

Reflections From the Literature on College Teaching

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The recent literature on college teaching reflects widespread interest among faculty members, from nearly all disciplines, in finding more effective ways to teach their students. Many instructors, disenchanted with traditional college teaching methods and structure, are experimenting with different approaches to teaching. Most of these experiments contain at least one of the following provisions: (1) selection of options by students, (2) experience-based activities, (3) self-paced learning, (4) activities involving groups of students in the class, (5) direct involvement of the student in his own learning, (6) the use of instructional technology, and (7) independent study.

Teaching experiments range from Student Teach-Ins (Parrott 1974), Personalized Multi-Mode Courses (Duane and Fitt 1973), and Clustering (Lane 1975) to the Learning Theater (Rudman 1972), Discovery Laboratories (Jones 1975), Human Encounters (Raskin 1975), and Linear Programming (Brune 1971).

These are some of the findings resulting from a review of the literature on college and university teaching from the late 1960's to 1978, with emphasis on the 1970's. McKeachie (1970) reviewed research on college teaching from 1925 to 1970 and an attempt was made to avoid repeating the findings of his study.

The search of the literature included every issue of *Improving College and University Teaching* (1970-75), numerous selected articles from the *Journal of Educational Psychology*, articles accessed by the ERIC system, and a number of recent books on college and university teaching.

My experiences in conducting seminars on teaching for hundreds of college instructors over the last 12 years served as guidelines in the selection of literature for review. For example, I have found that the teaching material which has the most impact on faculty is practical, useful, and the result of studies or experiences of respected colleagues. The following summary of findings from the literature on college teaching and from the seminars is based upon these selection criteria.

Factors Critical to Teaching Success

College instructors may not fully realize their impact upon students outside the formal classroom. A study by Gaff (1975) is one of several which concludes that the college teacher's chances of being regarded as effective are significantly affected by the extent he interacts with students beyond the classroom. Wilson, Gaff, Diemat, Wood, and Barry (1975) found in their studies of several hundred college freshmen and seniors that students who

change the most (intellectually, politically, and creatively) had more frequent interaction with faculty outside of class, more frequent out-of-class discussions with faculty concerning campus or social issues and academic or intellectual issues.

Students in the change group said the teachers influencing them the most were those who stimulated them intellectually, demanded high quality work, helped them feel confident of their own abilities, and were available and open to any discussions.

But the single biggest difference between effective faculty and their colleagues was the extent to which they interacted with students outside the classroom.

In his study of successful college teachers, Chambers (1972) concluded that apparently the teachers who most affect the creative development of students ultimately receiving the Ph.D., do so in the course of graduate programs, not during undergraduate days. The significant effect upon the student appears *not* to be the result of classroom experiences, but rather from experience in the laboratory, the office, the hall, or other informal settings.

Somewhat contradictory results were identified by Truex (1975) in his study of Flanagan's critical incident technique involving 144 college-age students ranging from sophomores to seniors. He found the personal/social factors are of a lesser importance, the professional factors of greater-to-overwhelming importance to teaching success at the college level. The largest percentage of critical requirements necessary to teaching success are found in two broad areas: knowledge of subject matter (28.6 percent) and class presentation (33.5 percent). The one area reflects the intelligence and training necessary to achieve respect in a college classroom. The latter area indicates the need for the dynamic class relationship requisite to continued learning.

Organizing for Teaching

Wilson, et al., report that effective teachers are not any more or less likely than their colleagues to be either highly organized or highly discursive in their presentation of course materials.

But Henderson (1970) found when a teacher has not sufficiently thought through his objectives or assimilated the ideas and content of his subject, his instruction is mediocre and his course a bore for the students. Henderson's plan involves three stages: analysis of objectives, analysis of materials and methods to be used in achieving the objectives, and preparation of the syllabus or plan of action. If a survey of needs has been made, the analysis of objectives should be based upon the findings. In the first stage of planning, making detailed analysis of his ob-

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jectives — including the achievement outcomes he expects of his students — it is important for the teacher to interrelate the aims involved in the learning by the student with the content of the subject matter. Most college teachers do not make such an analysis. They simply make a brief outline, usually of the subject matter to be taught, adding textbook assignments or references. It is also not uncommon for a textbook to be used as the outline, with no use made of the principles of learning.

In the writer's experience, good course outlines usually include a statement of measureable objectives, content to be taught and learned, the teaching and learning plan(s), a tentative calendar of events (including student and/or student group assignments), testing and grading plan, and bibliography. Ideally, this information is given to the students in writing at the first class session.

Teaching and Learning Modes

From his studies of research on teaching, McKeachie concluded that differing methods do make a difference in learning if one analyzes the different goals of education and, further, that there is no one best method for all goals, students, or teachers.

University instructors have many choices in providing learning alternatives for students in any particular class. Brown and Thornton (1971) describe some 28 teaching and learning modes which serve as a useful reference for faculty in selecting the methods which seem best suited to them, to their students, and to their course objectives: formal and informal lecturing, discussion, role-playing, demonstrations, laboratory assignments, field trips and community studies, small-group instruction, seminars, independent study, assigned reading, assigned listening, assigned viewing, programmed and computerized instruction, papers and written reports, committee work, oral reports, creative projects, work experiences and internships, audio-tutorial, panel discussions, debate, buzz groups, and brainstorming.

The method most commonly selected by college instructors, but perhaps the least efficient, is the lecture. Schalock (1976) reports a recent study in England by McLeish (1968) directly concerned with the amount of information gained from lectures. In this experiment students were told they would be tested just after a lecture and they would be permitted to use their notes in taking the test. The results of the test which immediately followed the lecture indicated that no student retained more than 42 percent of the content covered in the lecture. One week later, without the use of notes, no student could recall more than 17 percent of the lecture material.

The lecture might be a more efficient mode if planned to include student participation. For example, good lectures usually incorporate the following processes: preparation, presentation, comparison, generalization, application, and summarization. College students can and need to learn how to compare, generalize, apply, and summarize as a part of their class experiences.

Modes which require students to become actively involved in learning apparently result in improved student achievement.

Testing and Grading

Milton and Edgerly (1976) estimate there are slightly more than a half a million faculty members in American colleges and universities, and that these faculty members administer over 100 million tests every academic year. Although these test results determine whether students remain in school, enter professional or graduate institutions, and secure jobs, their studies suggest too much academic measurement in the classroom is conducted in a cavalier fashion.

These approaches to testing and grading probably arise more from ignorance of proper test construction and means of assigning evaluative letter grades than from willful attempts by instructors to impugn students.

Research on testing and grading reported in the literature is quite limited, but some recent articles contain useful information which would help instructors do a better job. In Anderson's (1972) studies on constructing tests to assess comprehension, he searched every issue of the *Journal of Educational Psychology* and the *American Education Research Journal* from January 1964 to February 1971. His work involves the relationships of test wording to the wording of instructors and explicit definitions of rules to derive test items from instruction such that a person can answer the items correctly if, and only if, he comprehends the statements.

Johnson and Stratton (1966) conducted one of the few investigations of evaluating concept learning with college undergraduates in which the methods of training and testing resemble those used in real instruction. Their evaluation of five methods of teaching concepts by comparable training and testing showed that learner performances improved under the methods and tests utilized in the experiment.

The purpose of a study conducted by Wexley and Thornton (1972) was to determine if verbal feedback enhances learning as measured by test performance one to two months after original administration of test items. The study also investigated whether there is a relationship between the effectiveness of teacher verbal feedback and certain student characteristics.

After each quiz, students were given feedback on half the test questions. Their final examination contained an equal number of feedback and non-feedback items repeated from the previous quizzes. Students did significantly better on those items on which they had originally received feedback, even in the case where the feedback had been given nine weeks prior to the final examination.

Wong (1973) surveyed the literature on essay testing and concluded that the deficiencies of the essay type of evaluation appear to lie not in the essay test procedures per se, but rather in the delineation of objectives of instruction which make suitable, valid, and reliable evaluation possible. His results indicate that with the appropriate delineation of instructional objectives and a system of scoring essay tests, respectable reliabilities can be obtained.

DePue (1974) discusses the need for accuracy in the measurement of students and arriving at a letter grade. He devised a computing table which provides for an accurate, stable, inclusive standard, combining 1) a true decimal scale based on a valid relative zero with a ratio scale including the two variables of knowledge and student ability normalized on the constant of an ideal percentage mid-score and 2) the five-letter scale for subjective marking.

He has found that the secret for a successful measuring device, system, or program, as against a punitive one is to broaden the base of the standard used and at the same time to reduce variability within that standard.

A host of other articles on measurement indicate that college instructors can improve their testing and grading of students and reduce student complaints considerably if their assessments are fair, impartial, reasonable and consistent.

Evaluation of Teaching

In my work with college faculty, I have found genuine and widespread interest in teaching improvement. These interests are derived primarily from intrinsic satisfactions. Major problems exist in providing extrinsic rewards due to the lack of an effective institutional reward system to recognize good teaching and the difficulty of measuring effective teaching.

Hildebrand and Wilson (1970) suggest that the implementation of evaluative procedures can enhance teaching by helping faculty members improve their own teaching and by allowing decisions about salary, promotion and tenure to be based in larger measure on evidence of teaching effectiveness.

Ratings by students and the judgments of a chairman or dean are the most commonly-used means of evaluating a faculty member's teaching competence. But the most prevalent approach to obtaining evidence of teaching effectiveness is student ratings.

Although evaluations by students are less than perfect and arouse the ire of some faculty members, they seem to offer the most reliability.

Waldo (1974) cites research by Riley and others, which he has substantiated in his experiences. He concludes that ratings given college teachers by their students are consistent with those made by trained, experienced observers. And the quality of the work done by a student in a course does not affect significantly his subsequent rating of the instructor.

Frey (1974) compared 13 different instructors who were rated by students in two multi-section calculus courses and found the students were consistent in selecting the same teachers as the "best" and "worst" instructors on this strength. Statistical analysis showed a difference as large as that observed would be expected on a chance basis less than one time in a million.

When students were asked to comment on the workload in their calculus classes, the differences in their mean ratings for each instructor were also extraordinary

reliable. These results suggest students can clearly discriminate among the teaching performances of different instructors.

Rose (1976) has some contradictory thoughts on the use of student ratings. First, ratings are affected by class size, academic discipline, course content, and experience of the faculty member. Second, there is no evidence to suggest student ratings are effective aids for improving teaching. Finally, students' satisfaction with learning represents little more than an illusion of having learned.

Another matter of equal concern is a reminder by Lewis (1975) that much of the literature seems to equate effective teaching with good teaching. But it is entirely possible that one can inspire students to learn much trivia well.

Summary

The literature on college teaching contains many useful suggestions for improving teaching. But a host of faculty members are unaware of them because they read journals only occasionally outside their fields. Thus, there is a need to prepare and present summaries of findings on college teaching to the faculties and to make available the publications of findings which interest them.

College faculty are genuinely interested in learning more about teaching, particularly in the areas of methodology, testing, grading, practical ways of involving students in learning, and more effective means of evaluating teaching.

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