Supervisory Techniques with

APPARENTLY many variations exist in the procedures used by supervisors of teachers, especially of beginning teachers, in the field of mathematics. A survey was conducted to determine to what extent the variations in supervisory techniques did exist.

This survey was designed to evaluate the degree of variability of attitudes toward supervisory techniques among beginning teachers of mathematics in the public secondary schools of the Middle Atlantic States. This investigation is an analytical appraisal of the various attitudes as determined from beginning teachers of mathematics with five years or less experience.

Data for this study were obtained through a questionnaire directed to teachers in selected secondary schools accredited by the Middle States Association in the states of Pennsylvania, New York, New Jersey, Maryland, and Delaware. Distribution of the 300 responses to the questionnaire was as follows: Pennsylvania 121; New York 60; New Jersey 82; Maryland 31; and Delaware 6.

The techniques investigated and evaluated by the teachers were: Orientation of New Teachers, Classroom Visitation, Individual Conference, Faculty Meeting, Departmental Meeting, The Workshop, Small Group Activity and Teacher Committees Within the School, Curriculum Development and Implementation, Demonstration Teaching, In-Service Education and Professional Growth, Instruction in the Use of Audio-Visual Aids, Evaluation, and Research and Experimentation. Each of these 13 categories was subdivided into 74 aspects which were scaled in terms of frequency and value by the responding teachers.

This study has conveyed a brief history of supervision and the attitudes and opinions of the experts in the field of supervision in general, and in mathematics in particular, as they relate to the 13 categories of supervisory techniques as surveyed by the author. An evaluation of the experts' opinions as to the relative worth of these techniques seems to indicate that their main thoughts lie in the theoretical application of these techniques rather than in their practical application, which is desired by a majority of the classroom teachers. These experts did not place a numerical value on the

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technique, but rather leaned toward the techniques in light of their previous experiences and their proximity to the mathematical supervisory officials.

Throughout the study of the most effective supervisory techniques used with beginning teachers of mathematics, a pattern of similarity existed in the frequency and value of the 13 techniques as utilized and valued with the beginning teachers of mathematics. Therefore, the analysis of the total population of 300 responses is also a true representation of the 5 states on an individual basis.

In each state and in the composite summary, the value of each technique was greater than the frequency of the said technique. In the states of New Jersey, Maryland, Delaware, and in the composite picture of the five states, there were 7 techniques of supervision which had a percentage of value which was greater than or equal to the percentage of frequency of all of the techniques. In Pennsylvania, this number of techniques was 8 and in the state of New York, the number was only 2 techniques. There was little variation in the ranking of the techniques according to frequency and, throughout the states, the techniques of Research and Experimentation, Orientation of New Teachers, Evaluation, Workshop, and Demonstration were among the least utilized techniques.

Mathematical computations were used to reach the recommendations derived from this survey. The author was able to secure a graphic and accurate evaluation of the usage of these techniques by employing the proper statistical procedures commonly used by statisticians in gaining meaningful and useful information from responses such as those received in this survey.

In a final analysis of these data, the author found that there were some areas that were suspect and could be strengthened. These areas have been suggested by teachers whose hopes are that the implementation of methods to improve these weaknesses would be initiated as soon as possible. These recommendations are based on the factual expression by the teachers

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of the desire for activities which were highly valued by the beginning teachers but not frequently utilized by the supervisory officials.

Recommendations

Consequently, in light of these opinions and statistical results, the author makes the following recommendations that could strengthen the practices of mathematics supervisors and thus improve the quality of instruction in the classroom. Such enhancement would be of great value not only to the students concerned, but to the school system as well.

We will not present here all of the recommendations derived from the evaluation of the responses of the teachers. Only those recommendations of most significance and that promise the most far-reaching effects in changing and improving supervisory techniques in the area of mathematics are listed. These recommendations are as follows:

1. Teachers should receive helpful suggestions on the economic use of time and effort, on useful materials, and on effective ways of grouping pupils.

2. Assistance should be given, within the regular curriculum, in providing for individual differences, special interests, and creativity.

3. Teachers should be visited in their classrooms for purposes of evaluating the teaching-learning situation rather than for inspection or rating.

4. The mathematics supervisor should do continuous research on the new developments in mathematics education and should interpret the new ideas to the teachers.

5. There should be a continuous development of in-service education opportunities that will improve teaching.

6. Guidance in the effective use of available aids in the various units of work should be given to the teacher.

7. Methods and techniques used by the supervisor during the classroom visitation should be adapted to the experience, degree of mastery of subject matter, and personality of the teachers.

8. In-service programs should fulfill the needs of teachers of children of *all* abilities.

9. Suggestions should be offered relative to initiating or carrying through a unit of study by the supervisor.

10. Adequate time should be scheduled for discussion and evaluation of the procedure observed in a demonstration lesson.

The author has been notified by several of the schools which participated in this survey that steps have been taken to incorporate some of these recommendations in the guidelines being prepared by their supervisory personnel. Consequently, the implementation of these recommendations (those listed and others not listed in this article) would improve the effectiveness of the teacher and of the supervisors. The full usage of these recommendations could strengthen the lines of communication between the teacher and supervisor and might erase some of the fears and dislikes that some teachers have toward some supervisors. However, the major accomplishment is that the student's instruction would be greatly strengthened in this aspect of education, on which greater stress is placed than upon any other discipline—mathematics. □