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ABSTRACT

The roles assumed jointly by a university and a school district in preparing student teachers to elicit critical thinking on the part of pupils are investigated. Twelve elementary student teachers were assigned to a suburban school district. Each student teacher worked with one cooperating teacher. Records were kept by the student teachers and cooperating teachers on all joint activities, assignments, and projects through which the student teaching and the social studies courses were correlated in an attempt to develop critical thinking skills. Eight learning activities were employed in the university curriculum and methodology course and in the student teaching seminars in an attempt to assist the student teachers in this study. Results indicated that all student teachers in pre- and posttest planning of teaching units showed a substantial increase in the number of questions they were able to write which were designed to elicit critical thinking. (Author/MJM)

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THE BEGINNING TEACHER CAN FOSTER CRITICAL THINKING
by Don A. Knight and Jack I. Wayne

Much research in the area of critical thinking has been completed in the last decade. Such investigation undoubtedly was intensified as a result of the statement released by the Educational Policies Commission of the National Education Association in 1961.

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The purpose which runs through and strengthens all other educational purposes--the common thread of education--is the development of the ability to think. This is a central purpose to which the school must be oriented if it is to accomplish either its traditional tasks or those newly accentuated by recent changes in the world...¹

There is evidence, however, that this goal has not yet been achieved in our schools. Taba stated that "...The development of thinking is an objective to which we give lip service but which we do not practice."²

Children in the elementary schools must develop critical thinking on a higher level than is evident at present. This can be achieved if both student teachers and inservice teachers receive adequate preparation at the college or university level, and when the schools and universities work cooperatively to provide the best experiences possible for the student teachers.

¹The Central Purpose of American Education, Educational Policies Commission, National Education Association (Washington, D.C., 1961).

²Hilda Taba, Curriculum Development: Theory and Practice, (New York: Harcourt Brace and World, Inc., 1962). p. 215.

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A study attempting to meet the above two criteria was completed by the authors. An investigation was made of the roles assumed jointly by a university and a school district in preparing student teachers to elicit critical thinking on the parts of pupils.¹⁻²

Numerous definitions of critical thinking are employed in the literature today. In this study a broad definition was used. Critical thinking was described as that thinking which involved all thought processes beyond the memory, recall or identification category. Such processes would include the categories of compare and contrast, infer, analyze, judge, evaluate, hypothesize, generalize and synthesize.

The study was descriptive and exploratory in nature. Answers to the following questions were sought.

1. How is a social studies curriculum and methodology course correlated with student teaching experiences in preparing student teachers to help pupils develop critical thinking skills?

¹Knight, Don A. The Role of the University in Preparing Student Teachers to Help Pupils Think Critically. Unpublished Doctoral Dissertation. Wayne State University, June 1968.

²Wayne, Jack. The Role of the School in Preparing Student Teachers to Help Pupils Think Critically. Unpublished Doctoral Dissertation. Wayne State University, June 1968.

2. Do student teachers improve their skill in asking questions designed to elicit critical thinking while participating in a concentrated preparation program?
3. Do pupils improve in their ability to use critical thinking processes in class discussion?

The study was conducted with twelve elementary student teachers enrolled at a large midwestern urban university who were assigned to a suburban school district. Each student teacher worked with one cooperating teacher.

Numerous sources were used in gathering data for the study. Records were kept by the student teachers and cooperating teachers on all the joint activities, assignments, and projects through which the student teaching and the social studies course were correlated in an attempt to develop critical thinking skills. All assignments for the course were directed to immediate practical application in the classroom.

Each student teacher developed and carried out a social studies unit of study in his classroom and submitted the written unit plan as a course assignment.

Examples of some of the questions asked and activities assigned the pupils by the student teachers in the social studies units of study are included here. The level of thinking required for answering the questions or carrying out the assignment is recorded in parentheses.

Fourth Grade Unit on Switzerland

1. Why do you think many of the Swiss people speak four different languages? (inference)
2. Determine the relationship between how people live and their surroundings. (analyze)
3. Discuss Switzerland's function as a neutral country. Is this important to the United States? (judge and evaluate)

First Grade Unit on the Dairy Farm

1. Through the use of various materials help the pupils compare modern farm life with the way we live in our city. (compare and contrast)

Sixth Grade Unit on Great Britain

1. What conditions existing in the colonies may have given rise to the American Revolution? (analyze)
2. What is it about the Magna Carta that makes it such an important document? (judge and evaluate)
3. In what way can the United States Government be compared to the British form of government? (compare and contrast)

The cooperating teachers kept records of learning activities which were used by the student teachers to elicit critical thinking. The students participated in daily discussion and analysis of current events. A

directed observation lesson on current events was given in which the investigator demonstrated how critical thinking might be elicited from the pupils. Numerous graphic materials were provided to help pupils abandon stereotyped views of people and places. During the reading periods student teachers asked questions which required pupils to evaluate and hypothesize. Pupils and student teachers planned various field trips to historical and art museums, an automobile assembly plant, a local dairy and a public library. Experience charts were developed by children before and after these field trips. A unit at the first grade level on cigarette smoking provided many varied activities to develop critical thinking skills. A second grade unit on the grocery store in which student teachers helped pupils develop critical thinking skills provided much background for lessons about primary economics.

The following learning activities were employed in the university curriculum and methodology course and in the student teaching seminars in an attempt to assist the student teachers in this study.

1. The group went on three educational field trips which were planned and conducted by members of the class. The trips were taken to a representative group of suburban and inner city churches and to an automobile assembly plant. Examples of the types of questions designed to stimulate critical thinking which were raised by the planners of the trips for class discussion follow:

- a) Is there any difference between this church and its sister church in the suburbs or inner city?
 - b) To what extent can a child's religion affect his school life?
 - c) Right now engineers are planning the cars you will not see for four or five years, and they have already worked out some things you might not see for as many as ten years. Why do you think engineers plan so far in advance?
 - d) Why do you think some cars leave the factory with defects, only to be recalled a short period of time later? Do you think this could be avoided? If so, how?
2. The group was given fairly extensive practice in identifying levels of thinking and in planning questions directed at each level. Committee organization was utilized as students worked together in planning questions around selected content material.
 3. The student teachers were given an opportunity as a group to view, analyze, and code for critical thinking two videotapes of elementary classroom discussions. In addition, each

student saw and discussed with the college supervisor a videotape of his own teaching.

4. Examples were shared and practice given in the effective construction of teaching charts designed to stimulate critical thinking.
5. Practice was given in identifying basic concepts and understandings from the social science disciplines, and the use of critical thinking processes in teaching these understandings.
6. In student teaching seminars, both sound classroom management and daily lesson planning were discussed in addition to the development of effective discussion strategies.
7. An analysis of leading social studies textbooks was engaged in by the class in an attempt to determine the thinking levels encouraged by the textbook organization.
8. Numerous class discussions were conducted in which critical thinking skills were encouraged and developed. Some of the class members commented that they were pleased to see the basic principles of stimulating critical thinking that were to be used in their elementary school classrooms being employed in the curriculum class.

The following results were recognized from the study: All student teachers, in pre and post test planning of teaching units, showed a substantial increase in the number of questions they were able to write which

were designed to elicit critical thinking. Students made this increase while at the same time decreasing the number of questions which required only memory or recall. The most significant gains were in the judge or evaluate and inference categories.

It should be noted that the organization and format of the children's textbook used in teaching the unit was such that the asking of inference and judgment questions may have come easier than with some textbook materials. It appears likely that if student teachers are given appropriate preparation and guidance, and if quality teaching materials are placed in their hands, then the writing of questions designed to elicit critical thinking will become a more easily accomplished task.

In pre and post test videotaped classroom discussions, all student teachers were able to increase the asking of questions designed to elicit critical thinking and decrease the number of non-cognitive comments and questions which required only memory or recall answers. At the same time, the student teachers decreased their total number of questions and comments. An explanation for this total decrease can be found in an analysis of the videotapes which showed clearly that the teachers generally talked less in the post test discussions while the pupils talked more and in greater depth.

Not only were the student teachers able to increase the total questions asked to elicit critical thinking, but they increased questions asked at each specific level of thinking with the exception of the inference level which

showed a decrease and the synthesis level which remained the same. The largest increases were shown in the judge or evaluate level.

Using the data from both the unit and discussion tests, it appears that student teachers were not only able to write questions designed to elicit critical thinking which they might use in a teaching situation, but they were also able to ask such questions in the actual teaching situation to direct and lift the level of thinking.

Although no detailed instruction and practice was given in directing questions at each specific thinking level, the questions asked most often were in the compare and contrast, inference and judge or evaluate categories. It appears that the remaining categories of analysis, hypothesis, generalization, and synthesis require much more directed practice and experience in order to be developed effectively.

The videotape results showed that in nine of the twelve classrooms the pupils were able to triple the number of responses at the critical thinking levels. The pupils in one of the remaining classes increased their critical thinking responses only slightly and the two other classes showed no increase in pupil responses.

Analysis of the results of this study have led to a number of conclusions. First of all, curriculum and methodology courses at the university level can be correlated with student teaching experiences in the schools in preparing student teachers to help pupils develop critical thinking skills. The university and public schools can both contribute to

the student teachers' professional growth through cooperative effort. Student teachers are not only able to plan and write questions designed to elicit critical thinking but can also compose and use such questions in the actual teaching situation. Finally, student teachers who effectively utilize questions designed to elicit critical thinking can develop such thinking in their pupils. Pupils can learn to develop the use of critical thinking processes.