DOCUMENT RESUME

ED 087 758 SP 007 743

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TITLE Interaction Analysis for Teacher Preparation.
PUB DATE [73]
NOTE 9p.

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Inquiry Training; *Interaction Process Analysis; Laboratory Schools; *Methods Courses; *Student Teachers; Student Teaching; *Teacher Education; Teacher Programs

ABSTRACT

This study deals with a teacher preparation program that consisted of five weeks of methods taken immediately before the interns' student teaching experience. Methods students learned current inquiry techniques including case study, simulation/role play, values clarification, and laboratory lessons. Using instruments for classroom interaction analysis, 20 interns observed, team-planned, and individually taught a micro-unit to four laboratory school classes. The goal of this study was for the interns to elicit (through these techniques) levels of involvement and thinking higher than those reported in studies of experienced teachers. The mean scores of this study indicated that this goal was achieved. (JA)

Interaction Analysis for Teacher Preparation

Introduction

This study deals with a teacher preparation program which consists of five weeks of methods taken immediately before the interns student teach. Specifically, the study focuses on the methods course which was designed to (1) integrate theory and practice by involving the interns who participated in, and ultimately wrote their own inquiry lessons, and (2) provide experience in campus laboratory school in which five interns were assigned to one of four classes to observe, team-plan, but individually teach a micro-unit for one week.

The goal of this study was for the interns to achieve levels of involvement and thinking among their students higher than those reported in the literature.[1] Despite their lack of experience, the interns received positive student reaction and improved levels of involvement, comparted with data recorded during their observations. This success was due, in large measure, to the nature of the inquiry techniques, which necessitate decision-making and interaction among the students.

Flanders states,

> Step inside a classroom and what do you hear? The chances are better than 60 percent you will hear someone talking if you are in an elementary or secondary school classroom.
>
> If someone is talking, the chances are that it will be the teacher more than 70 percent of the time. Yes, the teacher talks more than all the students combined.[2]

Flanders reports, while many experienced teachers are aware they are dominating the class, rather than effectively teaching, they don't know how to deal with the problem.

> When classroom interaction shifts toward more consideration of pupil ideas, more pupil initiation, and more flexible behavior on the part of the teacher, the present trend of research results would suggest that the pupils will have more positive attitudes toward the teacher and the school work, and measures of subject matter learning adjusted for initial ability will be higher.[3]

According to three studies, on the average, 55 percent of the teacher's talk dealt with recall of facts, the least intellectual operation. Furthermore, Hudgins and Ahlbrand cite 80 percent of student talk was limited to fact-stating.[4]

Demonstration Lessons Adapted to Micro-Unit

Because the five weeks of methods incorporates observing and preparing for the micro-teaching experience with learning theory, a series of demonstration lessons was taught. The methods instructor involved the interns in current inquiry techniques, including (1) case study, (2) simulation/role play, (3) values clarification, and (4) laboratory lessons. Analyzing their own degrees of involvement and achievement, the interns then wrote their own lessons based on the demonstration models.

While interns have varied degrees of insight concerning their major course of study, very few prospective teachers can interrelate subject matter. Political science majors claim, "I don't know anything about economics!" And if the interns find interrelating disciplines difficult, they find the process of conveying or communicating their knowledge to less mature students almost impossible. Because the predominate teaching technique in college is the lecture, the inquiry techniques used by the methods professor are at least different in emphasis and at best an enlightening revelation that alternatives exist which enable learning to be a shared enterprise. The interns experienced lessons which made them active participants rather than passive receivers of information.

In the campus laboratory school, the cooperating teacher assigned themes to each of the four groups of interns: "Reconstruction" for the eighth grade and "The Age of Homespun" for the seventh grade. The next steps involved team-planning to carefully relate one day's theme to the next, while adapting the techniques appropriately to new subject matter.[5]

The data in Table 1 show varied patterns in the utilization of techniques. Some interns preferred to begin the micro-unit with a hypothetical simulation; because of all the strategies, this is most highly motivating. Arousing enthusiasm and interest by emphasizing divergent (or more creative), open-ended student talk was the goal in most introductory lessons. While one intern taught, the others analyzed classroom interaction using one of three instruments.[6] The methods instructor and cooperating teacher observed each lesson and recorded their data, as well. Following the lesson, the methods instructor conducted a conference to give the interns immediate feedback. The approach was one of problem solving. The interns were encouraged to hypothesize relationships between teaching effectiveness and the timing of particular techniques.

Following the introductory lesson, interns relied on case studies, role play, values clarification, or laboratory lessons to develop the themes. These techniques focus on the students' decision-making, affording development of critical thinking skills. As culminating lessons, the evaluative and summarizing aspects of the micro-unit were executed. Students were expected to apply what they had learned to another issue, time, or place. This feedback was elicited through means other than a "test" or "quiz." For example, interns in this group selected a simulation or role play to conclude the week's learning experience.

Every student verbally responded in three of the five days because the interns provided opportunities for student interaction through small group activities. At this time, the teacher acted as resource person or supervisor. Interestingly, on the second day when three of the four lessons were large group discussions, less student involvement was possible. In a full class discussion, fewer students can talk, expecially if the questions require more than simple recall or interpretation. Thus, written feedback from non-verbal students is necessary to determine their degree of understanding. This has implications for teachers who deal with the class as a whole each and every day. Certain students

TABLE 1

Techniques, Involvement, and Types of Thinking
Number of classes = 4

	Day 1	2	3	4	5
Technique					
Role Play/ Simulation	2	1	1	1	4
Case Study	-	1	2	1	-
Values Clarification	-	2	1	-	-
Laboratory Lesson	2	-	-	2	-
Mean % students verbally responded	100	75	95	100	100
Thinking*					
% Convergent	53.75	42.50	47.50	73.50	32.50
% Divergent	41.25	57.50	52.50	27.50	67.50

*J. R. Guilford's model

TABLE 2

Number of Interns=20

Percentages of Classroom Interaction and Levels of Thinking Number of Classes= 4

	Day 1	2	3	4	5	Mean
Categories*						
% Teacher Talk	42.50	47.50	33.75	40.00	40.00	*41
Direct	20.00	25.00	20.00	22.50	21.25	22
Indirect	22.50	22.50	13.75	17.50	18,75	19
% Student Talk	41.25	33.75	50.00	33.75	45.00	*41
Response	16.25	16.25	17.50	22.50	23.75	19
Initiated	25.00	17.50	32.50	11. 25	21.25	22
% Reading or Study	7.50	10.00	8.75	18.75	7.50	*10
% Silence or confusion	8.75	8.75	7.50	7.50	7.50	* 8
					*Total	100
Levels of Thinking**						
Recall, Interpretation, Application	32.50	35.00	17.50	37.50	17.50	28
Analysis, Synthesis, Problem Solving	65.00	58.75	55,00	45.00	36.25	52
Affective (attitudes, values, beliefs)	2.50	6.25	27.5	17.5	46.25	20
					*Total	100

*Perkins' scales combined
**Bloom's levels

TABLE 3

	*Day 1	2	3	4	5	Mean
Teacher Roles						
% Leader	33.75	38.75	23.75	30.00	27.50	31
% Supervisor	16.25	30.00	45.00	35.00	48.75	35
% Evaluator	16.25	12.50	10.00	7.50	7.50	11
% Resource Person	18.75	7.50	11.25	25.00	7.50	14
% Socializing Agent	15.00	11.25	10.00	2.50	8.75	9
					Total	100
Student Roles						
% Participants in discussion	5.00	2.50	26.25	7.50	7.50	10
% Participants in recitation	31.25	50.00	2.50	22.50	6.25	23
% Small Group Activity	58.75	40.00	38.75	50.00	55.00	48
% Individual Report	5.00	7.50	37.50	20.00	31.25	19
					Total	100

*Perkins' scale

usually the more verbal and confident, become the "talkers" and others learn to play a passive role. Given small group activities, these "passive" students are more likely to respond.

How the micro-unit unfolds is the creative aspect of planning learning experiences. No formulae exist for dictating the "right" technique for the "right" day or the "right" student. Research shows that a variety of techniques is necessary to reach students who learn in many, varied ways.[7] (See Table 3)

Overall, more divergent thinking was elicted from the students. On the first and fourth days, convergent thinking occurred more of the time. Divergent thinking is more creative, open-ended, and more difficult to "treat." Convergent thinking produced the single response or answer and is more likely found in tests.

Summary and Conclusion

The mean scores show that these interns achieved levels of student involvement and thinking higher than the research with experienced teacher reveals. Not only was teacher talk decreased (previous research indicates 70 percent of the time is teacher talk, while the interns' mean is 41 percent), but note the diversity of teacher roles in Table 2. A little more than one-third of the interns' time was spent in leadership roles with the teacher asking questions and/or giving directions. Acting as supervisor of small group activity, the interns spent 35 percent of the time; however, less time was devoted to evaluation and socialization. Interns served as resource persons in small group activity and discussion 14 percent of the time.

Effectiveness of teaching can be measured by levels of thinking demonstrated by the students, not merely be degrees of verbal or written activity. More than half the time, the students were analyzing, synthesizing, and problem solving. Only 28 percent of the time was spent on lower levels of thinking. This contrasts with research which shows reliance on recall of facts which occurs 55 percent of teachers' talk and 80 percent of students' talk. (See page 1)

One surprising result was the data which show that the highest level of thinking occurred on the first day, a mean score of 65 percent. Affective thinking increased throughout the week as the interns emphasized values, attitudes, and opinions of the student to be analyzed through simulation and laboratory lessons. One the fifth day, a culminating activity should elicit highest level (problem solving) from the students. However, our interns' micro-unit did not include giving a test or other evaluative measure for cognitive application.

The inquiry techniques convinced the interns (who were skeptical that "Reconstruction" or "The Age of Homespun" could be made "relevant"), if not the students, that how one teaches is as important as what one teaches. The laboratory school students' evaluation of the interns' micro-unit was uniformly favorable. Every student wished to invite next semester's interns to repeat the program. The cooperating teacher reported that in a comparable time with other student teachers and some experienced teachers that these students participated more and deomonstrated higher levels of thinking than usual. Further research will be conducted in public school settings, with students called "low achievers," and in classes in which students are not familiar with inquiry techniques and/or small group work. Follow-up studies should measure the degree to which the interns sustain this quality of interaction and thinking among their students during practice teaching.[8]

FOOTNOTES

[1]Ned A. Flanders, Teacher Influence, Pupil Attitudes, and Achievement, Cooperative Research Monograph No. 12, Office of Education, U.S. Department of Health, Education and Welfare. (Washington, D.C.: Government Printing Office, 1965), pp 1-23, 111-121.

[2]Ibid.

[3]Ned A. Flanders; Analyzing Teaching Behavior. Reading, Massachusetts: Addison-Wesley Publishing Company, 1970, pp. 13-14.

[4]A. A. Bellack, H. M. Kliebard, R. T. Hyman, and F. L. Smith, Jr., The Language of the Classroom. New York: Teachers College Press, 1966; B. B. Hudgins and W. P. Ahlbrand, Jr., A Study of Classroom Interaction and Thinking: St. Louis: Central Mid Western Regional Educational Laboratory, 1967; B. O. Smith and M. Menx, A Study of The Logic of Teaching. Urbana: Bureau of Educational Research, University of Illinois, 1962.

[5]For further details, see Barbara Olmo, "Teaching Micro-Units in Social Studies," Improving College and University Teaching (summer, 1972), pp 108-111. Action research involving an entire professional semester at the University of Iowa is described by the author in "A Cooperative Student Teaching Program: Pilot Study," Journal of Experimental Education, (summer, 1973).

[6]Hugh V. Perkins, "A Procedure for Assessing the Classroom Behavior of Students and Teachers," American Educational Research Journal, I, No. 4 (November, 1964), pp 249-260; Benjamin S. Bloom, ed. Taxonomy of Educational Objectives. New York: Longmans, Green and Co., 1956; J.P. Guilford, "Three Faces of Intellect," American Psychologist (volume 14, 1959), pp 469-479.

[7]Ned A. Flanders, "Integrating Theory and Practice in Teacher Education," Theoretical Bases for Professional Laboratory Experiences in Teacher Education, 44th Yearbook of the Association for Student Teaching, 1965, p. 64.

[8]For other research models, see Edmund J. Amidon and John B. Hough, Interaction Analysis: Theory, Research and Application. Reading, Massachusetts: Addison-Wesley Publishing Company, 1967; Edmund Amidon, "Interaction Analysis and Its Application to Student Teaching," Theoretical Bases for Professional Laboratory Experiences in Teacher Education, 44th Yearbook of the Association for Student Teaching, 1965, pp 71-92.