

An Approach to Team Teaching Biology

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Using the summer session for experimentation in team teaching is described here. However, as a result of their 1962 experience, the authors have some specific admonitions.

Our team teaching experience took place in a seven week summer school which was attended by over 1800 students, most of whom were taking courses for enrichment. In this 1962 summer session, classes began at 8:00 A.M. and ended at 12:30 P.M. In the two biology classes which we combined, more than ninety percent of the students were taking the course for enrichment. Some of the success of the program must be attributed to the organization of summer school and its policies concerning the student. One such policy provided for the dismissal of students not meeting minimal standards by the end of the second and fifth weeks. Another policy provided that laboratory courses would have ten two hour afternoon sessions in addition to the standard thirty-four, four and one-half hour days. In other words, summer school consisted of twenty-four, four and one-half hour days and ten, six and one-half hour days.

The principal goal of our project was to explore the possibilities of team teaching in our school in order to ascertain how the one year biology course could be enriched by using team teaching methods. Also, we were interested in determining, A. the possible advantages to student and teacher, B. the extent to which the facilities of the school could be geared to the team teaching of biology, and C. the administrative problems and details involved in handling laboratories and lectures for a large group.

We freely admit that we entered the program with some reservation. Our original plan was to team teach only two weeks, but in view of encouraging results, we extended the program, hoping to obtain more valid judgments.

Our sophomore biology curriculum guide includes nine units. A major problem we faced was dissecting the course outline in such a manner that it would meet the rigor-

ous demands of the seven week summer session. We decided that the most efficient method would be to use the first seven units of the course outline intact and to interweave the last two units covering ecology, conservation and evolution. We felt that these three subject areas lend nicely to dispersal among the others. This organization of the subject matter allowed scheduling one unit per week.

The units were as follows: 1. Introduction 2. Microbiology 3. The Plant World 4. Invertebrates 5. Chordates 6. The Human Body 7. Genetics

For the first week, the two classes maintained their separate identities, allowing each teacher to become acquainted with his students. During this time, the Introductory Unit covering the chemical and physical aspects of life and the principles of taxonomic keys was taught by each individual teacher. From this point on, the combined groups met daily for lecture-discussion; however, in the laboratory each teacher worked with his own group. Both laboratory groups covered the same material and would have been combined had a large enough laboratory been available. Our biology laboratories were designed to accommodate twenty-four students.

Once the course outline was dissected and inspected, it became obvious that should we like to continue the study after the first three units, however, there remained the task of assigning teaching responsibilities for the last four weeks. The decision was made arbitrarily on the basis of teacher interest and preparation. In this particular case, we were fortunate that the units were assignable alternately week by week.

The responsibilities of the two teachers were as follows: The unit teacher, A. provided the lecture-discussion material, B. planned all visual aids, C. selected laboratory materials, D. planned and supervised all testing, and D. managed his group in laboratory.

The other teacher, A. aided in preparation of the audio-visual aids, B. prepared laboratory materials, C. assisted in testing, D. managed his group in laboratory, and E. made personal preparations for his week as the unit teacher.

The team teaching approach required extra work by the teacher. The students also were obligated to produce at a higher level. To illustrate this point, we list the reading assignments given during this session.

- Smith, E. T. 1959. *Exploring Biology*. Harcourt, Brace and Company. Chapters 1-23.
 Breneman, W. R. 1959. *Animal Form and Function*. Ginn and Company. Chapters 16-18.
 Buchsbaum, Ralph. 1948. *Animals Without Backbones*. University of Chicago Press. Chapters: 1-15; 17-25.
 Buchsbaum, Ralph and Mildred Buchsbaum. 1957. *Basic Ecology*. Boxwood Press. Chapters 1, 2, 4, 6.

In addition to text readings, the students were required to A. prepare insect collections and plant collections, B. submit numerous laboratory drawings, some of which required explanatory essays, C. compile results and draw conclusions for some laboratory experiments, and D. prepare reports relative to their fieldtrips. A full day (6½) hours was utilized on each field trip. At the Indiana Dunes we studied dune succession; at Morton Arboretum we studied forest succession; and at the Chicago Natural History Museum we studied animal adaptations and evolution.

At the end of the session, a sixteen item evaluation sheet was given to the students. On this form they indicated that,

1. With some qualifications concerning the length of time, the work assignments were fair.
2. Most of them felt that they could learn as much in a large group as in a small group.
3. Most of them preferred two teachers to one.
4. All of them felt that they had gained from their experience with team teaching.
5. With some qualifications, they thought they would like to take another team taught course.

As teachers in this situation we also developed opinions.

1. Team teaching should arise from a

voluntary cooperative effort of the persons who are to be involved.

2. All teachers involved in the program should be of equal academic strength. If one teacher is academically more forceful, the program *might* become "his" and thus cooperative gain is eliminated.

3. Team teaching involves a greater amount of effort and work. Teachers involved in such a program should be granted a lighter teaching load.

4. The better student would probably profit more from the team situation.

5. The slower student would probably profit to some extent, but would gain more from a small class with one teacher.

6. In the team teaching situation, group dynamics seems to be of great importance; therefore, 5 above may be a difficult, if not an insurmountable problem.

7. The physical plant should provide convenient, large group lecture rooms and closely associated laboratories.

8. Although we have not tried this program during the regular year, we believe that this type of program would not be as adaptable to a fifty-five minute period, as to the summer school situation, in which there were longer uninterrupted periods of time.

We feel that our experiment was beneficial and that in many ways and in the proper situation, team teaching may be a step forward in the teaching of biology.

Forestry Fellowships

The State University of New York at Syracuse University, Syracuse, New York, is offering fellowships in forestry. Applications may be obtained from Associate Dean, State University College of Forestry at Syracuse.

Shell Fellowships

Shell Fellowships are being offered to chemistry, physics, and mathematics teachers or department heads and supervisors who have taught these subjects. Applications are due January 1, 1963 to Philip G. Johnson, 3 Stone Hall, Cornell University, Ithaca, New York, or Paul De H. Hurd, School of Education, Stanford University, Stanford, California.