

Developing School Administrators As Agents of Change For Science Curriculum Implementation

GERALD H. KROCKOVER

Department of Education

Purdue University, Lafayette, Indiana 47907

Abstract

Each year for the past 4 years, the National Science Foundation (NSF) has awarded grants to several colleges and universities to conduct "Conferences for Elementary and Middle School Administrators Concerning New Programs in Science." Purdue University conducted conferences during the summers of 1971 and 1972. The Elementary and Middle School Administrator Conference Evaluation indicates that the conferences are successful in meeting their stated objectives. The Bratt Attitude Toward Teaching and Teaching Science Test was administered on a pre-test and post-test basis and indicates a significant increase in positive attitude toward teaching and teaching science for the participants in the 1972 Conference. A follow-up study conducted 1 year after the 1971 participants had completed the conference indicated that a greater percentage of participants implemented new science curricular programs than a similar group of non-participants.

Introduction

The last 15 years has witnessed the development of many curriculum improvement projects in the area of science for the elementary and middle school grades such as: Science—A Process Approach (SAPA), Elementary Science Study (ESS), Science Curriculum Improvement Study (SCIS), Environmental Studies (ES), Intermediate Science Curriculum Study (ISCS) and the Biological Sciences Curriculum Study (BSCS) Human Sciences Project for the Middle School; to name a few. It is difficult, if not virtually impossible, for an isolated classroom teacher to "go it alone" in an innovative endeavor, irrespective of his commitment to the innovation. The classroom teacher needs the continued philosophical and material support of his superintendent, principal, and supervisor for real and lasting curriculum change. An innovation will succeed when it proceeds on a broad front and when personnel at all levels are actively committed to the same goals (1). It has been estimated by the Indiana State Department of Public Instruction (2), for example, that less than 25% of the school corporations in Indiana are using new laboratory orientated science programs; more than 75% still rely on a single textbook series for their science program.

In an attempt to foster real and lasting curriculum change the National Science Foundation has awarded grants to several colleges and universities to conduct "Conferences for Elementary and Middle School Administrators Concerning New Programs in Science." Thus far, 106 school administrators from 47 states, including 38 from Indiana, have participated in the conferences conducted by Purdue University during the summers of 1971 and 1972.

Methods

The Purdue University Administrator Conferences attempted to gain the support of key administrators in promoting wider use of the

“new” materials that have been developed in science for the elementary and middle school with NSF support. All participants that were selected for the conference were elementary and middle school administrators. Persons who are science supervisors or those administrators with strong science backgrounds were *not* selected. Every attempt was made to involve administrators from throughout the nation. Administrators must submit evidence of being directly concerned with the improvement of instruction along with the ability to implement those conference programs that are of interest to their schools. The administrators received a 2-week subsistence and travel allowance as well as 2 semester hours of graduate credit.

The specific conference objectives were:

- 1) To provide instruction, experiences, and examples of the new approaches in science for use in elementary and middle school science programs.
- 2) To instruct elementary and middle school administrators in the specific nature of some of the most central of the new curriculum programs. This will include exploration of Science—A Process Approach (AAAS), Elementary Science Study (ESS), Science Curriculum Improvement Study (SCIS), Individualized Science, Environmental Studies, Intermediate Science Curriculum Study (ISCS), the BSCS Human Sciences for the Middle School Project, as well as BSCS Educable Mentally Retarded (Special Education) Projects.
- 3) To provide opportunity for exchanges between leaders in the various curriculum programs, experienced and enthused teachers who have utilized the new materials, and elementary and middle school administrators. Presentations by leaders; demonstrations, laboratories, and discussions each by representative teachers; and observation of laboratories, class sessions, and taped sequences from the new programs provided the setting for these exchanges, as well as the use of over 200 children throughout the 2 weeks in micro-teaching situations.
- 4) To encourage adoption of some of the specific programs in the schools represented by the administrators who participate in the conference.
- 5) To encourage greater communication between college and university personnel, state educational units, accrediting agencies, and the personnel from local schools.

In general each curriculum project was presented in three components:

- 1) A curriculum representative from a college or university who explained the development of the project, its general philosophy, and present status including plans for the future. This representative also introduced the participants to the specific student and teacher materials.
- 2) Two classroom teacher consultants who utilize these materials in their classrooms assisted the participants during sample laboratory activities from these projects.

- 3) The use of children in micro-teaching situations by the participants to test the materials.

In addition, keynote speakers were utilized to set the conference tone as well as for a concluding theme.

Results

A two-part evaluation of the conferences was used to assess its effectiveness. The opinions of the school administrators were obtained using the Elementary and Middle School Administrator Conference Evaluation (3). The overwhelming consensus of the administrators was extremely encouraging and indicated that the conference was successful in meeting its stated objectives.

Over 70% stated that:

- 1) They profited greatly from this conference.
- 2) They would make better curricular decisions as a result of this conference.
- 3) Their teachers could teach these science programs.
- 4) Experiences with science as identified in this conference should be a part of the education of every individual.

The second part of the evaluation utilized the Bratt Attitude Toward Teaching and Teaching Science Test (4) which was administered on a pre-test and post-test basis to the 1972 participants. Each participant received a profile relating to the 12 positions (6 were positive and 6 negative) evaluated. The group increase of +12.9 points resulted in an F-ratio of 15.53 which is significant at the 0.05 level for 105 degrees of freedom utilizing the analysis of variance statistical procedure outlined in Ferguson (5). Thus, a significant increase in positive attitude toward teaching and teaching science was indicated for the total group of 1972 conference participants as measured by the Bratt Test.

In a follow-up study of the 1971 participants conducted one year after they had participated in the Purdue University conference it was found that 40% of the 53 participants had implemented one of the new science programs featured at the conference into their school corporation. This is compared to a 0% implementation rate for a selected sample of 100 school administrators from throughout the nation who had applied for participation in an administrators conference, but were rejected because of funding and space limitations.

Conclusions

Conferences such as these at Purdue University assist school administrators in the implementation of the NSF supported projects in mathematics, science and social science education. Far greater impact is made, and will be felt in the future from groups such as this one, for change in our curricular programs than from simple dissemination in teacher workshops. We are hopeful and firmly believe that attitudes toward teaching and learning in general have been improved and will

influence these key personnel to be more effective leaders in their respective school systems.

Literature Cited

1. ROGERS, ROBERT E., and ALAN M. VOELKER. 1970. Programs for improving science instruction in the elementary school Part I, ESS. *Sci. and Children*. 7:35-43.
2. SMULEVITZ, HOWARD. 1971. Individual trend in schools is rough on text selectors. *Indianapolis Star*. 15 Jan.:20.
3. KROCKOVER, GERALD H. 1972. Conference for elementary and middle school administrators. Directors Report GW-7253. Nat. Sci. Found. Wash., D.C. 215 p.
4. BRATT, H. MARVIN. 1973. Test to measure attitude toward teaching and teaching science. Unpublished Ph.D. Dissertation, Purdue University, Lafayette, Ind. 180 p.
5. FERGUSON, GEORGE A. 1966. Statistical analysis in psychology and education. McGraw-Hill Book Co., New York, N.Y. 446 p.