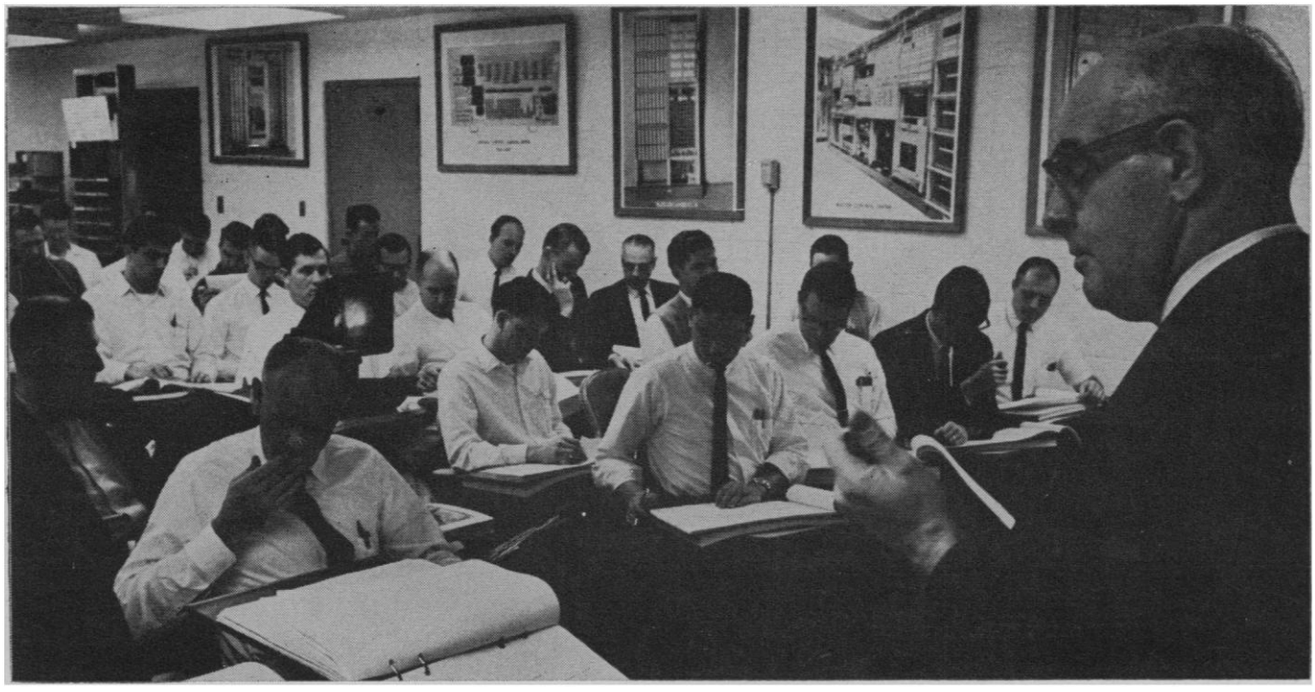


Continuing Education for Engineers

AAAS Symposium—28 December • Dallas, Texas

Policies on continuing education (CE), program-implementing problems, and unresolved needs will be discussed candidly at a confrontation of management, academia, and the professional engineer during a day-long symposium on 28 December 1968 during the Annual Meeting of the American Association for the Advancement of Science, Dallas, Texas. The focus will be on reconciling differing views about the nitty-gritty issues which determine the success or failure of CE efforts. Specific CE programs and teaching techniques will be considered only incidentally. For purposes of this dialogue, CE is defined as including only refresher and updating activities that help the professional engineer offset and overcome technical obsolescence.

The professional engineers will review their CE experiences in all areas of professional employment. Why certain activities have been more helpful than others, what others are needed, the nature of existing CE inhibitors and motivators in the work environment, academia, and the community at large, and the professional engineer's responsibility for independent CE action will be among the items considered.

In turn, from their respective vantage points, management and academia will review problems common to all sectors as well as those that are unique to a single one. Thus, management will comment on such items as the pros and cons of management-supported CE programs for technical staff updating compared with hiring recent graduates and making other work-force replacements; CE as an employee fringe benefit; criteria for CE program design; the bases for determining the extent of employee CE participation that the organization's mission requires; how engineer CE program participation is evaluated in terms of management dollar investments, employee work performance, and other effectiveness criteria and objectives; and to what extent management should seek to make its CE program serve as a mechanism for developing creative interprofessional collaboration as well as to strengthen the staff's innovative spirit and learning capacity.

Somewhat in the same view, management will also explore certain CE problems that impinge on academia's responsibilities, mission, and capabilities. For example, to what extent should management assume primary responsibility and initiative for planning, organizing, and maintaining in-house educational activities designed to help the professional engineer keep up to date? In the absence of such actions what are the available alternatives?

Academia, which appears to be caught between several competing demands, will review its concerns about higher education's missions and its responsibilities as they relate to the burgeoning needs for engineer CE. Further, in response to the appraisals of academia-related issues by management and the engineer, the following types of questions will also be considered.

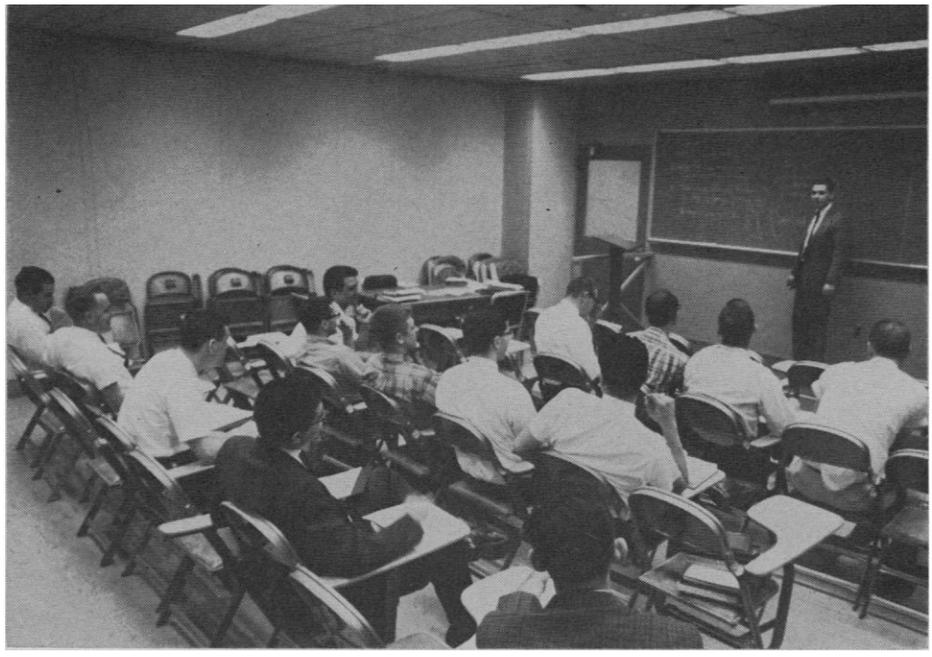
1) Is academia's first responsibility the production of new engineering graduates or the maintenance of former students?

2) What are the practical aspects of trying to do long-range CE program planning?

3) How can one involve faculty more extensively in CE programs?

4) What is academia's position on the professional engineer's views of his needs, particularly those for whose satisfaction he looks to the university?

5) Should emphasis continue to be placed on earning advanced technical degrees rather than focusing on courses



An expanding technology demands more and more of us. It is a matter of company concern that employees find opportunities for education to meet these demands, and the educational programs that have been established are a measure of this concern—Bell Telephone Laboratories, Inc.

directly related to the individual's present areas of work specialization?

6) Is the emphasis of concerns about technical obsolescence unduly addressed to the research and development test and evaluation engineer work force at the expense of the long-term needs of the bulk of other professional engineers?

Not to be ignored is the nagging question of technical faculty obsolescence and the options academia would like to have in meeting this situation. Further, what is academia's view of the increasing amount of CE activity being developed by the professional societies? Is this considered an intrusion into academia's jurisdiction or a welcome relief from intolerable burdens?

More narrowly oriented CE questions to be considered include the following.

1) What is the role of the supervisor and the nature of the work assignment in determining individual CE involvement?

2) What are management's bases for authorizing individual CE program participation?

3) What are the pros and cons of specifically and publicly associating individual engineer promotions, work assignments, and other awards to degrees of CE involvement?

4) What are effective technical obsolescence indicators and who has primary responsibility for their use?

5) What has been the impact of CE formal program participation on employee professional mobility within the organization and on separation rates?

6) What to do about the unmotivated engineer?

This symposium was organized as part of a continuing concern about improving the effective utilization of technical manpower, particularly in response to existing and projected shortages. Also, it is a follow-up to a recently completed exploratory study of CE for research scientists and engineers by Social Research, Inc., under contract to the National Science Foundation. (Report copies will not be available for several months.) The study findings underscore an urgent need for better mutual understanding of CE issues by management, academia, and the professional engineer. They also suggest a need to clarify individual CE needs and objectives in order to assure more effective returns on annual program investments.

An especially well-qualified panel of speakers has been assembled for the symposium as follows:

Representing the Professional Engineer:

James D. Boulgarides (Manager, Business Systems, Douglas Missile & Space Systems Division, Douglas Aircraft Co., Inc., Santa Monica, Calif.).

Edward H. Freiburghouse (Manager, Quality Control, Turbine Department, General Electric Company, Schenectady, New York).

Representing Management in Industry and the Federal Government:

A. V. Willett, Jr. (Staff Consultant, Personnel Development Division, E. I. du Pont de Nemours Company, Wilmington, Delaware).

Sheldon Davis (Vice President and Director of Industrial Relations, TRW Systems Group, Redondo Beach, California).

Paul E. Purser (Assistant to the Director, Manned Spacecraft Center, NASA, Houston, Texas).

Representing Academia:

George J. Maslach (Dean, College of Engineering, University of California, Berkeley).

Israel Katz (Dean, Center for Continuing Education, Northeastern University, Boston, Massachusetts).

The lead-off speaker will be Richard Renck (Social Research, Inc.) principal investigator for the recently completed exploratory study of CE for research scientists and engineers. This study was monitored by Zola Bronson (Staff Associate for Science Management Studies, National Science Foundation) who also planned and organized this symposium and will serve as its presiding officer.

ZOLA BRONSON
National Science Foundation, Washington, D.C.

See Science, *4 October 1968, for details about registration and hotel and tour reservations for the AAAS Annual Meeting. Additional reports on symposia taking place at the Meeting appear in the following issues of* Science: *13 September, "Sport and Its Participants"; 20 September, "The Control of Fertility"; and 27 September, "Unanticipated Environmental Hazards."*