

1982

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Recommended Citation

Ediger, Marlow (1982) "Relevance in the Science Curriculum," *Iowa Science Teachers Journal*: Vol. 19 : No. 3 , Article 11.

Available at: <https://scholarworks.uni.edu/istj/vol19/iss3/11>

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RELEVANCE IN THE SCIENCE CURRICULUM

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Introduction

Selected educators are showing considerable concern pertaining to the lack of emphasis placed upon the science curriculum in the school/class setting. Reasons given in needing to stress increased priority in teaching science include the following:

1. Science has improved life by increasing the human life span, by decreasing diseases, and by decreasing experiences involving physical pain.

2. We live in a world of science. Modern means of transportation such as automobiles, jet planes, trains, trucks and buses reflect progress in science.

3. The use of computers stresses a changing society reflecting achievement in science.

4. Natural disasters, such as earthquakes, hurricanes, cyclones, floods and drought can be explained objectively utilizing scientific terminology. Human endeavors might be able to minimize such problems in the future using the methods of science.

5. Space ventures and feats have provided us with relevant objective content. Recent pictures from Venus, Jupiter and Saturn have changed previous knowledge about these planets.

These, among other reasons, are emphasized in advocating a strong school science curriculum.

Present Status of the Science Curriculum

Why then is science instruction minimized in the school and class setting?

Parents and selected educators believe the three "r's" must be emphasized heavily in the curriculum. Thus, reading, writing and arithmetic used to be taught to the degree that mastery learning by pupils was a relevant end result. To function well in society, a learner presently, as well as in the future, should be proficient in the three r's as basics in the curriculum.

Adding additional curriculum areas to reading, writing and arithmetic minimizes essential, basic learnings needed by pupils. There are a specific number of hours in any school day. Broadening the scope of the

three r's curriculum may not assist in developing proficiency in reading, writing and arithmetic.

The three r's could be emphasized rather heavily in the science curriculum. Thus, pupils could read subject matter from basic textbooks, library books, encyclopedias and other printed materials in ongoing science units. Also, pupils may experience numerous writing activities in the science curriculum. Learners might then write outlines, main ideas, diaries and log entries, book reports and methods of procedures in experiments in ongoing units of study in science. Arithmetic, as the third "r," could be emphasized as the language of science. Precise measurement is very important in science units of study.

The methods of science may be greatly minimized in a three r's emphasis in science. For example, pupils doing much reading of content in each unit may well de-emphasize using process approaches in the science curriculum.

Pupil achievement in certain curriculum areas is easy to measure as compared to process skills acquired in science. For example, achievement in word identification in reading, computations in arithmetic, and in the mechanics of writing (spelling, punctuation and capitalization) can be measured in a precise manner. Computations in addition, subtraction, multiplication and division are either correct or incorrect. Or, words are spelled correctly or incorrectly by pupils. After instruction, the teacher may measure the percent of correct responses given by pupils to learnings acquired by learners in reading, writing and arithmetic.

In contrast, it is difficult to observe each pupil's progress in the following processes in the science curriculum: observing, hypothesizing, making predictions, identifying problems, classifying content, and acquiring concepts and generalizations.

Improving the Science Curriculum

What might be done to improve the curriculum area of science? Inservice education programs may assist to bring feelings of relevancy toward science. Teachers and supervisors should select themes and identify problems to solve in science teaching. Significant problems might include selecting significant goals for pupils to achieve, using science equipment in ongoing units of study, constructing science equipment, emphasizing the methods of science in teaching pupils, and innovative means of appraising pupil performance. With quality inservice education, teachers and supervisors might believe that more time needs to be allotted to the teaching of science.

A teacher might visit schools emphasizing quality programs of science instruction. Among other methods, the following might be empha-

sized in innovative programs: process objectives being emphasized in teaching-learning situations, learning centers in which pupils individually sequence their own learnings, utilization of measurably stated ends, and use of contracts in ongoing units of study in science. The teacher, having visited innovative schools in science instruction, should share findings with professional colleagues.

Teachers and supervisors might research recent literature in teaching science creatively. Each philosophy and methodology in the teaching of science needs to be analyzed. A study of the present program of science teaching also needs to be studied and described to notice deficiencies. Ultimately, harmonizing traditional and innovative methods of teaching may well become a challenging goal for teachers and supervisors to pursue.

Considerable attention needs to be given to the concept of *balance* in the curriculum. *Balance* pertains to how much emphasis should be given to the teaching of science, as compared to reading, writing, arithmetic, social studies, and health, among other curriculum areas. Living in a scientifically oriented society, pupils need to experience an adequate number of units in science. The natural world and human scientific endeavors challenge individuals to make this a better place in which to live. Problems of pollution, weapons of destruction, and violence in society need viable solutions. The science curriculum must emphasize the following:

1. means of increasing healthful life spans of human beings,
2. methods of increasing food production to prevent hunger and starvation on earth;
3. process approaches to solve problems involving racism, wars and other forms of discrimination;
4. technology to provide adequate housing and clothing for all individuals; physiological needs of people must be met so each may contribute more adequately in society;
5. ways of making the world of work more fulfilling and purposeful;
6. education of individuals in which universal ethics and standards increasingly become an inherent part of the self.

Conclusion

Science, as a curriculum area, has tremendous contributions to make toward individuals, and society in general. Objectives, learning activities, and evaluation procedures need careful selection in ongoing units of study. Learners with teacher guidance need to experience

1. interest, meaning, and purpose in the science curriculum;
2. relevant subject matter processes necessary to solve problems.