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ABSTRACT

This study compares the effects of the traditional sixth grade social studies curriculum for Oregon pupils with that of Man: A Course of Study (MACOS). Students were pre- and post-tested. Data were analyzed statistically by the use of the F test on equality of variance and t-tests for pooled variance and distinct variances to test two null hypotheses. As measured by the Torrance Tests of Creative Thinking, sixth grade students using a traditional social studies curriculum of Latin America will not differ significantly in creativity nor in the achievement of social studies skills as measured by the "Sequential Tests of Education Progress (STEP): Social Studies" from those students using the social studies curriculum MACOS. No significance at the .10 level was found when the t-test for distinct variances was applied, thus verifying the null hypotheses. A pattern, however, emerged from the data that indicated the MACOS materials may produce greater verbal creativity. (Author)

Final Report

Project No. 2-J-021
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# A Comparative Study of the Effects of a Traditional Social Studies Curriculum at the Sixth Grade Level and Man: A Course of Study.

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Ashland, Oregon

November 20, 1972



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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
National Center for Educational Research and Development

## ABSTRACT

The purpose of this study was to compare the effects of the traditional sixth grade social studies curriculum for Oregon pupils with that of Man: A Course of Study. Students were pre- and post-tested.

Data were analyzed statistically by use of the F test on equality of variance and t-tests for pooled variance and distinct variances to test two hypotheses stated in the null form:
Hypothesis I: As measured by the Torrance Tests of Creative Thinking, sixth grade students using a traditional social studies curriculum of Latin America will not differ significantly in creativity from those students using the social studies curriculum: Man: A Course of Study.
Hypothesis II: Sixth grade students using a traditional social studies curriculum of Latin America will not differ significantly in the achievement of social studies skills as measured by the "Sequential Tests of Education Progress (STEP): Social Studies" from those students using the social studies curriculum Man: A Course of Study.

No significance at the .10 level was found when the t-test for distinct variances was applied, thus verifying the null hypotheses.

A pattern, however, emerged from the data that indicated the Man materials may produce greater verbal creativity. Further research with greater control of variables would be necessary to determine this possibility.

Final Report

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# A Comparative Study of the Effects of a Traditional Social Studies Curriculum at the Sixth Grade Level and Man: A Course of Study.

November 20, 1972

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

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National Center for Educational Research and Development
(Regional Research Program)

# Chapter I

## Introduction

The purpose of this study was to compare the effects of the traditional sixth grade social studies curriculum for Oregon pupils with that of Man: A Course of Study, a new approach to the teaching of social studies.

The traditional curriculum deals with the study of Latin America. It is basically geography-history oriented and generally presented from a deductive approach. A textbook or series of textbooks supplemented with films, filmstrips, realia, and resource people serve as the sources for information.

Man: A Course of Study is an anthropologically based, interdisciplinary social studies program. Facts, concepts, generalizations, attitudes, skills, and thinking processes are learned through a multi-media approach. A number of booklets devoted to specific topics, field notes, first hand observations, simulation games, narrated and unnarrated films, filmstrips, records, photomurals, as well as library reference materials are utilized. An inductive approach leads pupils to formulate concepts and generalizations.

The research reported herein was undertaken for several reasons. The principal reason was the belief that a change in social studies curriculum should be made on the basis that the new adoption will be an improvement over the curriculum formerly taught. To be an improvement, the new curriculum must result in the acquisition of those social studies knowledges, skills, attitudes, and cognitive processes deemed important by the school personnel involved to a greater degree than the curriculum presently in use. As social studies textbooks will be adopted by the Oregon State Textbook Commission during 1972 and districts will make their selections during the 1972-73 academic year, it seemed an opportune time to investigate social studies curriculum.

A second reason for the study was the rather unique position of Lincoln School, where this study was conducted. Lincoln School is a public school in the Ashland school district. It also serves as the laboratory school for Southern Oregon College. Thus, members of the Lincoln School faculty are also members of both the public school faculty and the college faculty. As members of the college faculty, they are involved in developing curriculum for teacher education. The findings of the study will be of some significance to the teaching of Ed. 358 Methods and Materials: Social Science, Science and Health and Ed. 535 Social Studies in the Elementary school.

The study was designed to test two null hypotheses:

Hypothesis I stated: As measured by the "Torrance Tests of Creative Thinking," sixth grade students using a traditional social studies curriculum of Latin America will not differ significantly in creativity from those students using the social studies curriculum Man: A Course of Study.

Hypothesis II stated: Sixth grade students using a traditional social studies curriculum of Latin America will not differ significantly in the achievement of social studies skills as measured by the "Sequential Tests of Educational Progress (STEP): Social Studies" from those students using the social studies curriculum Man: A Course of Study.

Limitations of the research should be noted. The number of students involved was small due to class size. The control group consisted of nineteen students, the experimental group of twenty students. Class sizes for the two groups were initially smaller than usual for Lincoln School. As the study was based on pre- and post-testing only those students who were enrolled for the entire 1971-72 school year could be included. The normal movement of students in and out of a school district resulted in the loss of some students who were administered the pre-tests.

The uniqueness of Lincoln School serving as a laboratory school can be considered a limitation. Because all Southern

Oregon College first quarter elementary student teachers take their training at Lincoln School, each classroom is assigned student teachers. The number of student teachers in the two rooms involved in the study was the same each quarter. From three to six student teachers were assigned each quarter to the control and experimental classrooms.

A third limitation of the study was the teacher variable. The control group was taught by Charles Lockridge, the experimental group by Rose Marie Davis. In the opinion of local school district administrators and education department personnel, no significant difference exists in the performance of the two teachers. Nevertheless, they are two different people and as such bring their own individuality into the classroom. The effects of teacher individuality were minimized to a considerable extent by exchanging students for reading classes and wherever possible working as a sixth grade, rather than as two separate sixth grade rooms. The small enrollment in the two classes made it possible to combine the two classes for many activities. In addition, the teacher of the experimental group adhered to the program designated in the teacher's manuals for Man: A Course of Study in order to test the curriculum rather than the teacher.

## Chapter II
## Procedures

Sixth grade students at Lincoln School were administered the "Sequential Tests of Educational Progress (STEP): Social Studies 4-6" form A, September 7, 1971, the first day of the 1971-1972 school year. On the basis of the achievement scores on the STEP test, pupils were divided into two groups with a mean of 430.09 for the control group and a mean of 430.14 for the experimental. The control group contained twelve boys and ten girls. The experimental group contained eleven boys and ten girls. The two groups were formed as equally as available date would allow. Therefore, ability levels within the two groups ran from one extreme to the other.

Following the formation of the control and experimental groups, each pupil was administered the "Torrance Tests of Creative Thinking: Thinking Creatively with Words" form A and "Thinking Creatively with Pictures" form A.

Throughout the school year, the control group used a traditional social studies curriculum for Oregon sixth graders. The content was Latin America. The experimental group used Man: A Course of Study.

During the week of June 5, 1972, all students in the control and experimental classrooms were administered form 4B of the STEP tests and forms B of the two Torrance tests. Through normal attrition twelve boys and seven girls of the original control group were still in attendance. Eleven boys and nine girls of the experimental group remained.

To insure reliability of the scoring of the creativity tests, they were sent to Personnel Press Scoring Service for scoring. Scoring of the STEP tests was done by teachers of the control and experimental groups and John L. Holmes, principal of Lincoln School, with the key provided by the publishers.

Statistical analysis of the scores obtained on the pre- and post-tests was done by John Finch in the Department of Economics Southern Oregon College.

Data for pre- and post-tests were first analyzed by application of the F statistic to determine equality of variance. The t test was then applied to test for significance of mean differences for pooled variances and for distinct variances. The conversion scores were used in analysis of the STEP tests and raw scores for the creativity tests. Because some of the standard deviations on the creativity tests were extraordinarily high, the T scores for the creativity tests were subjected to the same rigorous statistical analysis of the F test on equality of variances and the t test to determine significance for pooled variances and for distinct variance.

## Chapter III

## Results

As shown in Table I, page 7, the mean score for the STEP test, form A for the nineteen control students who remained throughout the academic year was 433.47. The experimental group mean for the pre-test was 430.70. Post-test results yield a mean of 438.05 for the control group and 435.40 for the experimental group. The mean differences of 4.58 for the control group and 4.70 for the experimental group were significant at the .05 level when tested for equality of variances by application of the F test. However, when the t test was applied no significant difference was found.

Results for the creativity tests yielded such high standard deviations on some of the tests and such contrasting differences, between the verbal and figural tests as shown in Table II, page 8, that E. Paul Torrance, author of the tests was consulted. Torrance recommended that the statistical analysis be recomputed using T scores. This was done with the results shown in Table III, page 9.

The creativity pre-tests revealed that the experimental group was about average on national norms. The control group was above average on national norms on the verbal tests.

The pre-test mean for verbal fluency was 82.95 for the control group, 64.85 for the experimental. The high standard deviation, 43.6, for the control group compared to a standard deviation of 21.7 for the experimental group. On the post-test for verbal fluency, the control group mean was 99.58, a mean difference of 16.6 from the pre-test. The standard deviation decreased to 39.5. The mean for the experimental group on the post-test for verbal fluency was 104.55, a mean difference of 39.7. Standard deviation had increased to 35.9. Application of the F test on equality of variance and the t test for pooled variance resulted in significance at the .05 level for the experimental group. However, when subjected to the t test for distinct variances, no significance was found.

TABLE I

Sequential Tests of Educational Progress (STEP)
Social Studies 4-6

| | Control Group | | | Experimental Group | | |
|---|---|---|---|---|---|---|
| | Pre-test | Post-Test | Diff. | Pre-Test | Post-test | Diff. |
| SS | 433.47 | 438.05 | 4.58 | 430.70 | 435.40 | 4.70 |
| SD | 11.2 | 10.8 | 5.4 | 11.1 | 9.0 | 9.2 |

TABLE II

Torrance Tests of Creativity

Raw Scores

| | Control Group | | | Experimental Group | | |
|---|---|---|---|---|---|---|
| | Pre-test | Post-test | Diff. | Pre-test | Post-test | Diff. |
| Verbal Fluency: | | | | | | |
| Score | 82.95 | 99.58 | 16.63 | 64.85 | 104.55 | 39.7[1] |
| S.D. | 43.59 | 39.53 | 41.81 | 21.73 | 35.92 | 26.89 |
| Verbal Flexibility | | | | | | |
| Score | 34.32 | 41.53 | 7.21 | 31.55 | 41.70 | 10.15 |
| S.D. | 11.86 | 10.83 | 11.09 | 8.44 | 10.22 | 6.95 |
| Verbal Originality | | | | | | |
| Score | 53.21 | 72.74 | 19.53 | 39.95 | 75.70 | 35.75 |
| S.D. | 39.99 | 29.07 | 39.32 | 20.91 | 30.76 | 30.05 |
| Figural Fluency | | | | | | |
| Score | 18.89 | 16.68 | -2.21 | 22.60 | 20.85 | -1.75 |
| S.D. | 4.99 | 6.06 | 6.90 | 6.95 | 6.72 | 8.22 |
| Figural Flexibility | | | | | | |
| Score | 14.79 | 13.47 | -1.32 | 16.50 | 15.75 | -0.75 |
| S.D. | 3.75 | 4.64 | 4.69 | 4.19 | 4.24 | 4.14 |
| Figural Originality | | | | | | |
| Score | 29.95 | 38.00 | 8.05[2] | 34.00 | 35.55 | 1.55 |
| S.D. | 9. | 11.89 | 13.05 | 11.23 | 10.78 | 10.4 |
| Figural Elaboration | | | | | | |
| Score | 85.11 | 95.16 | 10.05 | 89.60 | 107.90 | 18.30 |
| S.D. | 23.71 | 31.19 | 19.88 | 40.03 | 62.72 | 56.62 |

[1] significant at the .05 level for pooled variance

[2] significant at the .10 level for pooled variance

TABLE III

Torrance Tests of Creativity

T-Scores

| | Control Group | | | Experimental Group | | |
|---|---|---|---|---|---|---|
| | Pre-test | Post-test | Diff. | Pre-test | Post-test | Diff. |
| Verbal Fluency | 50.21 | 57.00 | 6.79 | 45.35 | 57.15 | 11.80 |
| Verbal Flexibility | 58.32 | 63.95 | 5.63 | 55.10 | 61.75 | 6.65 |
| Verbal Originality | 57.42 | 67.84 | 10.42 | 51.15 | 66.35 | 15.20 |
| Figural Fluency | 43.42 | 39.47 | -3.95 | 48.55 | 44.40 | -4.15 |
| Figural Flexibility | 47.37 | 41.63 | -5.74 | 50.35 | 46.45 | -3.90 |
| Figural Originality | 55.47 | 78.89 | 23.42 | 59.05 | 74.50 | 15.45 |
| Figural Elaboration | 61.84 | 60.79 | -1.05 | 63.25 | 62.15 | -1.10 |

Differences in the control group and experimental group were less marked on the verbal flexibility tests. The differences were significant at the .05 level when tested by the F statistic. No significant difference was found when the t test was applied.

No significance between the groups existed on tests for verbal originality, figural fluency, or figural flexibility.

The control group growth in figural originality was significant at the .10 level when results were subjected to the F test and the t test for pooled variance. No significant difference existed when the t test for distinct variances was applied.

The difference in the means for the two groups on the figural elaboration tests was significant at the .01 level when the F test on equality of variances was used. Application of the t test revealed no significant differences.

Use of T scores when statistically analyzing the creativity tests showed significant differences existed between the groups on the tests of verbal originality, figural originality and figural elaboration. Direction of the significance could not be ascertained as no significant differences were found when the t test was applied.

## Chapter IV

## Conclusions

Despite the apparent growth of both groups, particularly on the tests of verbal creativity, the null hypotheses must be accepted, namely, that sixth grade students using a traditional social studies curriculum will not differ significantly from those students using Man: A Course of Study on either the "Torrance Tests of Creative Thinking" or the "Sequential Tests of Educational Progress (STEP): Social Studies, forms 4A and 4B."

That the experimental group's gain on verbal fluency was more than twice as great as that of the control group and yet was not significant may be attributed to the large variance within the groups, the small sample size, and the lack of control of other variables such as intelligence and family background.

Pre- and post-test scores on the tests for figural fluency and figural flexibility would appear to indicate an apparent regression for both the control and experimental groups with the control group regressing slightly more than the experimental group. Torrance explained the phenomenon in this manner:

> ...The figural fluency and flexibility scores are not particularly meaningful and have meaning only in relation to other scores....We have even considered the possibility of not scoring for figural fluency and flexibility. We feel, however, that these scores do give additional information; however, one may not expect gains when subjects are undergoing experiences designed to enhance their creativity. For example, a child may combine all of the circles into a single object. While this is indicative of a high level of originality in most cases, such a performance would yield a score of only 1 on fluency and 1 on flexibility.[1]

Certainly a trend appears to exist on the verbal creativity tests. On all verbal tests, the experimental group made greater

[1] Quoted from a letter dated November 7, 1972 to the writers from E. Paul Torrance. The letter is reproduced in its entirety in the appendix.

gain than did the control group. The standard deviation within the experimental group increased on the verbal tests, while it decreased for the control group.

What effect do "open" questions such as "What things do you imagine people everywhere would think were important?" and "How do you explain the differences between what you think is important and what people in other parts of the country or world think is important?"[1] have on the verbal creativity of students in comparison to the "What are the principal products of Argentina?" recall type of questions frequently used in a traditional social studies curriculum? The failure of the study to show consistent significant growth on the part of either the control group or the experimental group leaves one in doubt as to whether any one curriculum facilitates creativity or the ability to interpret facts to develop generalizations, to identify values, and to distinguish fact from opinion.

[1]Page 14, Introductory Lessons: Salmon from Man: A Course of Study

## Chapter V

## Recommendations

The inconclusiveness of the data derived from this study may be attributed to several factors. Among these factors are: (1) the small sample of students, (2) the failure to isolate variables which may affect creativity, (3) the lack of a detailed curriculum guide for the traditional social studies program, (4) the composition of the control and experimental groups, and (5) the teacher variable.

The study needs to be replicated with closer control over the above mentioned variables. The population can be increased by including sixth grade students from other schools or extending the study over a period of several years. The question of whether laboratory school pupils are representative of the population as a whole could be controlled by including pupils from other schools in the district or region. Inclusion of other schools would also tend to alleviate the teacher variable caused by the number of teachers which laboratory school children encounter daily. Factors which affect creativity need to be ascertained and provided for within the design of the study.

On the basis of the findings of this study, the writers cannot recommend that the Ashland School District adopt Man: A Course of Study in lieu of the traditional Latin American curriculum for grade six unless criteria for the social studies curriculum is modified or further research indicates that the trends shown in this study are significant.

APPENDIX

Georgia Studies of Creative Behavior
185 RIVERHILL DRIVE
ATHENS, GEORGIA 30601

November 7, 1972

Ms. Rose Marie Davis
Southern Oregon College
Ashland, Oregon 97520

Dear Ms. Davis:

On page 74 of the Norms-Technical Manual of the TTCT, I have cautioned that the figural fluency and flexibility scores are not particularly meaningful and have meaning only in relation to other scores. In the revised manual I have tried to be quite emphatic about this. We have even considered the possibility of not scoring for figural fluency and flexibility. We feel, however, that these scores do give additional information; however, one may not expect gains when subjects are undergoing experiences designed to enhance their creativity. For example, a child may combine all of the circles into a single object. While this is indicative of a high level of originality in most cases, such a performance would yield a score of only 1 on fluency and 1 on flexibility.

Your results are most interesting. You did get enormous growth in both the experimental and control groups and you are probably not justified in expecting more. Something out of the ordinary was happening in the control group as well as in the experimental group. Such growth certainly does not ordinarily occur in the sixth grade anywhere in the United States. At the beginning, your experimental group was about average on national norms but your controls were above average on national norms on the verbal tests.

Some of your standard deviations are extraordinarily high, suggesting that your subjects were quite variable in their performances. Your statistics may be completely accurate. As a safeguard, I would recommend the following procedure:

1. Use T-scores instead of raw scores. Without this the forms are not exactly equivalent. They were made equivalent by giving all four forms of the test the same subjects and working with T-scores or standard scores. The scores reported in your results are raw scores, <u>not</u> scaled scores.

2. Recompute all statistics using the T-scores.

From the means that you have reported, your verbal scores should certainly yield statistically significant differences in favor of your experimental group. You have some enormous differences.

I suspect that your treatment was primarily verbal in nature. If this is true, there was no reason to expect growth in the figural tests.

I shall be most interested in your final outcomes.

Sincerely,

E. Paul Torrance

E. Paul Torrance