

## The Administrator's Responsibility in Science Education

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The administrator is responsible for seeing that instruction within his school is of the highest possible quality within the limits of funds available. Society itself tends to determine the nature of the curriculum. The people who pay the bills are the final authority as to what and how much shall be taught. However, it is the responsibility of the administrator to be alert and sensitive to the changing needs of society. The administrator guides the course offerings, the allocation of student's time, and the distribution of funds—basing his decisions upon statistical trends and the apparent future needs of his patrons' children.

"Educators cannot escape the responsibility for keeping abreast of changes and for being aware of developments . . . the ultimate responsibility for keeping teaching geared to a dynamic age rests with the educators."<sup>1</sup> According to this statement, it is the responsibility of the administrator to comprehend the depth and breadth of science education needed and do what is necessary to implement such a program. He should anticipate trends and see that practical adaptations coincide with the changing educational needs of his pupils. Good administration requires "leadership." Leadership implies initiative . . . not inertia.

The *responsible* administrator does not apply a little "baling wire" on an expediency basis and then try to justify his science program by emphasizing a few good points in a "public relations" program—or defend its weaknesses entirely in terms of a limited budget. Recent state and national attention concerning the need for more and better science education should not result in merely a hasty "face lifting" of the science department in order to subdue the "raised eyebrows" of the local community. Just as "Rome was not built in a day," a sound science education program requires planning which is more than surface deep. The responsible administrator plans and builds with long range goals—whether an athletic program, a vocational education program, or a science program. He seeks to *insure* a science program adequate to meet the needs of his students in spite of limited funds, the "elbowing" by other subjects and activities for allocation of student's time, and the shortage of fully qualified science teachers.

One must keep in mind that the *responsible* administrator will not go "overboard" for any single department. He will be cognizant of all departments, their needs and budgets—giving careful consideration to each. Limited allocations to science education does not necessarily mean lack of interest in science education. *If he comprehends the depth and breadth of science education needed*, the administrator is most likely to steadily strengthen the science program over the "long haul" while endeavoring to achieve a balanced curriculum meeting the needs of all pupils in his school.

Upon comprehending what is needed, the responsible administrator *seeks to achieve* a program to meet the needs. Besides making curriculum changes if indicated, and strengthening the science faculty qualitatively and quantitatively if necessary—the following are some areas where an administrator can contribute toward science education in his school:

1. *Attitude.* It is doubtful if secondary schools will be able to compete in the foreseeable future with industry for the services of good science instructors—on a dollar basis. However, factors other than money may help to attract desirable science teachers. The environment in which the instructor works is one of the principal factors which attracts and/or holds him. An understanding and sympathetic attitude on the part of the administration is essential in establishing a suitable environment. Trust and

<sup>1</sup> Educational Advisory Committee of National Association of Manufacturers. *This We Believe About Education* (1954), p. 16.

confidence must be exhibited by the administration—as well as any awareness of the instructor's aims, needs, and aspirations. Stimulation and encouragement, appreciation of accomplishments, recognition of student achievements, and fellowship with the instructor as a human being are also factors which impart positive attitude.

2. *Schedule and Class Load.* Working out a decent schedule—both for the instructor and student seriously interested in science—is not always simple, particularly in the small school system. However, the administrator can do much to make a practical schedule in which science and the science instructor get at least an even break. Although the Oklahoma Legislature determines the *average* pupil-teacher ratio for the school (currently 26), there is seldom justification for overloading some science classes to bring up the school's average. Administrators accept the principle of smaller classes in certain areas (such as in vocational courses). In the case of Chemistry, laboratory facilities tend to force recognition of this principle; but in General Science and Biology, one frequently finds a considerable overload without regard to efficiency of instruction. Many times the administration is truly doing its best, but factors beyond its control exist. In such cases, a frank discussion with the instructor of the problem and its causes would be in order. The number of class preparations, the number of classes per day, and extra-curricular duties are also matters to consider if the lot of the science instructor is a happy one. We expect participation in science fairs, yet many principals have no conception of the time involved outside class which such participation requires. *Time* necessary to set up demonstrations, work with students on science fair projects, care for extensive laboratory equipment (in addition to the usual extra-curricular duties of classroom teachers such as gate keeping, lunch room duties, sponsorships, etc.) . . . should be allocated by scheduling sufficient "free" periods—or giving suitable compensation for extra time. Administrators have a responsibility to not take advantage of competent, dedicated, and enthusiastic teachers who are always willing to give extra time in the interest of their students—whether science teachers or those of other fields.

3. *Guidance.* With the testing instruments available today, those with native capacity and aptitude for science *can* be identified and encouraged. If a school does not have enrolments in science courses proportionate to those of the best schools of comparable size, it is probable that the guidance program is inadequate. In most small secondary schools the principal is the chief guidance counselor, while in larger systems he "sets the pattern" and is in effective control of the guidance function . . . it is the principal's responsibility. Certainly, effective guidance would assist in seeing that those who should profit from science courses would tend to select them. The nation need not worry—science enrolments won't suffer if students are inspired to make the most of their capacities and aptitudes.

4. *Equipment.* Allocation of a fair share of the budget to science education seems just. Though the cost may be high in a year when establishing a new course or enlarging the program, the yearly expenditure should not be judged in relation to the average of several years. The administrator must not give "lip service" to the science program publicly while his indifferent financial decisions result in anemic instruction. The responsible administrator makes it his business to know what equipment is actually needed for good instruction and bends as great an effort to secure it as he would for new saxophones for the band or new warm-ups for the basketball team. His knowledge of science may be limited, but if his technical knowledge is insufficient he calls upon those qualified to give advice. Existence of harmonious faculty relationships would indicate that major expenditures would be worked out together, while minor ones would be exclusively the province of the instructor involved.

5. *Housing.* As modernization or new buildings are built, the specifications for science rooms and laboratories should be guided by the science faculty using them—as well as by architects familiar with the best in contemporary construction. Every administrator should be familiar with *School Facilities for Science Instruction*, published by the National Science Teachers Association (1954), and consult science educators to help insure adequate housing when the opportunity occurs. Too frequently science rooms are judged by the same yardstick used for those of other academic departments. Storage facilities, student laboratory space, demonstration facilities, fume hoods, utility outlets, etc. must be given as careful consideration as features to be found in a new gym or the administrator's office.

6. *Professional Meetings.* Like irrigation water to a parched field, professional meetings are refreshing and enriching experiences. The administrator should make every effort to release the secondary science instructor several days each school year for workshops, science fairs, and professional meetings such as the Academy of Science. If the school can afford it, his expense and fees should be paid—it would be a good investment. However, most secondary schools are in no position to pay individual expense of this type, but at least the instructor could be permitted attendance without suffering a deduction from his salary. The secondary science teacher is actually in need of such experiences even more than the college teacher, as in many localities he is practically isolated so far as colleagues with similar intellectual interests are concerned.

In conclusion, we might note the corollary responsibility of science instructors in helping administrators comprehend the depth and breadth of science education needed. The science instructor, though we will not elaborate on it here, has an obligation in helping the administrator develop wholesome attitudes, provide him with accurate information, and make sound suggestions for strengthening the program. The *instructor* must diplomatically make his aims, needs, and aspirations known.