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ABSTRACT

A project to upgrade social studies skills of secondary students in a county school system was conducted during the 1973-74 academic year. Classes of students were assigned to experimental and control groups in grades 7-8, grades 9-10, and grades 11-12. In the fall 2,000 students were administered a social studies skills pretest. Tests of students in the experimental group were returned to teachers with instructions to use them for instructional purposes while students in the control group were not given any feedback. In the spring, all students were posttested with a parallel form of the pretest and scores were compiled. The information analyzed does not make a clear case for the efficacy of the treatment to provide for increased social studies skills for high school students. The results concerning the efficiency of the use of tests as teaching devices on the grounds of the "feedback" principle are inconclusive. Skills tested at each grade are listed and copies of pre- and posttests for each level are included in the appendixes along with the copies of the posttest instruments and the resulting scores. (Author/KSM)

TAZEWELL COUNTY PUBLIC SCHOOLS, VA.

SOCIAL STUDIES SKILLS EVALUATION PROJECT

1973-74

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SOCIAL STUDIES SKILLS EVALUATION PROJECT

PROCEDURES:

A project to upgrade social studies skills of students in Tazewell County schools was conducted during the 1973-74 academic year. The format of the project consisted of the following elements: (1) Classes of students were assigned to experimental and control groups. Three levels of students were used, i.e. grades 7-8, grades 9-10, and grades 11-12., (2) In the fall of 1973 all students in both groups were administered a social studies skills pre-test. Skills that were tested and the grade levels to which a skill area was administered are listed in Illustration 1. Copies of pre and post tests for each level are included in the appendices., (3) Tests of all students were scored and compiled in group data. Tests of students in the experimental group were returned to teachers with instructions to use them for instructional purposes in any manner that they wished. Students in the control group were not given feedback. Instructions to teachers for using test results are included in the appendices., (4) In the spring of 1974 all students were post tested with a parallel form of the pre-test. Copies of the post test instruments are included in the appendices., (5) Post tests of students were scored and compiled in group data. The remainder of this section of the report will be devoted to data treatment and a discussion of the findings of the study.

ILLUSTRATION 1

S O C I A L S T U D Y S K I L L A R E A S

FACT OR OPINION - This skill tries to distinguish the difference between facts and opinions or between facts and an author's interpretation of the facts. This skill development will contribute to a student's general critical ability. (Grades 7-8, 9-10, 11-12).

TIME RELATIONSHIPS - This skill can depend heavily on recall knowledge and is not truly critical thinking skill as compared with determining fact or opinion. It has been included because the literature in the field of study skills has devoted some attention to what is variously referred to as "skill in developing a sense of chronology." (Grades 7-8, 11-12).

CLASSIFYING INFORMATION - This is an organizational skill necessary for doing higher level critical thinking skills. (Grades 9-10).

MAP READING SKILLS - Skill in the use of latitude and longitude, scale of miles, direction, and map symbols are all basic skills in map reading. (Grades 7-8, 9-10, 11-12).

CARTOON INTERPRETATION - This is an observational skill that involves certain acquired knowledge and also can involve determining bias or point of view. (Grades 7-8, 9-10, 11-12).

GRAPH SKILLS - These are skills common to several disciplines. The ones used here are the forms commonly used in social studies materials and mass media presentations. (Grades 7-8, 9-10, 11-12).

IDENTIFYING CENTRAL ISSUE AND BIAS - This is a skill often included under language arts. Reading ability is closely related to skill proficiency in this area. (Grades 7-8, 9-10, 11-12).

VALIDITY OF SOURCES - This is one of the most important of the critical thinking skills. Caution is needed in testing because if no follow-up is done with the questions, students can mix the best answer with what is the right answer and in this area even the best can be unreliable or wrong. (Grades 7-8, 9-10, 11-12).

DATA CONSISTENCY - Like graphs, often used in math, this skill deals with forms commonly used in social studies materials. (Grades 7-8).

STATEMENT SUPPORTING GENERALIZATION - This skill involves relating general and specific statements to see if there is consistency in data or statements. (Grades 7-8).

DRAWING INFERENCES - This skill has dangers, but like a detective, the student must make certain assumptions based on the available evidence. (Grades 9-10, 11-12).

APPLY PRINCIPLES TO NEW SITUATIONS - Students try to determine parallel relationships between events. Again danger exists if this is overdone. (Grades 9-10, 11-12).

RELEVANT AND IRRELEVANT FACTS - Some information is much more significance for answering questions than other information. This skill tests skill in determining significance. (Grades 9-10, 11-12).

MAIN THEME - The selection of the major idea in a written passage. (Grades 9-10, 11-12).

DELIMITATIONS:

Before undertaking a discussion of results an identification of the parameters of the study and its limitations should be made. First the study is basically a descriptive one. When statistical analysis using

significance tests were used they were confined to non-parametric devices. Resources allocated to analyzing the data did not permit treatment of individual data. The format of data that was available did not allow for sophisticated statistical analysis. Analyses that were conducted and discussed are primarily based on rational and logical premises, not quantitive ones. They will be presented as appropriate during the discussion.

FINDINGS:

Comprehensive results of both experimental and control groups for all levels of students are presented in tables 1, 2, and 3. Table 1 presents data for grades 7-8; table 2 presents data for grades 9-10; and table 3 presents data for grades 11-12. Information included at the beginning of each table are the number of students who took the test, the average score attained by the group, the test standard deviation, and reliability estimates of the test. Refer to table 1. It summarizes the information on students at the 7th and 8th grade level.

Immediately following the above information are item and subtest (skill area) achievement levels, in percent, for students in both experimental and control groups. For example, the achievement level of 7th and 8th grade students in the experimental group on item #1 was 94% - or 94% of the students in the experimental groups got item #1 correct on the pre-test. Other figures for individual items may be interpreted in a similar fashion for both experimental and control groups on pre and post tests.

Also, available in tables 1, 2, and 3 are achievement levels for skill areas. Refer to table 1 again. The total 1-3 row shows the percent achievement level for the fact or opinion skill area. The achievement level of students in the experimental group for the fact or

opinion subtest of the pre-test was 94%. Information for other skill areas can be similarly interpreted.

Inspection of data at the beginning of tables 1, 2, and 3 suggests that the overall effect of the project was not successful. While no attempt was made to equate the pre and post tests for difficulty level and statistical tests of significance were not conducted because of limited data, casual observation reveals the experimental groups did not exhibit superiority over the control groups. Data for 11-12 grade students demonstrates this fact most clearly. Both experimental and control groups scored at the 65% level on the pre-test and both scored at the 61% level on the post test. In other words, both groups were equal on the pre-test and, while the experimental group was subjected to the treatment of using test results to improve skills, it did not show superiority on the post test. In the other two tables the equivalence of the groups is not as precise as those in table 3, however the findings are similar. That is, superiority for the treatment groups cannot be demonstrated. See table 2 for example. There was a 5% superiority for the experimental group of 9-10 grades on the pre-test and a 3% superiority on the post test. Table 1 shows an 8% superiority for the experimental group of 7th-8th grades on the pre-test and an 11% superiority on the post test.

It may be desirable to examine each individual question and compare results on pre and post testing. In this undertaking, evidence of the nature of skills tested could be obtained and inferences about the type of instruction to provide students might be made so that weakness could be corrected. However, for purposes of this report it may be more desirable to examine data about the skill areas (or subtests) of the various tests, analyze them and make statements about the findings.

Table 1
COMPREHENSIVE TEST
STATISTICS
Grades 7 - 8

	Pre-Test	Post Test
No. Students-Exp. Group	702	680
No. Students-Control Group	269	287
Mean. Score-Exp. Group	26.2 (66%)	26.6 (67%)
Mean. Score-Control Group	23.2 (58%)	22.1 (55%)
Std. Deviation-Exp. Group	5.9	5.9
Std. Deviation-Control Group	6.2	6.1
Reliability (KR-20)Exp. Group	.81	.82
Reliability (KR-20)Control Group	.81	.81

ITEM AND SUBTEST PERCENT ACHIEVEMENT
Levels: Pre and Post Tests
Grades 7 - 8

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest I-Fact or Opinion:				
ITEM				
1	94	95	88	92
2	93	93	88	86
3	94	96	34	89
Total 1-3	94	95	87	89
Subtest II-Time Relationships:				
ITEM				
4	83	96	81	89
5	44	72	46	74
6	11	58	29	49
Total 4-6	46	75	52	71
Subtest III-Classifying Information:				
ITEM				
7	40	71	58	65
8	93	86	84	77
9	73	43	72	42
Total 7-9	69	67	71	61

(continued on page 7)

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest IV-Map Reading:				
ITEM				
10	58	56	46	52
11	71	45	49	36
12	56	56	30	46
13	56	29	41	23
14	46	45	38	22
15	41	43	28	25
16	78	89	71	82
17	74	67	57	62
18	81	53	61	50
19	80	88	72	78
20	79	58	72	46
21	62	86	58	70
Total 10-21	65	60	52	49
Subtest V-Graph Interpretation:				
ITEM				
22	58	92	73	75
23	67	86	58	72
24	81	87	73	68
Total 22-24	69	88	68	72
Subtest VI-Cartoon Interpretation:				
ITEM				
25	92	70	82	60
26	77	16	69	7
27	71	54	46	32
Total 25-27	80	47	66	33
Subtest VII-Identifying Issues:				
ITEM				
28	72	90	64	85
29	69	36	59	32
30	82	44	70	29
31	36	80	30	69
Total 28-31	65	63	56	54
Subtest VIII-Validity of Sources:				
ITEM				
32	80	89	71	72
33	91	82	77	52
34	58	37	37	38
Total 32-34	76	69	62	54

(continued on page 8)

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest IX-Data Consistency:				
ITEM				
35	32	46	25	32
36	39	48	29	47
37	31	69	34	55
Total 35-37	34	54	29	45
Subtest X-Supporting Statements:				
ITEM				
38	45	62	36	30
39	72	83	66	60
40	52	66	64	42
Total 38-40	56	70	55	44

Table 2
COMPREHENSIVE TEST STATISTICS
Grades 9 - 10

	Pre-Test	Post Test
No. Students-Exp. Group	234	236
No. Students-Control Group	149	153
Mean. Score-Exp. Group	28.6 (57%)	28.0 (56%)
Mean. Score-Control Group	26.0 (52%)	26.3 (53%)
Std. Deviation-Exp. Group	7.7	7.2
Std. Deviation-Control Group	6.9	6.5
Reliability (KR-20)Exp. Group	.85	.83
Reliability (KR-20)Control Group	.81	.80

ITEM AND SUBTEST PERCENT ACHIEVEMENT
Levels: Pre and Post Tests
Grades 9 - 10

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest I-Fact or Opinion:				
ITEM				
1	97	94	97	96
2	95	94	93	93

(continued on page 9)

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest I-Fact or Opinion: (continued)				
ITEM				
3	90	97	95	94
4	85	92	87	93
5	78	93	83	96
Total 1-5	89	94	91	94
Subtest II-Drawing Inferences:				
ITEM				
6	48	67	45	67
7	39	20	34	14
8	56	60	43	53
9	32	49	22	55
10	24	22	18	24
Total 6-10	40	44	34	43
Subtest III-Source Validity:				
ITEM				
11	53	89	58	90
12	79	80	75	78
13	93	63	91	61
14	54	52	46	41
15	81	83	75	88
Total 11-15	72	73	69	72
Subtest IV-Application of Principles:				
ITEM				
16	49	44	44	31
17	59	58	53	46
Total 16-17	53	51	49	39
Subtest V-Identifying Bias:				
ITEM				
18	--	58	--	73
19	32	67	23	61
20	38	49	32	39
21	48	8	41	8
Total 18-21	39	46	32	45
Subtest VI-Graph Reading:				
ITEM				
22	77	48	75	40
23	39	41	40	35
24	70	11	62	15
25	76	90	77	88
26	59	--	48	--
27	30	73	32	67

(continued on page 10)

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest VI-Graph Reading: (continued)				
ITEM				
28	70	68	66	63
29	63	53	55	55
30	17	49	17	40
Total 22-30	56	54	52	51
Subtest VII-Cartoon Interpretation:				
ITEM				
31	50	60	56	94
32	71	56	62	72
33	71	41	61	51
Total 31-33	64	52	60	72
Subtest VIII-Map Reading:				
ITEM				
34	35	50	22	41
35	51	47	38	39
36	55	53	38	39
37	68	51	56	48
38	67	69	58	67
39	69	55	56	47
40	45	53	32	79
41	54	--	42	--
42	72	40	58	31
43	78	70	65	59
44	75	78	60	78
45	65	57	53	52
46	51	65	52	69
47	33	35	24	25
48	53	35	40	34
Total 34-48	59	54	46	51
Subtest IX-Main Theme:				
ITEM				
49	44	75	61	82
50	12	39	28	33
Total 49-50	28	57	45	58

Table 3
COMPREHENSIVE TEST STATISTICS
Grades 11 - 12

(continued on page 11)

	Pre-Test	Post Test
No. Students-Exp. Group	188	165
No. Students-Control Group	312	295
Mean. Score-Exp. Group	35.8 (65%)	33.4 (61%)
Mean. Score-Control Group	35.7 (65%)	33.7 (61%)
Std. Deviation-Exp. Group	7.6	8.0
Std. Deviation-Control Group	8.0	7.0
Reliability (KR-20)Exp. Group	.85	.87
Reliability (KR-20)Control Group	.87	.82

ITEM AND SUBTEST PERCENT ACHIEVEMENT
Levels: Pre and Post Tests
Grades 11 - 12

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest I-Fact or Opinion:				
ITEM				
1	96	98	96	94
2	94	95	96	93
3	94	98	94	98
4	90	96	93	96
5	90	96	89	97
Total 1-5	93	97	94	96
Subtest II-Drawing Inferences:				
ITEM				
6	60	78	60	71
7	34	13	34	14
8	53	79	63	71
9	38	58	42	54
10	23	27	28	27
Total 6-10	42	51	46	47
Subtest III-Validity of Sources:				
ITEM				
11	57	98	56	92
12	90	85	87	85
13	98	75	93	67
14	71	56	60	50
15	89	92	91	91
Total 11-15	81	81	77	77

(continued on page 12)

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest IV-Applying Principles:				
ITEM				
16	70	46	74	48
17	69	73	77	64
Total 16-17	70	60	76	56
Subtest V-Identifying Bias:				
ITEM				
18	--	69	--	66
19	41	72	42	74
20	54	54	50	52
21	69	8	73	12
Total 18-21	53	51	55	51
Subtest VI-Graph Reading:				
ITEM				
22	86	78	87	53
23	46	68	44	48
24	60	18	65	15
25	94	92	93	94
26	74	--	71	--
27	36	82	31	78
28	87	72	88	78
29	74	62	72	70
30	10	64	10	65
Total 22-30	63	67	62	63
Subtest VII-Cartoon Interpretation:				
ITEM				
31	68	36	71	67
32	83	67	78	77
33	74	67	76	44
Total 31-33	75	57	75	63
Subtest VIII-Map Reading:				
ITEM				
34	49	67	44	55
35	62	67	52	56
36	62	47	63	39
37	85	56	79	59
38	81	72	82	79
39	79	59	82	57
40	48	58	35	68
41	69	--	64	--
42	78	42	82	44

(continued on page 13)

	Experimental		Control	
	Pre	Post	Pre	Post
Subtest VIII-Map Reading: (continued)				
ITEM				
43	88	72	87	81
44	86	84	84	89
45	75	53	80	67
46	72	67	73	84
47	40	42	40	36
48	60	47	71	46
Total 34-48	69	60	68	61
Subtest IX-Main Theme:				
ITEM				
49	15	29	28	34
Subtest X-Relevant Facts:				
ITEM				
50	88	65	88	71
51	55	50	49	52
52	61	82	58	82
Total 50-52	68	66	65	68
Subtest XI-Identifying Time Relationships:				
ITEM				
53	18	18	15	17
54	64	67	54	66
55	71	83	72	80
Total 53-55	51	56	47	54

Table 4

PRE AND POST TEST ACHIEVEMENT LEVEL
COMPARATIVE DATA FOR EXPERIMENTAL & CONTROL
GROUPS IN GRADES 7 - 8

SKILL AREA	PRE-TEST ACHIEVEMENT Level (%)		POST TEST ACHIEVEMENT Level (%)	
	Exp.	Control	Exp.	Control
1. Fact or Opinion	94	87	95	89
2. Time Relationships	46	52	75	71
3. Classifying Information	69	71	67	61
4. Map Reading	65	52	60	49
5. Graph Interpretation	69	68	88	72
6. Cartoon Interpretation	80	66	47	33
7. Identifying Issues	65	56	63	54
8. Validity of Sources	76	62	69	54
9. Data Consistency	34	29	54	45
10. Supporting Statements	56	55	70	44

Table 5

PRE AND POST TEST ACHIEVEMENT LEVEL
COMPARATIVE DATA FOR EXPERIMENTAL & CONTROL
GROUPS IN GRADES 9 - 10

	SKILL AREA	PRE-TEST ACHIEVEMENT Level (%)		POST TEST ACHIEVEMENT Level (%)	
		Exp.	Control	Exp.	Control
1.	Fact or Opinion	89	91	94	95
2.	Drawing Inferences	40	34	44	43
3.	Source Validity	72	69	73	72
4.	Application of Principles	53	49	51	39
5.	Identifying Bias	39	32	46	45
6.	Graph Reading	56	52	54	51
7.	Cartoon Interpretation	64	60	52	72
8.	Map Reading	59	46	54	51
9.	Main Theme	28	45	57	58

Table 6

PRE AND POST TEST ACHIEVEMENT LEVEL
COMPARATIVE DATA FOR EXPERIMENTAL & CONTROL
GROUPS IN GRADES 11 - 12

	SKILL AREA	PRE-TEST ACHIEVEMENT Level (%)		POST TEST ACHIEVEMENT Level (%)	
		Exp.	Control	Exp.	Control
1.	Fact or Opinion	93	94	97	96
2.	Drawing Inferences	42	46	51	47
3.	Validity of Sources	81	77	81	77
4.	Applying Principles	70	76	60	56
5.	Identifying Bias	53	55	51	51
6.	Graph Reading	63	62	67	63
7.	Cartoon Interpretation	75	75	57	63
8.	Map Reading	69	68	60	61
9.	Main Theme	15	28	29	34
10.	Relevant Facts	68	65	66	68
11.	Identifying Time Relationships	51	47	56	54

Tables 4, 5, and 6 summarize the results of pre and post testings for both experimental and control groups for skill areas. See table 4, for example. The achievement level of 7th and 8th grade students in the experimental group on the fact or opinion skill area of the pre-test was 94%; it was 87% for the control group on the pre-test; 95% for the

experimental group on the post test and 89% for the control group on the post test. Other information relative to other skill areas in the table can be interpreted in a similar fashion--and likewise for tables 5 and 6 which present data for 9th-10th grades and 11th-12th grades respectively.

The establishment of criteria to judge the efficacy of the treatment used in this study was a subjective matter. Many competency based educators suggest the 80% achievement level as evidence of a successful program. Accordingly, the achievement of 80% proficiency in a skill area was used as evidence of treatment success. For the experimental groups at all levels (7-8, 9-10, 11-12) the 80% level of proficiency was attained in 5 of a possible 30 skill areas. These were:

Fact and Opinion - 7-8, 9-10, 11-12.
Graph Interpretation - 7-8.
Validity of Sources - 11-12.

For the control groups the 80% proficiency level was attained in 3 of 30 cases.

Certainly the above data cannot be construed as evidence of superiority for the treatment group, especially since the 80% level was attained on the pre-test by both experimental and control groups in the fact or opinion skill open at all three levels, i.e. 7-8, 9-10, 11-12. What this means is that the 80% level was achieved in only two skill areas of the remaining 27 by experimental groups. The "luster" of the above performance is dulled by the fact that students in the 7th and 8th grades experimental group regressed from the 80% level on the pre-test, cartoon interpretation subtests, to 47% on the post test. In effect, the experimental group had a net advantage of one skill for all grade levels.

Another analysis which may reveal the efficacy of the treatment on the experimental group is a determination of the number of skill areas where the increase or decrease on the post test, as measured by percent of achievement gain or loss when compared to the pre-test, was at least 5%.* Refer to tables 4, 5, and 6. A 5% gain by the 7-8 grade experimental group between pre and post testings was shown in four skill areas:

1. Time Relationships.
2. Graph Interpretation.
3. Data Consistency.
4. Supporting Statements.

This data can be compared to the 7-8 grade control groups data which indicated 5% gains in two areas:

1. Time Relationships.
2. Data Consistency.

When viewed on the basis of the 5% criteria the experimental group demonstrated a slight advantage. If we couple this fact with the additional one that the experimental group for 7-8 grade students declined by 5% points in fewer categories than the control group, evidence in favor of the treatment is somewhat better. Refer to table 4. The experimental group declined by 5% points in three areas, i.e. map reading, cartoon interpretation, and validity of sources compared to four areas of decline by the control group, i.e. classifying information, cartoon interpretation, validity of sources, and supporting statements. In summary, using the 5% gain/loss criterion the evidence weighs slightly in favor of the treatment group for 7-8 grades.

When grades 9-10 experimental and control groups are compared on the 5% criterion, the trend shifts in favor of the control group. Refer to table 5. Increases of 5% for the experimental group number three i.e. fact or opinion, identifying bias, and main theme. For the control group increases are shown in five areas i.e. drawing

*5% is an arbitrary figure which the evaluator used as a meaningful change between testings.

inferences; identifying bias, cartoon interpretation, map reading, and main theme. Thus the control group had a 5 to 3 advantage over the experimental group. This advantage prevailed when 5% losses were compared. The experimental group lost in two skill areas, cartoon interpretation and map reading; the control group lost 5% in one area, application of principles.

Data for the 11-12 grade students is generally inconclusive. Gains of 5% were made in three areas by the experimental group and in two areas by the control group. Losses of 5% were made in three areas in both groups. Refer to table 6 for identification of specific groups. In summary no statement can be made regarding superiority of either experimental or control groups on the basis of findings for 11th and 12th grade students.

Resources did not permit sophisticated statistical inquiry into whether significant differences existed between the control and experimental groups. However, inquiry was made into which group gained the greatest number of percentage points (or lost the fewest points) between pre and post testings for the skill areas included in the various grade levels. Chi square tests of significance were conducted to see if statistically significant results existed. For 7-8 grade students the experimental group showed superiority in points gained or lost between pre and post testings in six skill areas and the control group gained more points in four skill areas. (There was a tie in one area). Refer to table 4. For 9-10 grade students the experimental group showed superiority in three areas and the control group in six areas. For 11-12 grade students the results were six in favor of the experimental group, two for the controls, and two ties. See tables 5 and 6. Chi square tests for each case were not significant and there is no basis from this evidence to support superiority for the treatment.

CONCLUSIONS:

On the basis of information analyzed it is difficult to make a case for the efficacy of the treatment to provide for increased social studies skills for high school students. While experts in educational measurement espouse the use of tests as teaching devices on the grounds of the "feedback" principle, results concerning their efficiency has been inconclusive. In two prior research studies by one of the authors of this report the use of quizzes as teaching aids have not proved effective (1, 2). Speculation as to the reasons for the lack of efficacy of tests vary. It may be that for certain types of skills, mere information concerning performance is insufficient, of itself, to effect change. What probably needs to be done in addition to feedback is establishment of an educational program to upgrade skills in areas of deficiency.

It is not the intent of the evaluator to condemn the project for its failure to effect positive results among students in the treatment group. Most certainly a major finding of the study which is of considerable value is the information concerning achievement levels of students in the various skill areas. On post test results for both experimental and control groups the desired 80% level of achievement was attained in only 8 of a possible 60 instances. This fact alone describes the deficiency of students and, presuming the skills are of a type valued by the Tazewell County School System, points out the necessity of developing instructional modes which foster such skills.

Another encouraging note in the project was the development of skills tests which purport to measure social study skills of students at the secondary level. The efforts on this behalf need refinement and the continued cooperation between county personnel and test developers is encouraged.

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