

Teacher to Teacher

INDIVIDUALIZED INSTRUCTION IN ADVANCED PLACEMENT BIOLOGY

As an Advanced Placement biology consultant this year and a fifth-year teacher in the program, I am well aware of the struggle involved in trying to cover this extensive course of study. My first two years of teaching AP biology were so frustrating I seriously considered not continuing the course.

Students enrolled in the program have a diversity of science background, if any. To compound my problems the first two years, I taught the course in a traditional manner, with formal lectures and labs, thus losing the interest of students who had already mastered some of the concepts and needed help in other areas that could not be covered extensively in the limited time available. The results of those two years' AP exams were most discouraging.

The turning point came when I attended a workshop on individualized instruction. The course of study I developed using this technique was, and still is, time consuming. Before meeting with my third AP class, I spent most of the summer developing individualized units on the cell and biochemistry. Fortunately, the third year class readily accepted this new approach. Because they knew that not all the objectives for the course of study were developed, the class and I literally raced each other through that rewarding year! Learning concepts for the objectives involved their working in lab, listening to teacher-developed cassettes, observing a variety of audiovisual materials, and discussing difficult concepts with each other or individually with me. The exam results for that year, and the next, were exciting. Through self-instruction,

Results of AP biology exam administered before and after individualized instruction was initiated.

Year	Number enrolled in AP biology	Number taking the exam	Number of grades of	% Passing
1970-71	16	10 (64%)	0 1 6 2 1	90
1971-72	12	11 (92%)	2 2 4 1 2	64
1972-73*	12	12 (100%)	0 0 6 3 3	100
1973-74	13	13 (100%)	0 0 6 4 3	100

*Individualized instruction initiated

each student has expressed an understanding of the objectives and has also found time to do individual science projects.

This year, AP biology consultants are available to

aid and support instructors of this course. We want to encourage AP teachers to persist in their commendable work of inspiring capable students who have consistently demonstrated that the AP program is truly worthwhile.

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STUDENT ATTITUDE AS A MEASURE OF TEACHER PERFORMANCE

Regardless of my personal feelings toward our latest educational fetish, accountability, I must grant it some degree of legitimacy. Evaluating a teacher's performance or determining whether a student is getting his educational dollar's worth present such difficult problems that it is easy to play "wooden leg": since we are dealing in individual human elements with an infinite permutation, why even try? However, since my professional wares are in the acquisition and application of knowledge, I am reluctant to foster the "unsolvable problem" concept. I have to believe that somewhere, sometime a reasonable solution will be found to educational evaluation. While we are waiting for that solution there must be some things that could be tried by teachers on an individual basis to gain insight into our current educational posture.

For several years I have used the BSCS final exam as a pre- and posttest. Each time my students showed a significant gain in their scores, but I have never really felt that I was finding out anything very important. In terms of "things," very little of what is "learned" is functional by the time an individual is out of school. Much teaching of facts is justified on the basis of facts being required for higher levels of mental construction. However, when teachers test students, facts are usually the only things asked for. It seems to me that a student need only once to prove that he can memorize. Regardless of a student's mental skills, it is his attitude that determines in which direction he will use them. What a student is left with after a course is not a huge repertoire of useful facts but a memory of an experience. He will evaluate it as useful or useless, pleasant or painful.

Students seek psychological rather than academic success. Academic success may bring psychological success, but when facts pose a block to psychological success, the facts cease to be functional. Thus, I consider attitude my first priority and cognitive learning only a means.

If attitude, then, has top priority, students should be