

Oral Questioning Practices of Teachers in Social Studies Classes

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"QUESTIONS have always been the stock-in-trade of teachers" (Sanders, 1966). The wide use of the question and answer form of class discussion provides questioning with an impact on instruction. The extensive use of questioning as a teaching strategy has caused it to be the focus of a number of recent investigations (Floyd, 1960; Aschner, 1961; Adams, 1964; Hudgins, 1968; Hunkins, 1968; Rodgers, 1968).

Several investigations involving verbal interaction in the classroom have produced evidence concerning the influence of teacher questions in three general areas of the instructional program: student thinking, the social-emotional climate of the classroom, and the mastery of subject matter information (Flanders, 1960; Aschner, 1961; Smith and Meux, 1962; Gallagher and Aschner, 1963; Taba and Elzy, 1964; Bellack, 1966). The growing body of evidence indicating the importance of teacher-questioning in instruction provides a need to identify those factors which influence the nature of such questioning.

The present study hypothesizes that organizational setting (elementary contrasted with secondary), with all that it represents in terms of teacher preparation, instructional program, and the length of a teacher's professional experience (two years or less contrasted with five years or more), may be factors which influence the number and cognitive levels of questions teachers ask. In an effort to describe what relationship exists between the factors mentioned above and teacher-questioning, the present study pro-

poses to describe and compare the questioning practices of elementary and secondary teachers with varying amounts of teaching experience.

Questions for which answers were sought in pursuing this investigation were:

1. What are the questioning practices of teachers during oral class discussion of social studies material?
 - a. What are the questioning practices of elementary teachers with two years or less of teaching experience (Elementary Group A) during oral class discussions of social studies material?
 - b. What are the questioning practices of elementary teachers with five or more years of teaching experience (Elementary Group B) during oral class discussions of social studies material?
 - c. What are the questioning practices of secondary social studies teachers with two years or less of teaching experience (Secondary Group A) during oral class discussions of social studies material?
 - d. What are the questioning practices of secondary social studies teachers with five or more years of teaching experience (Secondary Group B) during oral class discussions of social studies material?
2. Is there a difference between the questioning practices of elementary teachers and those of secondary teachers during the oral class discussion of social studies material?

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3. Is there a difference between teachers with two years or less of teaching experience (Group A) and teachers with five years or more of teaching experience (Group B) in regard to their questioning practices during oral class discussion of social studies material?

4. Does the difference between the oral questioning practices of elementary teachers and those of secondary teachers during class discussions of social studies material vary in regard to the length of teaching experience?

Procedures

Sample. A "purposive sampling" design (Mouly, 1963) was used to select the subjects of this study from the teaching staffs of four junior high schools and four elementary schools in a large metropolitan school district in a populous Southeastern state. A total of 32 teachers, divided equally into four groups, participated in the study.

"Elementary Group A" consisted of eight teachers who were currently teaching in grades four, five, or six. In addition, they shared the following characteristics: (a) held a state teaching certificate in elementary education; (b) graduated from an undergraduate program in elementary education; and (c) had two years or less of teaching experience in the elementary school and no experience teaching in secondary school. The teachers in this group were deployed across the three grade levels as follows: two in grade four and three each in grades five and six.

"Elementary Group B" consisted of eight teachers who were currently teaching grades four, five, or six. They shared the same certification and undergraduate teacher preparation characteristics as the "Elementary Group A" teachers. Each of the teachers in "Elementary Group B" had five years or more of elementary school teaching experience and no secondary school teaching experience. The teachers in this group were deployed across the three grade levels as follows: three in grade four, two in grade five, and three in grade six.

"Secondary Group A" consisted of eight teachers who were currently teaching social

studies in grades seven, eight, or nine. They shared the following characteristics: (a) held a state teaching certificate in secondary social studies; (b) graduated from an undergraduate program in secondary education with subject matter specialization in social studies; and (c) had two years or less of teaching experience in secondary social studies and no elementary school teaching experience. The teachers in this group were deployed across the three grade levels as follows: three in grade seven, four in grade eight, and one in grade nine.

"Secondary Group B" consisted of eight teachers who were currently teaching social studies in grades seven, eight, or nine. They shared the same certification and undergraduate preparation characteristics as the "Secondary Group A" teachers. Each of the teachers in "Secondary Group B" had five years or more of experience teaching social studies in secondary school and no experience teaching in elementary school. The teachers in this group were deployed across the three grade levels as follows: four in grade seven and two each in grades eight and nine.

Collection of Data. Data for this investigation were derived from audio-tape recordings of social studies class discussions directed by the participating teachers. Fifty minutes of taped material was obtained for each teacher. Such material was obtained during one or more taping sessions for each teacher.

Administrative personnel in each school supervised the production of tapes. Printed material entitled *Suggested Taping Procedures* was distributed to ensure that taping procedures would conform to the needs of the study. The following statement contained in the above material represents the instructions given to participants concerning the type of class activity to be taped: "The class activity taped should be one in which the teacher is directing a class discussion in social studies."

Each tape was analyzed in terms of the questions asked by the teacher. For this purpose an instrument was developed for classifying and noting sequencing of questions.

The system of question classification used in the instrument was developed by Norris Sanders (1966). Sanders (1966) states that his "taxonomy of questions" is an application of the ideas presented in the *Taxonomy of Educational Objectives*, edited by B. S. Bloom.

As the "taxonomy of questions" was not developed exclusively for an analysis of oral questioning, a pilot tape revealed that an instrument for analyzing oral questioning would need an additional category, "routine." The inclusion of the "routine" category in the instrument used in this investigation provided for the recording and classification of such questions as: "Will you repeat that?" "Does anyone know where the chalk is?" The eight cognitive categories included in the instrument were memory, translation, interpretation, application, analysis, synthesis, evaluation, and routine.

Each question asked was noted on the instrument in regard to its classification and order of occurrence. Questions which were repeated verbatim in response to a request for clarification or in the process of continuing discussion were noted only once. Such a procedure was needed, since the total number of questions asked is one of the major considerations of this study.

Each tape was analyzed independently by two observers. A comparison was made between the two reports of each tape. Where differences occurred, that portion of the tape was reviewed jointly by the two observers in an effort to identify explanations for the differences. Where consensus regarding the

disputed question could not be reached, a third qualified observer was secured to participate in a jury to review the tape and make a decision.

Statistical comparisons were made between varying combinations of the four teacher groups to determine the degree to which teacher-questioning practices in terms of the number of questions asked and the cognitive level of questions asked were related to the factors of organizational setting and length of teacher experience. The use of chi square made possible the determination of the degree of difference between groups in regard to the distribution of questions asked among the observational categories. Differences at the .05 level were considered to be significant.

To determine the degree of variability among the teachers within each group, a test of "difference in population proportions" using the Z statistic as described by Wyatt and Bridges (1967) was employed. For these statistical comparisons, the categories of "memory" and "interpretation" were used, as they accounted for the major portion of questions asked by every teacher. Differences at the .05 level were considered to be significant.

Findings

Four questions were posed concerning the relationship between teacher-questioning and organizational setting and length of teaching experience. Questioning practices of teachers were described in terms of the

	Category of Question								Total
	Memory	Translation	Interpretation	Appli-cation	Analysis	Synthesis	Evaluation	Routine	
Total number ^a of questions asked	423	41	118	2	0	13	7	20	624
Mean number ^b of questions asked	52.88	5.10	14.75	.25	0	1.63	.88	2.5	78
Percentage of the total number of questions asked	67.78	6.57	18.91	.32	0	2.08	1.12	3.20	99.98

^aBy the eight teachers during a total of 6.66 hours of class discussion.

^bBy an individual teacher during 50 minutes of class discussion.

Table 1. Analysis of Questions Asked by Elementary Group A
(Two or Less Years of Teaching Experience)

	Category of Question								
	Memory	Translation	Interpre- ta-tion	Appli- ca-tion	Analys-is	Synthe-sis	Evalu-a- tion	Routine	Total
Total number* of questions asked	393	32	135	2	0	5	6	14	587
Mean number** of questions asked	49.12	4	16.88	.25	0	.63	.75	1.75	73.38
Percentage of the total number of questions asked	66.95	5.45	22.99	.34	0	.85	1.02	2.38	99.98

*By the eight teachers during a total of 6.66 hours of class discussion.

**By an individual teacher during 50 minutes of class discussion.

Table 2. Analysis of Questions Asked by Elementary Group B
(Five or More Years of Teaching Experience)

number and cognitive level of questions asked.

Question 1. Question 1 asks for a description of the questioning practices of each of the teacher groups representing differences in organizational setting and length of teaching experience. Tables 1, 2, 3, and 4 describe the questioning practices of each of the four groups. Table 5 presents a compilation of the questions asked by all the participating teachers.

The questioning practices of the groups of teachers identified for this investigation differed in varying degrees in both the number and cognitive level of questions asked. Two statements concerning questioning practices hold true for all four groups. At least 54 percent of the questions asked by each of the four groups fell into the "memory" category. Second, those categories above "interpretation" were the most neglected. For example, no questions were asked in the "analysis" category.

All of the groups were characterized by some degree of variation among individuals in the number and distribution of questions asked as revealed by difference in proportion Z statistic. However, within each of the groups, one or more fairly tight patterns involving varying members of the group were identified. The less experienced secondary group appears to be the most internally consistent.

Question 2. Question 2 concerns the differences between the questioning practices of elementary teachers and the questioning

practices of secondary teachers. When compared without regard to experience, elementary teachers asked 33.66 percent more questions and were significantly different beyond the .001 level from secondary teachers in the distribution of questions among the cognitive level categories.

Among the less experienced teachers, the elementary teachers asked 59.18 percent more questions and were significantly different beyond the .001 level from secondary teachers in the distribution of questions among the cognitive level categories.

When the more experienced teacher groups were compared, the elementary teachers asked 14.2 percent more questions and were significantly different at the .001 level from secondary teachers in the distribution of questions among the cognitive level categories.

Among both the less and the more experienced teachers, the elementary teachers asked more questions in the memory and translation categories and fewer questions in the categories above interpretation than did the secondary teachers.

Question 3. Question 3 explores the relationship between teacher-questioning practices and the length of teaching experience. When the two elementary groups were compared, the less experienced elementary teachers asked 6.59 percent more questions than did the more experienced elementary teachers. There was no significant difference between the two elementary groups in the distribution of questions asked.

The more experienced secondary teachers asked 31.12 percent more questions than did the less experienced secondary teachers. In regard to the distribution of questions asked, the two secondary groups were significantly different.

Perhaps it should be noted at this point that comparisons of distribution of questions across organizational setting lines produced differences that were significant beyond the .001 level. The same comparisons made across experience group lines within the elementary and secondary settings produced no significant difference in the elementary group and a difference which was not significant beyond the .05 level in the secondary group.

Question 4. Question 4 asks if the differences between elementary and secondary teachers vary with a shift in the length of teaching experience. The differences between the less experienced elementary and secondary groups are represented by the elementary group's asking 59.18 percent more questions than the secondary group, and a difference in the distribution of questions which is significant beyond the .001 level. The differences between the more experienced elementary and secondary groups are represented by the elementary group's asking 14.2 percent more questions than did the secondary group, and a difference in the distribution of questions which is significant beyond the .001 level.

As a shift is made from the less to the more experienced groups, the difference between elementary and secondary teachers in

terms of the total number of questions asked decreases. However, both the less and the more experienced elementary teachers are significantly different beyond the .001 level from secondary teachers of like experience in the distribution of questions asked.

Conclusions

1. Questions requiring direct recall of information are the most common type found in oral teacher-questioning during class discussions of social studies material.
2. Among the teachers participating in this study, elementary teachers differed from secondary teachers in the number and cognitive level of questions asked during oral discussions of social studies material.

3. The results of this investigation do not indicate a clear-cut relationship between teacher-questioning practices during social studies class discussions and length of teaching experience. A significant difference was noted, however, for the experienced secondary group.

Discussion

There is a growing body of evidence which indicates that teacher-questioning has an influence on pupil thinking, social-emotional climate of the classroom, and pupil mastery of subject matter material. Can some indication be gained from the results of this study as to what changes are needed in the questioning practices of teachers?

A look at the questioning practices of

	Category of Question								
	Memory	Translation	Interpre- tation	Appli- cation	Analysis	Synthesis	Evaluation	Routine	Total
Total number ^a of questions asked	215	17	124	19	0	7	12	8	392
Mean number ^b of questions asked	26.88	.88	15.5	2.38	0	.88	1.5	1	49
Percentage of the total number of questions asked	54.84	1.78	31.63	4.84	0	1.78	3.06	2.09	99.97

^aBy the eight teachers during a total of 6.66 hours of class discussion.

^bBy an individual teacher during 50 minutes of class discussion.

Table 3. Analysis of Questions Asked by Secondary Group A
(Two or Less Years of Teaching Experience)

	Category of Question								Total
	Memory	Translation	Interpre- tation	Appli- cation	Analysis	Synthesis	Evaluation	Routine	
Total number ^a of questions asked	312	27	126	19	0	7	16	7	514
Mean number ^b of questions asked	39	3.38	15.75	2.38	0	.88	2	.88	64.25
Percentage of the total number of questions asked	60.7	5.25	24.51	3.69	0	1.36	3.11	1.36	99.98

^a By the eight teachers during a total of 6.66 hours of class discussion.

^b By an individual teacher during 50 minutes of class discussion.

Table 4. Analysis of Questions Asked by Secondary Group B
(Five or More Years of Teaching Experience)

the teachers participating in this study indicates a need for programs intended to help teachers increase the number of questions asked at higher cognitive levels. If one of the objectives of social studies instruction is the development of thinking skills, it is reasonable to assume that students should be called upon to respond to questions at varying cognitive levels. Sanders (1966) states that a minimum of one-third of the time allotted to questioning should be devoted to levels above memory. Most of the teachers observed in the course of this investigation asked at least half of their questions in the memory category. Those levels above interpretation were particularly neglected.

There is no clear implication from this investigation as to whether the elementary or the secondary teachers have the greater need for a program to increase the number of questions asked above memory. Though the elementary teachers asked a larger propor-

tion of their questions in the memory category, the actual number of questions asked above it was approximately the same for both elementary and secondary groups.

However, there is some evidence that the secondary teachers explored the higher cognitive levels to a greater degree than did the elementary teachers. The secondary teachers asked approximately twice as many questions in the application through evaluation categories. This circumstance is somewhat mitigated by the consideration for variability among individuals. One of the factors which may contribute to such variability is the precise nature of the social studies content being considered.

Three limitations should be kept in mind when considering the possible implications of this investigation:

1. The questioning practices of the teachers in each of the groups were characterized by a degree of individual variation.

	Category of Question								Total
	Memory	Translation	Interpre- tation	Appli- cation	Analysis	Synthesis	Evaluation	Routine	
Elementary Number ^a	816	73	253	4	0	18	13	34	1,211
Percent	67.38	6.02	20.89	.33	0	1.48	1.07	2.80	99.97
Secondary Number ^a	527	34	250	38	0	14	28	15	906
Percent	58.16	3.75	27.59	4.19	0	1.54	3.09	1.65	99.97
Total Number ^b	1,343	107	503	42	0	32	41	49	2,117
Percent	63.43	5.05	23.76	1.98	0	1.51	1.93	2.31	99.97

^a Questions asked by 16 teachers during a total of 13.33 hours of class discussion.

^b Questions asked by 32 teachers during a total of 26.66 hours of class discussion.

Table 5. Analysis of Questions Asked by Participating Teachers

2. Care must be exercised when generalizing from the sample in this investigation to other teacher groups.

3. Though this investigation produced a statistically significant relationship between organizational setting and teacher-questioning practices, this does not necessarily indicate a cause and effect relationship.

This investigation did not formally consider issues relating to the relative instructional value of questioning other than the number and cognitive level of the questions employed. However, in the process of the investigation the author concluded that questions at the same cognitive level varied in their overall instructional value as a result

of the content students were asked to consider. In the author's view, efforts intended to improve teacher-questioning practices must include concern for the number and cognitive level of questions asked and the potential contribution of question content to instructional objectives.

More research is needed to determine the most desirable questioning practices for stimulating pupil thinking, establishing a supportive climate in the classroom, and enhancing pupil mastery of subject matter information. When more precise information of this nature is available, the differences in the questioning practices of elementary and secondary teachers may have more significance.

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