basis for qualified conclusions.

Authors are invited to submit manuscripts to Frederick A. Rodgers, Teacher Corps Office, 4 Washington Square Village, Room 1-0, New York, New York 10012.

Manuscripts are welcome in all lengths, from 500 to 8800 words, typed, double-spaced. Three copies of each manuscript are required. All manuscripts will be submitted to panels drawn from the membership of the ASCD Research Council, and prompt decisions will be made regarding their publication. □

\* Frederick A. Rodgers, Director, Teacher Corps (Harlem Institute for Teachers), and Associate Professor of Early Childhood and Elementary Education, New York University, New York City

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