

# Cognitive Objectives in "Process-Oriented" and "Content-Oriented" Secondary Social Studies Programs<sup>1</sup>

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ONE of the major goals of education in general and of the social studies in particular is the development of habits of thoughtful inquiry and sound decision making in students. Attention in the social studies has long been directed toward instructional efforts to develop students' critical thinking abilities. Especially in recent years, many of these efforts have focused on discovery procedures in student-centered learning situations or "process-oriented" programs (Berman, 1968; Fair and Shaftel, 1967). In contrast to conventional or "content-oriented" programs which, traditionally, have tended to emphasize the acquisition of knowledge, learning how to use reliable knowledge effectively is a primary instructional goal for students in process-oriented social studies programs (Hunt and Metcalf, 1968; Fenton, 1966; Massialas and Cox, 1966).

Success in achieving instructional goals, however, is in part dependent on (a) effective communication of goals to the students and (b) substantive acceptance of goals by the students (Getzels and Thelen, 1960; Snygg, 1966). One recent study of content- and process-oriented secondary social studies

programs (Watson, Marshall, and Sokol, 1971) revealed that teachers and students in a process-oriented program agreed upon the general expectation of "teacher-directed problem solving, allowing for student participation and decision making." Both students and teachers in the content-oriented program tended to perceive the teacher as exclusive decision maker with noncritical acceptance by students. Attention to the accumulation and utilization of facts was present in both programs, but in the process-oriented program the emphasis seemed to be upon the utilization of facts for problem solving and decision making. Recall of teacher-determined content was perceived by both teachers and students as an important factor in the content-oriented program.

Results in this study indicate that the general orientation for students and for teachers in these two programs was consistent: teacher-centered recall versus student-centered participation in problem solving and decision making. Furthermore, these findings suggest that instructional strategies in the two programs would be somewhat different. One such strategy, long viewed by teachers as one of the most important tools

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for developing knowledge and skills in thinking in students, is in the area of questions and questioning. Previous studies have focused on goal achievements in conventional and innovative social studies programs (Massialas, 1963), but more information is needed concerning the range of cognitive objectives revealed by classroom questions in programs perceived by both students and teachers as having different goal expectations.

This study, then, was designed to determine the cognitive nature of teacher-pupil questions in class discussions in content-oriented and process-oriented secondary social studies programs.

## Procedures

The subjects for this study were drawn from the previously described social studies programs identified through the study reported by Watson, Marshall, and Sokol (1971) as being either content-oriented or process-oriented. The criteria for categorization of these programs were: (a) stated objectives, (b) curriculum organization, and (c) perceived expectations of teachers and students. Although these differences were identified for school programs, these school districts were highly similar according to (a) comparative size and financial bases of the school and community, (b) quantitative educational effort, and (c) experience and stability of the teaching faculty (Sokol and Marshall, 1968; Watson, 1969).

Subjects were five classes from the process-oriented program and five from the content-oriented program. Five one-hour class periods of discussion in each of the two programs were audio-taped. Classroom questions were classified according to the Teacher-Pupil Question Inventory (TPQI) (Davis and Tinsley, 1968). Of the TPQI categories, seven were based on the Bloom *Taxonomy* and the formulations of Sanders (1966); two were noncognitive. The categories were: memory, translation, interpretation, application, analysis, synthesis, evaluation, affectivity, and procedure.

Twenty individuals were trained for 20 hours over a period of five weeks to code the questions. Teacher-pupil questions from each tape were classified by two independent raters from the group. The tapes were randomly assigned to the raters. Each rater classified the questions on one tape. In order to maximize the reliability of the classifications, combined ratings from the two raters on each tape were averaged to obtain composite sets of question classifications.

The rater reliability was determined by calculating the correlation coefficient between the two sets of question classifications for each tape. Using Fisher *z* transformations of the correlation coefficients, the expected rater reliability coefficient was .976, and the 95 percent confidence interval was .923 to .992. As indicated by these statistics, the raters were highly consistent on their classifications of the questions from the tapes.

## Results

The data were analyzed using a mixed model analysis of variance design. Three factors were established: programs, question categories, and participants (that is, teachers and students). The latter two factors consisted of repeated measures within each classroom. The .05 level of significance was used for all statistical tests. The results of the analysis of variance are presented in Figure 1. Corresponding means are presented in Figure 2.

| Source of Variance                                           | SS       | df | MS       | F        |
|--------------------------------------------------------------|----------|----|----------|----------|
| Programs                                                     | 4.0500   | 1  | 4.0500   | —        |
| Classes within programs                                      | 77.1775  | 8  | 9.6470   |          |
| Question categories                                          | 665.2750 | 8  | 83.1593  | 5.4929*  |
| Question categories x programs                               | 124.2750 | 8  | 15.5343  | 1.0260   |
| Question categories x classes within programs                | 968.9225 | 64 | 15.1394  |          |
| Participants                                                 | 344.4500 | 1  | 344.4500 | 22.1927* |
| Participants x programs                                      | 0.3555   | 1  | 0.3555   | —        |
| Participants x classes within programs                       | 124.1670 | 8  | 15.5208  |          |
| Participants x question categories                           | 100.8750 | 8  | 12.6093  | 1.3908   |
| Participants x question categories x programs                | 28.9195  | 8  | 3.6149   | —        |
| Participants x question categories x classes within programs | 580.2330 | 64 | 9.0661   |          |

\* Significant at the .01 level.

Figure 1. Analysis of Variance Summary Table

| Program                                   | Participants | Levels of Questions |                    |                       |                    |                 |                  |                   |                    |                  |       | Total Mean |      |      |       |      |      |      |       |       |
|-------------------------------------------|--------------|---------------------|--------------------|-----------------------|--------------------|-----------------|------------------|-------------------|--------------------|------------------|-------|------------|------|------|-------|------|------|------|-------|-------|
|                                           |              | Memory<br>M %       | Translation<br>M % | Interpretation<br>M % | Application<br>M % | Analysis<br>M % | Synthesis<br>M % | Evaluation<br>M % | Affectivity<br>M % | Procedure<br>M % |       |            |      |      |       |      |      |      |       |       |
| Process-oriented<br>(No. Class-rooms = 5) | Teachers     | 7.00                | 20.23              | 3.30                  | 9.54               | 5.90            | 17.05            | 1.30              | 3.76               | 4.90             | 14.16 | 2.00       | 5.78 | 4.40 | 12.72 | 1.30 | 3.76 | 4.50 | 13.00 | 34.60 |
|                                           | Students     | 2.70                | 30.33              | 0.50                  | 5.62               | 2.00            | 22.47            | 0.00              | 0.00               | 1.30             | 14.61 | 0.00       | 0.00 | 1.30 | 14.61 | 0.80 | 8.99 | 0.30 | 3.37  | 8.90  |
|                                           | Total        | 9.70                | 22.30              | 3.80                  | 8.74               | 7.90            | 18.16            | 1.30              | 2.99               | 6.20             | 14.25 | 2.00       | 4.60 | 5.70 | 13.10 | 2.10 | 4.83 | 4.80 | 11.03 | 43.50 |
| Content-oriented<br>(No. Class-rooms = 5) | Teachers     | 12.00               | 32.88              | 1.10                  | 3.01               | 8.50            | 23.29            | 1.50              | 4.11               | 2.80             | 7.67  | 0.20       | 0.55 | 3.20 | 8.77  | 2.70 | 7.40 | 4.50 | 12.33 | 36.50 |
|                                           | Students     | 4.80                | 38.71              | 0.30                  | 2.42               | 3.70            | 29.84            | 0.00              | 0.00               | 0.00             | 0.00  | 0.00       | 0.00 | 0.10 | 0.81  | 1.00 | 8.06 | 2.50 | 20.16 | 12.40 |
|                                           | Total        | 16.80               | 34.35              | 1.40                  | 2.86               | 12.20           | 24.95            | 1.50              | 3.07               | 2.80             | 5.73  | 0.20       | 0.41 | 3.30 | 6.75  | 3.70 | 7.57 | 7.00 | 14.31 | 48.90 |
| Total*                                    | Teachers     | 9.50                | 26.72              | 2.20                  | 6.19               | 7.20            | 20.25            | 1.40              | 3.94               | 3.85             | 10.83 | 1.10       | 3.09 | 3.80 | 10.69 | 2.00 | 5.63 | 4.50 | 12.66 | 35.55 |
|                                           | Students     | 3.75                | 35.21              | 0.40                  | 3.76               | 2.85            | 26.76            | 0.00              | 0.00               | 0.65             | 6.10  | 0.00       | 0.00 | 0.70 | 6.57  | 0.90 | 8.45 | 1.40 | 13.14 | 10.65 |
| Overall**                                 |              | 13.25               | 28.68              | 2.60                  | 5.63               | 10.05           | 21.75            | 1.40              | 3.03               | 4.50             | 9.74  | 1.10       | 2.38 | 4.50 | 9.74  | 2.90 | 6.28 | 5.90 | 12.77 | 46.20 |

\* Significantly more questions were asked by the teachers than by the students; means significantly different at .01 level,  $F = 22.19$ ,  $df = 18$ .

\*\* Using Duncan's New Multiple Range Test, the following mean differences were significant ( $\alpha = .05$ ): more memory questions than any other type; except for memory, more interpretation questions than any other type; and more procedure questions than either application or synthesis questions. SE = 1.20 and  $df = 64$ .

\* Significantly more questions were asked by the teachers than by the students; means significantly different at .01 level,  $F = 22.19$ ,  $df = 1,8$ .  
 \*\* Using Duncan's New Multiple Range Test, the following mean differences were significant ( $\alpha = .05$ ): more memory questions than any other type; except for memory, more interpretation questions than any other type; and more procedure questions than either application or synthesis questions.  $SE = 1.20$  and  $df = 64$ .

Figure 2. Means and Percentages of Questions Asked by Category

No significant difference was found between programs. The mean number of questions asked per class in the process-oriented and content-oriented programs were 43.50 and 48.90 respectively. The overall mean number of questions asked per class was 46.20.

None of the interactions between programs, question categories, or participants was significant. These results indicate that the general pattern of questions asked by teachers and students was the same. This pattern did not differ between programs.

Significant differences were found among the mean number of questions asked in the various categories. Duncan's New Multiple Range Test was used to make paired comparisons following the significant analysis of variance (see Figure 2). Significantly more memory questions (28.68%) were asked than questions in any other category, followed by interpretation questions (21.75%). More procedure questions (12.77%) were asked than either application (3.03%) or synthesis (2.38%). No other significant differences were found. In rank order, the mean number of questions asked per class in each category was: memory, 13.25; interpretation, 10.05; procedure, 5.90; analysis, 4.50; evaluation, 4.50; affectivity, 2.90; translation, 2.60; application, 1.40; and synthesis, 1.10.

The difference between the mean number of questions asked by teachers and by students was significant. The respective means were 35.55 and 10.65, indicating that teachers asked about three questions for every one question asked by students.

## Discussion

Although the school systems in this study were similar in several ways, certain aspects of the two social studies programs can readily be identified as being different. For example, the content-oriented program utilizes one teacher with one textbook in each class; the primary mode of presentation is lecture and/or class discussion. The process-oriented program employs cooperative teaching, integrated social studies and literature,

and a special collection of material in lieu of one text. Besides class discussion, the program also provides a variety of class experiences, for example, role playing, large group instruction, small group projects. In addition, role perceptions of students and teachers indicate an emphasis on teacher-centered recall in the content-oriented program as opposed to student-centered participation in problem solving and decision making in the process-oriented program.

However, to the extent that class discussion is representative of the entire program, the dominant emphasis on memory and interpretation questions in this study suggests that the cognitive objectives of the two programs are remarkably similar. In both programs, questions by teachers and their students, which may be related (Davis and Tinsley, 1968), failed to emphasize higher thinking processes. Although process-oriented teachers and students perceived their pro-

gram as focusing on problem solving, certainly involving high level cognitive operations, only the lowest form of intellectual activity (Bloom, 1956) was incorporated as questioning behavior. It could be hypothesized that the greater the agreement between general program orientation and discrete factors within the program—for example, consistent use of higher cognitive levels in asking questions—the more effectively the social studies objectives of fostering critical thinking would be achieved. Thus it would seem that teachers need to understand, at operational levels, the role perceptions of students and teachers and the desirable cognitive demands of the course being taught. Possibly the results of this study suggest that more deliberate attention to closer agreement between these two aspects of the social studies program would result in more effective development of students' critical thinking abilities.

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