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ABSTRACT

The work is the report of a study concerning the impact of the inquiry method of teaching on affective as opposed to cognitive achievements. Subjects were 10th grade students given a reading assignment in Asian studies. Control and experimental groups were asked to respond to questions about the material read. Attitude gains were computed for both groups by a scale developed during a pilot study run prior to the study. The investigator found that attitude shifts were made as the result of the inquiry method as distinct from the more traditional expository method. Level of intelligence and attitude toward the program were not considered to have influenced the findings. (CWB)

Abstract of Paper

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A STUDY OF AFFECTIVE RESPONSES TO SELECTED ATTITUDE OBJECTS ENCOUNTERED IN SYNTHESIS AND NON-SYNTHESIS TASK ORIENTED SOCIAL STUDIES PROGRAMS

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Purpose of Study

Advocates of contemporary social studies inquiry programs, materials, or associated instructional strategies claim that the performance of inquiry tasks assists not only in the realization of cognitive objectives but also in the realization of affective objectives. Increasingly, statements are offered to the classroom teacher tacitly or overtly claiming that certain attitudes and values are more easily acquired, more readily changed, or more deeply internalized through the process of inquiry instruction than through "traditional," "didactic," or "expository" methods of social studies instruction. (Berlyne, 1965), (Bruner, 1966), Massialas and Cox, 1966), (Oliver and Shaver, 1966), (Raths, Harmin, and Simon, 1966), (Brown, 1967), (Crabtree, 1967), (Fenton, 1967), (Taba, 1967), (McKeown, 1969).

The general purpose of this study was to investigate and experimentally to determine whether or not certain aspects of the claims related to the affective impact of inquiry oriented social studies programs are to a certain degree justified.

The specific purpose of this investigation was primarily to compare the affective impact of an inquiry oriented social studies program stressing the performance of synthesis tasks with the affective impact of an expository oriented social studies program stressing the performance of non-synthesis tasks. Although the study embraced a relatively broad spectrum of cognitive and affective elements, its

experimental focus was by necessity restricted to a relatively narrow facet of the exceedingly complex inter-relationships between instructional methodologies and the affective responses to the information encountered.

Procedures

A pilot study group was required to read a 320 page Asian studies program composed of four major topics. Discussion related to the program information was discouraged while the classroom reading assignments were completed. No questions were included in the program. The pilot study subjects were required to respond to fifteen point bi-polar Likert-type attitude scales related to the objects considered in the social studies program before and after their experimental program experience. Statistically significant ($p < .01$) attitudinal shifts were recorded on 32 of the scales according to the pre and post measurement responses.

Two experimental treatment groups from a pool of students with a mean C.A. of 15.6 years and a mean verbal I.Q. percentile score of 75.3 were formed by randomly assigning 118 tenth grade subjects to a synthesis treatment group and 118 tenth grade subjects to a non-synthesis treatment group. Eight social studies classes composed of approximately 15 subjects from each of the two groups were utilized. During 27 class periods the synthesis group was required to read the same 320 page Asian studies program now incorporating a series of tasks to be performed and to write answers to 54 related

synthesis level questions, 8 of which were required to be answered in class examinations. During the same 27 class periods the non-synthesis group was required to read the identical 320 page social studies program and to write answers to 313 related non-synthesis questions, 110 of which were required to be answered in class examinations. Eighteen hours were required by the students of both groups to answer the program questions; the number of questions having been determined by the results of a previous pilot study. Synthesis questions were designated as those questions defined as "Synthesis" and "Evaluative" level questions in the Taxonomy of Educational Objectives (Bloom, 1956). Non-synthesis questions were designated as those questions defined as "Knowledge" and "Comprehension" in the Taxonomy.

Attitude gains were computed for both experimental treatment groups from the pre and post program scores on a measurement instrument composed of the 32 attitude scales having registered significant attitudinal shifts during the pilot study. The attitude mean gains of the synthesis group were compared to the attitude mean gains of the non-synthesis group. Several further comparisons based on I.Q. level, performance on cognitive post tests, and enjoyment of the program were made. In every case a multivariate statistic known as the Hotelling T^2 was utilized to test the hypothesis of equal mean vectors.

Major Results

1. It was found that the difference between the attitude gains of the synthesis and non-synthesis groups was statistically significant ($p < .01$). Refer to Table 1 and Table 2.

2. It was found that the synthesis group experienced a greater attitude gain than the non-synthesis group that was statistically significant ($p < .01$). Refer to Table 1.

3. It was found that the differential attitude gains of the synthesis and non-synthesis groups occurred regardless of the intelligence level of the subjects or the degree of program enjoyment expressed by the subjects ($p < .05$).

4. It was found that the subjects who performed the synthesis and non-synthesis tasks least effectively did not demonstrate a differential attitude gain that was statistically significant.

5. It was found that the synthesis group expressed statistically significantly ($p < .05$) less "enjoyment" for the synthesis program than the non-synthesis group expressed for the non-synthesis program.

Major Conclusions and Implications

1. The results of the investigation may indicate that inquiry oriented social studies programs (if equated with synthesis programs as defined in this study) may affect attitude and value formation and change significantly more than expository oriented social studies programs (if equated with non-synthesis programs).

2. The results of the investigation may indicate that level of intelligence and the degree of program enjoyment may not significantly influence attitudinal or value formation and change directly related to the information presented in a synthesis or inquiry program.

3. The results of the investigation may indicate that inquiry oriented social studies programs patterned after the synthesis program experimentally employed, stressing divergent, evaluative, problem solving, and synthesis style questions may not be "enjoyed" by traditionally educated high school students as well as expository social studies programs stressing convergent, non-evaluative, recall and recognition, retrieval style questions.

TABLE 1

Synthesis and Non-Synthesis Treatment Groups' 'Mean Gain Differences on the Attitude Measurement Scales

Scale No.	Syn Mean Gains	Non-Syn Mean Gains	Diff. Between Syn, Non-Syn Mean Gains	S.E. Diff. Between Syn, Non-Syn Mean Gains
		Instrument I (Japan)		
1.	1.949	1.000	0.949	0.426
2.	0.602	-0.297	0.898	0.364
3.	2.068	0.848	1.220	0.439
4.	0.602	0.161	0.441	0.448
5.	1.602	0.729	0.873	0.446
6.	0.890	0.610	0.280	0.578
7.	2.475	1.390	1.085	0.430
8.	2.966	1.542	1.424	0.466
9.	2.466	1.949	0.517	0.440
10.	2.381	1.364	1.017	0.422
		Instrument II (India)		
1.	2.119	1.187	0.932	0.447
2.	1.475	0.839	0.636	0.458
3.	2.653	2.500	0.153	0.426
4.	1.322	0.458	0.864	0.440
5.	1.542	0.975	0.568	0.366
6.	0.009	0.848	0.839	0.417
7.	0.729	-0.924	1.653	0.469

(Table continued on next page)

TABLE 1--Continued

Synthesis and Non-Synthesis Treatment Groups' Mean Gain Differences on the Attitude Measurement Scales

Scale No.	Syn Mean Gains	Non-Syn Mean Gains	Diff. Between Syn, Non-Syn Mean Gains	S.E. Diff. Between Syn, Non-Syn Mean Gains
Instrument III (China)				
1.	0.246	-0.958	1.203	0.565
2.	0.737	0.042	0.695	0.533
3.	1.151	0.788	0.373	0.344
4.	1.449	0.687	0.763	0.507
5.	1.314	1.415	0.102	0.425
6.	1.110	1.076	0.034	0.419
7.	1.102	0.720	0.381	0.446
8.	0.627	0.737	0.110	0.468
Instrument IV (Asian Women)				
1.	3.212	1.797	1.415	0.495
2.	1.356	0.085	1.347	0.466
3.	1.602	1.305	0.297	0.527
4.	0.525	-0.170	0.695	0.481
5.	-1.068	0.254	1.322	0.522
6.	0.890	0.237	0.653	0.475
7.	0.966	0.212	0.754	0.434

TABLE 2

Significance of Difference Between Attitude Gains of Synthesis and Non-Synthesis Subjects According to Multivariate and Univariate F Statistics

Multivariate Test of Equality of Mean Vectors

d.f. = 4 and 231 F Ratio = 6.888 $p < .0001$

Univariate Tests

Measure	M S	Univariate F^*	p Less Than
Instr. 1 (Japan)	4322.458	12.751	.0005
Instr. 2 (India)	1597.441	10.534	.0014
Instr. 3 (China)	618.322	2.092	.1494
Instr. 4 (Asian Women)	1913.492	11.196	.0010

*$F_{.05}$ (1,234) = 3.84 (critical value of univariate tests)

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