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ABSTRACT

This document reports a study of the aims, scope, and character of employee education and training activities among corporations with 500 or more employees, a segment of industry that accounts for about one-half of total private employment in the United States. Most data are projected from responses by 610 companies to a lengthy Conference Board questionnaire. The report also reflects information and insights gained through personal interviews with executives at scores of these same firms. The first section (chapters 1-3) presents an overview of the corporate employee education and training activity, describing its goals, scope, staffing, and organization. A second section (chapters 4-5) describes industry's use of outside resources for employee development and its own after-hours programs, while a third (chapter 6) is devoted to the internal programs provided during working hours. Section 5 (chapter 7) reports on the views of business executives about facets of the industry-school relationship. Finally, several case illustrations provide a glimpse of the full range of education and training activities in individual companies. Companies represented include Cincinnati Milacron, John Breuner Company, and John Hancock Mutual Life Insurance Company. Appendixes include (1) a brief report on educating nonemployees, (2) descriptions of existing company courses, (3) summary of the survey sample and methods, and (4) additional data on company expenditures. (YLB)

Education in Industry

By Seymour Lusterman

A Research Report from The Conference Board's
Public Affairs Research Division
Walter A. Hamilton, Vice President

THE CONFERENCE BOARD is an independent, nonprofit business research organization. For more than sixty years it has continuously served as an institution for scientific research in the fields of business economics and business management. Its sole purpose is to promote prosperity and security by assisting in the effective operation and sound development of voluntary productive enterprise.

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-S.L.

Foreword

PRIVATE INDUSTRY IN the United States includes an extensive education and training system that has developed principally from business's need to translate the general skills of newly hired employees into more particular job competencies, and to ensure the continuing adaptation of its work force to new knowledge and technology. As this study confirms, there is no doubt in the minds of corporate executives that these are necessary and legitimate functions for industry to perform.

To many planners in government and various quasi-public institutions, the corporate education and training system appears to connect with, or brush closely by, a number of education-related social and economic problems — the transition of youth from school to work, productivity, imbalances between job skills and market needs, opportunities for women and minorities, averting occupational obsolescence and facilitating career change — and to have the potential for new or enlarged roles in their management. If the nature of these roles is not clear, an important reason is that the corporate education and training system itself is largely hidden in shadows — seen dimly, if at all, and certain of its parts often mistaken for the whole.

The principal aim of this study, then, is to illuminate this terrain. It is also hoped, however, that its overview of current business practices will bring some fresh perspectives to companies in the management of their particular employee development activities.

Reflecting the public interest in the views of corporate executives and the practices of business firms in this area, a major share of the funding for this study was provided by the Carnegie Corporation of New York and by the Rockefeller Brothers Fund. Essential and valued cooperation was also provided, of course, by the many firms that completed our questionnaires — over 800 in all — by the scores of business executives who gave generously of their time in private interviews and correspondence, and by numerous individuals who helped in planning the study.

For all this assistance we are most grateful. Responsibility for the design, findings and conclusions of the study is The Conference Board's alone.

The study was planned and executed by Seymour Lusterman, a Senior Research Associate of the Board's Public Affairs Research Division, with special assistance and cooperation from Harold Stieglitz, Vice President, Management Research.

K. A. RANDALL
President

Overview

THIS IS A STUDY of the aims, scope and character of employee education and training activities among corporations with 500 or more employees, a segment of industry that accounts for about half of total private employment in the United States. Most of its data are projected from responses by 610 companies to a lengthy Conference Board questionnaire. The report also reflects information and insights gained through personal interviews with executives at scores of these same firms.

The first section presents an overview of the corporate employee education and training activity, describing its goals, scope, staffing and organization. A second section describes industry's use of outside resources for employee development and its own after-hours programs, while a third is devoted to the internal programs provided during working hours. Section four reports on the views of business executives about facets of the industry-school relationship. Finally, several case illustrations provide a glimpse of the full range of education and training activities in individual companies.

Private industry not only finances the purchase of education and training for employees at various outside institutions but, through increasingly prevalent and sophisticated "in-house" programs, has itself become a significant part of the nation's education system. While incidentally supportive of the job and career aspirations of participating employees, most employer-sponsored education and training stems from business needs. Formal programs addressed to one of these needs, the training and instructing of newly hired employees, account for a sizeable share of the education-training efforts of some firms, and even dominate them in a few. But it is programs for present employees, programs intended to prepare them to assume new responsibilities, to improve their performance in their present jobs, and to maintain their competence in the face of changing knowledge and technology, that take the lion's share of the resources that most companies bring to employee development activities.

Role of Schools and Colleges

Most business executives are critical of the performance of the nation's schools and colleges in preparing people for work, and deplore particularly the lacks they find in communications and mathematical skills among younger employees. Most believe, further, that these institutions would do well to emulate industry in its growing emphasis on student participation, the blending of classroom study with both programmed self-study and planned problem-solving experience, the tailoring of curricula to clearly defined goals and individual needs, and the employment of advanced instructional technologies. Still, only a small number think that much of their company's programs are in any sense remedial, or that these programs include subjects or skills that "are really the responsibility of the schools to provide." Typically, these spokesmen regard all or most of their companies' education and training activities as legitimate and necessary business functions.

Systems Approach

Viewing education and training as subsystems of larger systems for assuring the presence of skilled and productive human resources, many companies are pursuing a strategy that seeks to develop: (1) the capability in line managers and supervisors to distinguish training needs from motivational and organizational sources of performance problems, to conduct certain necessary training themselves, and to guide employees to other,

appropriate resources; (2) a corps of company specialists qualified to assist line managers with their responsibilities, and also to provide suitable in-house programs; (3) in-house programs flexible enough in content and method to meet carefully analyzed, changing needs; (4) effective feedback mechanisms for evaluating and improving both internal and external programs.

Staffing and Organization

Most companies plan and conduct their employee programs with personnel who have other primary duties, typically in conjunction with outside consultants and contractors. In two out of five firms, however — including virtually all of the largest ones and three-quarters of both financial and transportation-communications-utilities firms — there are employees who devote all or most of their time to education and training duties. The study estimates their total number at about 45,000.

More often than not, full-time specialists are at only one place in the company, usually a corporate level education, training or human resources department. Only slightly less often however, they are also in divisional, plant or other operating units, and sometimes they are only at such places. Corporate-level training departments, moreover, are usually responsible for only certain functions — notably, providing programs or courses in subjects for which, as in managerial training, there is corporatewide or interdepartmental need; for counseling and assisting training units and personnel elsewhere in the company; and sometimes for training clerical personnel at corporate headquarters. Many large companies with profit centers or other decentralized organizational forms are seeking to strengthen both the consultative and coordinating capabilities of central corporate departments and the planning and operational resources of trainers and training departments in operating units.

Outside Resources

A relatively small portion of the employee education and training burden is assigned by industry to resources outside the firm — colleges and universities, and a variety of proprietary firms. The programs, seminars and courses taken by employees at these institutions accounted for about $400 million in 1975, the study estimates, or about a fifth of total company expenditures on education and training. This amount was divided about equally between after-hours tuition-aid programs and study pursued during working hours and in the line of duty — the latter principally by managers and professionals.

Internal Programs

The largest part of industry's direct expenditures, four-fifths of the total, is made up of costs incurred for education and training activities conducted in-house, some of it after hours, but most during — salaries of full-time education and training staff, travel and living expenses, and payments for services or materials purchased and rented. Companies spent about $1.6 billion in 1975 for these activities. (The study made no attempt to measure such vastly greater, but more elusive, costs of employee education and training as wages and salaries paid to employees while learning, impaired productivity, and so on.) About 4.3 million employees, or better than one out of eight, participated in classroom or other off-the-job courses in-house — the great majority during working hours.

Curriculum

In-house course programs to prepare employees for supervisory or managerial responsibilities, or to improve or upgrade the skills of those already in such jobs, are provided in three out of five companies. Courses in technical and functional skills are only slightly less prevalent. However, a considerably larger number of employees took part in the company-sponsored technical and functional courses than in managerial and supervisory, and this category accounted for three out of four dollars of direct company expenditures.

Women and Minorities

To meet affirmative action goals, many companies have enlarged or introduced new elements into supervisory training programs. About three out of five also report that they have involved more women and more minorities in company education — a few by providing new courses of special interest to each of these groups, most by bringing more of them into existing courses.

The Influence of Company Size and Character

Large companies were more likely to have programs than smaller ones, and the 650 or so firms with more than 10,000 employees that employ three-fifths of all those in the universe embraced by this study, accounted for three-quarters of total expenditures. Among the different kinds of companies, financial institutions (mainly banks and insurance companies) and the Standard Industrial Classification group made up of utilities, transportation and communications firms also tended to be well above average both in program prevalence and in expenditures.

Chapter 1
Introduction

AMERICANS EXPECT FROM the complex of public, quasi-public, and private institutions that make up its educational system a role not only in molding values and in creating the "activity of thought, and receptiveness to beauty and humane feeling" that Alfred North Whitehead lists among education's goals, but in ensuring that men and women have the necessary skills and knowledge for work. Today, as in the past, the system is adapting to change — to the imperatives of new knowledge, technological innovation, and personal aspirations.

An important — perhaps the central — manifestation of this adaptive process has been described cogently by former Labor Secretary Willard Wirtz: "Today, almost suddenly, there is new questioning of two assumptions . . . that the interrelating of education and work is the sole responsibility of educators; and that education is something only for children, to be taken at one longer and longer uninterrupted sitting . . . and then never returned to."[1] Inevitably, this questioning has brought industry into the compass of its search.

Business has long played a variety of roles in education. It has lent financial support to private educational institutions, counseled schools on curriculum, and provided planning assistance.[2] It has also been a "market" for education, sending employees to institutions of various kinds, and bringing educators into its own offices and factories. Finally, it conducts a large and growing amount of educational activity itself.

[1] Willard Wirtz, "Speaking From Experience," *Training and Development Journal*, June, 1976.

[2] In 1975, the most recent year for which estimates are available, overall philanthropic support for higher education fell for the first time in a decade, but corporate donations grew to an all-time high of $357 million.

Part of the Education System

By almost any definition industry is, in fact, no less a segment of the nation's educational system than our colleges and universities, technical institutes, and other schools. It develops its own courses and curricula, employs faculty and nonteaching professional staff, carries on formal instructional activities, evaluates its programs and methods, and often does these in well-designed and equipped facilities that are devoted to them exclusively (see box).

College-Level Company Courses

The American Council on Education and the University of the State of New York are currently engaged in a joint "Project on Noncollegiate Sponsored Instruction," predicated on the idea that many company courses are in essential respects comparable to college courses, and therefore credit-worthy.

The project, which began in 1974, has already published two issues of a *Guide to Educational Programs in Noncollegiate Organizations*.[1] The more recent of them describes and recommends semester hours of credit for a variety of courses provided for employees by eleven firms, by several institutions of the banking and life insurance industries — and, of course, by various public and other nonbusiness employers.

[1] Copies may be had from the American Council on Education, Publications Division, One Dupont Circle, N.W., Washington, D.C. 20036, at a cost of six dollars.

As awareness has grown that employee education programs of some scope are carried out by industry, so too has the sense that little is know about them — and not enough, therefore, about opportunities that may exist for better integrating them with other adult education and human resources development efforts.

A Public Interest Agenda

There are a number of issues around which industry practices and public interests appear to many to mesh — or at least to meet on some common ground — and a potential for productive cooperation is assumed.

• *Basic Education.* Large numbers of young people complete their schooling without acquiring what by consensus are basic language and arithmetic competencies or reasoning abilities, while many more fall below the levels that the length and character of their education would seem to predict. How extensive are remedial programs in industry, and have they utilized methods or made discoveries about teaching and learning that should become known to the schools?

• *Equity.* Despite compulsory education, and our vast system of public schools, colleges and universities, inequities in educational opportunity based on birth and family income persist. Moreover, certain areas of knowledge and skill, and certain occupations, have traditionally been regarded as more appropriate to one sex than another. To what extent, if any, do company programs tend to create special opportunities for the economically disadvantaged and for women?

• *Nonemployees.* Government has been striving for a number of years to enlist the facilities, personnel and other resources of industry in skills-training programs for the unemployed. What is the potential of such arrangements and, if this is desirable, how can it be raised? More generally, how might the education and training resources of companies be utilized for persons not employed by them?

• *Occupational imbalances.* Weaknesses in the career information system, and a readiness by educational institutions to respond to "market demand," have led to oversupplies of trained people in some occupations and undersupplies in others. Have the consequences of this defect in the system been felt by the nation's large private employers? More broadly, how responsive has the educational system been to industry's needs?

• *Continuing education.* Increasing numbers of adults are seeking opportunity to study in order to keep abreast of their occupational fields, to advance in their careers, or to pursue new vocational goals. In what ways, and how satisfactorily, do companies provide such opportunities for their employees?

• *Career education.* In the minds of its advocates, career education encompasses many of these issues and a more basic one as well — the need to integrate into the education of the young those elements and experiences that will more clearly illuminate career choices for them and that will better prepare them for, and facilitate their transition to, work. How do corporate needs, methods and resources mesh with those of a career education system?

Corporate education and training programs raise other questions as well. For example, is it true, as many believe, that the schools and colleges can learn from them lessons about how to motivate and teach students? How much difference does it make to the educational opportunities of individuals what kind of firm employs them? Two IBM officials concluded a recent discussion of the subject with the thought that the separation of industry's activities from those of the colleges and universities, however effective "in meeting the huge costs of society's learning requirements," may make it more difficult than it already is for "the committed, disciplined and managed environment of highly structured (corporate) training to be affected by the skeptical attitude of the scholar and the innovative imagination of the researcher."[3] What principles should determine the scope, character and methodologies of the educational activities companies' conduct themselves?

Questions like these have been the backdrop to the present study. Its immediate aim is to describe the scope and character of industry's education and training programs for employees, particularly insofar as these involve company-coordinated off-the-job courses;[4] to consider the reasons for such programs; and to determine what company executives think about certain of the issues that have been mentioned.

The Survey

Specifically, this report describes education-training programs among companies having 500 or more employees; explores factors that might account for differences in their scope and character; and examines current trends and some of the changes of the recent past.

[3] Lewis M. Branscomb and Paul C. Gilmore, "Education in Private Industry," *Daedalus*, Winter, 1975.

[4] "Off the job" does not mean away from the premises of the company, but rather "not at work." Thus, off-the-job instruction often takes place in a company classroom or other instructional facility.

It is based in part on published material and on interviews and correspondence with scores of company officials, and with others interested or involved in employee and adult education. However, all of its quantitative material, and much of the analysis, derives from data provided by 610 companies in response to a 12-page questionnaire. These companies were selected to represent all those with 500 or more employees and, except where stated otherwise, the data in this report project their programs and practices to this universe in which there are over 7,000 firms, collectively employing about 32 million people — about half of all those in private, nonagricultural employment. The far greater number of firms with fewer than 500 employees are thus outside the purview of this study.[5] As will be seen, however, formal in-house education and training activities are far less prevalent even in the smallest companies included in the study — those with 500 to 999 employees — than in larger ones, and it appears unlikely that they exist at all for most of the employees of still smaller firms.

Despite certain shortcomings, some inherent in survey research, which are commented on in a description of the sample and the survey methodology in Appendix A, the data and projections of the study are judged to be reasonably reliable. A follow-up survey of companies that did not complete and return the original Conference Board questionnaire lends support to the possibility that the prevalence and scope of company programs may be somewhat overstated, but this is by no means certain and, if true, seems likely to be minor in degree.

Aims, Approaches and Resources

Education and training are elements, or subsystems, of larger systems by which companies seek to ensure that skilled manpower is available as needed and that it is optimally productive. Meshing with them, in shared service to these tasks of human resources management and development, are programs to identify present and future skills needs; to bring new employees into the firm; to assess the capabilities and potentialities of individual employees; to develop appropriate organizational structures and working relationships; to formulate and administer policies respecting compensation, benefits and other working conditions; to design work itself; and to integrate formal training with other developmental modes.

Education and training activities spring from three needs, which are shared by all organizations. The first of these is to accommodate to turnover and growth in personnel — that is, to the inevitable processes of organic change. As employees retire, quit, move to new assignments in their companies, others — present employees or new hires — must be taught to take over their duties.

Second, education and training needs are created by changes in the knowledge and skills required by, or available to, a company and its employees. New needs are constantly emerging from ventures into new products or services; from the availability of new knowledge, methods and techniques; from change in the physical, social and political environment; and, quite often, from growth itself.[6] Such changes have influenced the skills and knowledge needs of managers no less than of blue-collar workers, technicians or professionals, and have stimulated a body of theory and technique, ranging from operations research to the behavioral sciences, that has become essential equipment for the performance of supervisory and managerial functions.[7]

The third need to which education and training activities are addressed is to improve the skills and performance of present employees in their present jobs. Work competence has always been in some degree relative. As work becomes more cognitive and technical — as a decreasing proportion of employees perform simple, repetitive tasks — the potential for improvement in the productivity and the quality of work of individual employees and of working teams increases. Education and training is seen by management in more and more instances as an investment in human capital — an instrumentality for profit, growth and corporate vitality — rather than as an onerous cost.

Defining Need

Webster's definition of "need" as "a lack of something requisite, desirable, or useful" poses a central issue of corporate education-training management — how to distinguish between the "requisite" and the "desirable or

[5] Employment in the fall of 1975 (when the survey was conducted), excluding governmental and agricultural workers, but including service workers, was 62.5 million. The 1967 Census shows that about 41.9 million persons were employed by all of the 3.4 million private companies in the United States, and 19.6 million (or 47 percent) by 5,238 firms with 500 or more employees.

[6] The number of persons employed by the 500 largest corporations increased by over 4 million between 1965 and 1973 from 11.2 million to 15.5 million.

[7] In a document prepared for internal use, Du Pont's Employee Relations Department notes that one of the reasons for the increasing attention of industry to training has been "changes in the social aspects of industrial life. Management groups, generally, have become more democratic and have developed a greater appreciation of the importance of people to an organization."

useful," and to decide when the latter is sufficiently so to warrant company intervention. In many circumstances the need to teach new employees about their jobs, or to train present ones so that they may do their work better or assume new responsibilities, is self-evident. To question it is to dispute the goals of the enterprise. Most large firms require some kinds of expertise that cannot be acquired elsewhere but that are vital to their operations. It is essential, for example, for the phone company to train telephone installers. The number and kinds of these vital competencies are constantly being changed by management decisions — the decision to introduce a new product, for example, which calls for new competencies in manufacturing, marketing, data processing, and other parts of the organization. Mandated changes, as by law, may also impose clear and incontestable training needs. Compliance with such federal legislation as the Occupational Safety and Health Act and the Equal Employment Opportunities Act has required that supervisors, managers and other employees be instructed about the provisions and particular implications of these laws.

A major portion of the education-training activity of business, however, is undertaken not because there is no alternative, but from the judgment that benefits will justify costs and, in fact, represent investment opportunities. Justifications beyond the satisfaction of immediate or near-term skills needs are usually brought into this cost-benefit calculation. One is the "need" to assure occupational vitality — morale, in the sense of commitment to work — particularly among professionals and managers; to provide a learning milieu that is conducive to professional growth, and even at times encourages employees to prepare themselves for shifts in career paths.

Another increasingly common "need," in the satisfaction of which training programs have a role, is to stabilize employment in the firm — part of a strategy of filling jobs from within (often meeting technological change by retraining rather than firing and hiring), and thereby not only building on and making efficient use of existing skills, knowledge and experience, but also reducing turnover and enhancing morale.

Still another consideration is to increase the attractiveness of the firm as a place of employment and so improve its competitive position in the job market — even to being able to trade lower pay for learning opportunity.

Finally, programs may reflect a commitment by top management to use the resources of the firm more generously than law, traditional business practice, or labor market conditions may require, particularly with respect to racial and ethnic minorities, women and older employees.

The Changing State of Needs

A company's needs and programs change, often quite sharply, as the circumstances that prompt them do — that is, with change in its rate of accession of new employees and the availability of skills on the job market; in the demand for its goods and services; in its products, methods and technologies; and, finally, in its social, ecological and legislative environment.

A significant portion of the training activity, therefore, must be accomplished promptly and is nonrepetitive. Training programs may come into being to serve new plant start-up or new model needs, to teach technicians to service newly acquired equipment, or to instruct supervisors in the provisions and implications of new federal laws — and then be abruptly terminated.

Often the ebb and flow of need is more protracted. "Our highly structured training program," explains an official of the Port Authority of New York and New Jersey, "began 15 or so years ago to cope with shortages of electricians and auto mechanics. These were caused by our expanding needs as a growing organization, by a jump in the sophistication of our equipment, and by the failure of both the trade schools and the family inheritance system of skills transmission to keep pace. But in recent years the slowdown in the economy has brought about a surplus of skilled people looking for work, while our own programs — which have been in full swing for a number of years — have made it possible to fill most needs from our own ranks despite a substantial cutback in the training activity."

Finally, there is often a core of ongoing needs that seems to management, particularly in the largest firms, to justify a continuous offering of certain courses and programs. This is most common in the managerial and supervisory area.

Needs and Content

As both training needs and pressure for corporate profits have mounted in recent years, the approach that "more is better than less" has been giving way to more analytical methods. "Training has often been a form of entertainment in industry," says a steel executive. "We have to start justifying it in terms of measured results."

In their replies to a Conference Board survey question that asked what they judged to be "the more significant changes" of the past 5 to 10 years in their companies' education and training goals and in methods of achieving them, participants spoke both of past errors and new

approaches. But a repetitive theme was that education and training is now being viewed as a system in which analysis of needs, the development and administration of relevant programs, and evaluative feedback are the main elements.

A variety of pitfalls in the implementation of this approach have been recognized. One is the weight of tradition and inertia, of "courses that reflect history rather than need," as one executive put it. At the opposite pole is the attraction of novelty. To one training director, many company programs have been "plagued by fads, by the inappropriate application of newer technologies — courses that are taught with little concern for how, or even when, they can be applied." A third widely noted source of inefficiency has been faulty liaison between education and training staff professionals on the one hand and line management on the other, evidenced most notably in "training department courses" — courses that are "abstracted from operational realities" and "have to be sold to the field." Finally, there is a growing perception that knowledge and skills deficiences in employees are not the only reason for performance problems, and that other "systems" must be looked into in appraising them.

Leading off and conspicuous among the more particular changes of the recent past has been what company officials referred to in such terms as "more-precise definition of the competency levels we seek" and "more refined task analysis of duties and responsibilities" on the one hand, and the introduction of performance appraisal systems and other "systematic means for identifying employee abilities" on the other.

Matching subject matter with need implies individualization. A human resources executive with a leading manufacturer reports that "the history of formal education at our company during the past two decades has been one of gradual differentiation of courses and employee targets." Indeed, "individualization," "tailoring" and "flexibility" have become key terms in the corporate education-training lexicon; "batch training" and teaching subjects that are merely "nice to know" are marks of inefficiency and backwardness.

Encompassed by this goal also is a more extended time frame. One of the major differences, in fact, between the changes that have taken place in the recent past and those anticipated in the future, as both of these were described in the Board's survey, is a new emphasis on career planning — the working out of individual career paths. "Training focused on the need of individual employees," one executive reports, "will become a continuous process, and will continue through the employee's tenure with the company." "We are not just concerned with this year's manpower," says another, "but with anticipating what our needs will be ten years from now."

Particular attention is paid in many firms to identifying "high potential" employees, and to developing long-range plans for their training and nurture. One large manufacturing company recently put into place in all of its divisions and key departments a network of specialists for whom these tasks are a full-time responsibility. An ideal development program, one executive concludes, "has to walk a tightrope — to anticipate needs, but not bring too many people along the way, breeding frustration and discontent."

Learning on the Job

"Formal courses are a luxury," says one executive, and in their pursuit of cost efficiency many companies are shifting their emphasis in certain skills areas from courses to planned on-the-job training.

Learning — about the work community and about the job itself — begins to take place as soon as an individual enters the employ of a company or moves to a new assignment. At least some, and often all, of this new knowledge and skill is acquired in the course of working. The process may be haphazard and unplanned, as learning by observation and imitation, or by trial and error. Or, because tasks are too complex or the consequences of learning errors costly, or simply because some intervention or management is judged to be more cost effective, on-the-job learning may in some measure be planned.[8]

Such planning may involve a particular skill, such as operating a machine. Discrete learning steps may be specified, aids provided to be used in conjunction with them, and supervisors instructed in how to manage the process. Or, planned on-the-job training may have broader developmental goals and use such means as special and temporary duties, team or task force assignments, and job rotation, sometimes in concert with formal off-the-job instruction.

"The process by which learning takes place through work experience is substantially controlled by the manager," says one corporate official. "If his work assignments are repetitive, his employees will be good in a narrow field but won't grow. A good manager, who is interested in stretching and challenging employees, will force them continuously to go further — adding 'h' to

[8] Vestibule training is *on the job* in the sense that productive work takes place, and *off the job* in that the work is done at facilities designed specifically for learning.

Education, Training, or Both?

As the definitions quoted below confirm, "education" and "training" mean quite different things to different people. For the most part this report sidesteps the issue by using both terms – "education and training" or "education-training." Where only one is used it usually reflects the bias that education concerns information, concepts and intellectual abilities; training, skills acquisition through repetition in performance.

". . . It is not always possible to make a clear distinction between corporate 'training' and, say Whitehead's sense of 'education,' although one can imagine a scale of parameters in which that distinction might be drawn. At one end of the scale, which we may regard as more typical of training, lies measurability, narrowness of subject matter, relevance to a particular time and place, well-defined range of use, and efficiency of information transfer. At the other end of the scale, more characteristic of what we mean by education, lies the exposure to contrasting assumptions and points of view, the involvement of personal and intellectual initiative, less constrained range of use even to uncertainty about its specific utility, and the general impossibility of measuring on a quantitative scale the degree and quality of acquisition of insight."

–Louis M. Branscomb and Paul C. Gilmore, "Education in Private Industry," Daedalus, Winter, 1975.

* * *

". . . There is an important distinction between training and education. The purpose of training is to develop certain automatic facilities as in languages, bookkeeping, and the operation of machines. The function of education, however, is to provide the student with the capacity for analyzing and solving problems that confront him in his occupation, in his society, and within himself. It should also develop in him a desire to continue with intensive and systematic investigations after his formal program is completed. In the training program formulas and techniques are learned, rules are memorized, and mental or

'a,' 'c' to 'b,' and so on. This is the key mechanism the nature of the work that's assigned. On the other hand, employees can take work processes and add dimensions to them. So there's responsibility on both sides."

Learning off the Job

While efforts are being made to bring more planning and design to on-the-job training, this mode must often be augmented and replaced by off-the-job instruction at the worksite and elsewhere. Considering the costs of mistakes and lowered efficiency that on-the-job training can create in some situations, plus the increased complexity of work skills, there is a growing interest in exploring the effectiveness of off-the-job training. "The early stages of film and papermaking," explains an Eastman Kodak Company training executive, "requires the spooling of large sheets of material 40-inch widths at high speeds. The traditional way of training people to become spoolers is to turn them over to instructors at the job site. While they observe and listen to all that is being said, they tend to interrupt the work of machine operators.

"The new approach in this particular case is to start with a planned, off-the-job, orientation sometimes with a mock-up of the machine, sometimes with a film or other visual representation of its parts and functions. Operations, work techniques, and safety are explained. In some cases, machine operations can be learned and practiced with mock-ups. The theory, which has to some extent been born out in practice, is that off-the-job instruction makes more sense in more situations than we used to think, both as a time and money saver."

Resources

Insofar as companies rely on off-the-job courses to serve the learning needs that arise ceaselessly out of innovation, growth, and employee separations, transfers and promotions, they employ both internal resources and a variety of external ones. Among the latter kind are other companies, which teach employees of customer firms the uses of their products and services; organizations and individuals specializing in employer training needs; as well as schools, colleges, universities and technical institutes. Some companies locate facilities by reason of their proximity to suitable schools, and

physical skills are developed through practice and repetition. In a genuine education program, however, students concentrate on processes of analysis whereby they attain levels of generality, proficiency, and understanding which enable them to think intelligently in several fields even though they may not have had training in the detailed knowledge of any of them."

—Walter Buckingham, The Impending Educational Revolution. Washington, D.C.: National Education Association, October, 1961.

* * *

". . . Education and informational programs have one thing in common. They deal with subjects which are only indirectly related to the technical performance of the employee's job. In this way they contrast sharply with a third activity — training programs, which are intended to increase the employee's ability to perform his specific job."

—Employee Education, Studies in Personnel Policy, No. 119, National Industrial Conference Board, 1951.

* * *

". . . The term 'training' denotes investment in acquisition of skill or in improvement of work or productivity. The concept, therefore, includes schooling and training obtained on the job. The latter, under this definition, is a much broader concept than what is conveyed by the common usage of the word 'on-the-job training.' It includes formal and informal training programs in a job situation as well as what is called 'learning from experience.'"

—Jacob Mincer, "On-the-Job Training: Costs, Returns and Some Implications," Journal for Political Economy, October, 1962.

* * *

". . . Education is defined here as both formal and informal training, instruction, observation and experience."

—Eleanor Gilpatrick, Education for Work: A Full Employment Strategy, The Annals of the American Academy of Political and Social Science, March, 1975.

whole communities have grown up around shared academic and business interests in scientific and technical matters.

The Board's study identified three arrangements by which off-the-job employee education and training is conducted, each tending to use a different type or cluster of resources.

• *Company courses*, in which all participants are employees of the firm providing them. Such courses may be designed and conducted by company personnel, by outside institutions and contractors, or by the two together, and may be held on or off the company's premises. In the year prior to the Board's survey, four out of five companies conducted courses *during* working hours, and about half did so *after* working hours.

Increasingly, off-the-job instruction and periods of work are being viewed as integrated parts of a learning experience or developmental whole. Indeed, to many executives, efforts during recent years to link these two learning modes has been the most significant development in the field.

In accord with this approach, and with efforts to tailor education and training to needs, many companies are shortening courses and dividing subject areas into modules of several hours each. "With modules," says one company official, "we're using rifle shots in place of buckshot, and providing employees a chance to apply and digest what they've learned before they go on." They are also making greater use of audiovisuals and self-teaching programs—and, in a few instances, using computer technology.

• *Tuition-aid program courses*, selected and contracted for by the employees, who are reimbursed in full or in part by their employers. Such courses are normally taken after working hours. Colleges and universities are, of course, the prime resource for tuition-aid programs, and are increasingly cognizant of, and responsive to, employee needs to keep abreast of change and acquire wider technical and professional competencies. Some conduct courses at times and places designed to be particularly convenient to employees of a company or cluster of firms — even on a company's premises — and tailor subjects and course content to specialized employee groups. The survey showed that 89 percent of companies have such programs.

• *Other outside courses*, taken during working hours or otherwise in the line of duty, that are open to a wider

public than employees of a particular company. Included in this category are the courses provided by corporate suppliers; by such organizations as The American Management Association and The Conference Board; by professional and trade groups; by proprietary organizations and consultants; and under special programs of many colleges and universities. Seventy-four percent of companies reported that employees took such courses in the past year.

These three categories appear to accommodate reasonably well all arrangements for employee education, but a little forcing has sometimes been needed. Most notably, perhaps, company courses occasionally straddle working and nonworking hours. Employees are sometimes also given time off for courses taken under tuition-aid programs.

The Mix

The ever-changing mix of outside and inside resources, and of during and after-hours study, reflects the interplay of need and opportunity. During-hours instruction is much more costly than after hours, but may have to be provided if too few employees are seeking needed skills or knowledge under tuition-refund or after-hours programs. Companies may have to provide their own courses in certain subjects during or after hours, because no one else does[9] — either because they involve proprietary and company-specific knowledge, or simply because no outside resource has found it economically feasible. Courses available outside may nonetheless be taught inside because it is more economical to do so, or because the opportunity to tailor content to company need tips the scale. And so on.[9]

Influence of Outside Resources

A Caterpillar Tractor Company official describes these connections between outside resources and inside programs as follows: "In Peoria, where we are the dominant employer, there is considerable tailoring of public education offerings at the high school, junior college, B.S., and M.S. levels to match our needs. Furthermore, we have so many employees that local educational institutions conduct many of their classes right on our premises at times convenient for our people since they make up the entire class.

"On the other hand, in Milwaukee we are the 'small frog in the big pond.' Programs and relationships are entirely different than in Peoria. With the small number of apprentices, it hardly pays to have a full-time classroom instructor, so we use the local public educational facilities. With excellent management seminars within driving range of the plant — conducted by local colleges or branches — it doesn't make sense to have a sophisticated plant management-development staff. In this situation, however, we have to latch on to what is available — our numbers are too small to affect offerings of the educational institutions."

A Blending

An outline of employee education and training programs at Polaroid Corporation in 1975 illustrates the way internal and outside resources are often blended.

Outside schools: In addition to its Tuition Assistance Program, in which 10 percent of employees participated, Polaroid sent executives to special courses at three Boston area universities.

Outside experts brought in: University-based and other experts were the core of several lecture programs for managers and professionals — a series on management technology, another on scientific subjects, and a third on personnel-oriented matters.

Company experts: Company employees with other primary duties shared with education-training specialists in a "Polaroid Seminars" series for exempt employees that treated a variety of technical, business and personnel-related subjects. Such employees were also prominently involved in "technical studies" and "product knowledge" programs in plant areas.

Education-training-development specialists: In addition to sharing instructional roles with other company experts, a staff of 21 professionals conducted skills programs for first and second levels of management; a variety of organizational development activities that included workshops; and an "education" program that included basic and intermediate language and math skills, English as a second language, General Equivalency Degree (GED) tutoring, and secretarial skills. In addition, a trainer in the marketing department conducted an ongoing one-week course for new salespeople.

Part-time faculty: A "floating work force" of 12 to 14 part-time instructors was brought in as needed during the year.

[9] One observer believes some companies conduct their own courses because they have discovered that "one way to lose trained employees is to enable them to take credits that are transferable and usable toward a degree. These companies may substitute in-house programs, whose credits are well-recognized but usable only within one company." If this is anywhere, in fact, a motive, its force may be diminished by the Project on Noncollegiate Sponsored Instruction described on page 3. See Sally L. Oleon, *Changing Patterns in Continuing Education for Business*, Boston University Center for the Study of Liberal Education for Adults, 1967.

Chapter 2
Scope

QUANTITATIVE MEASURES CAN no more readily encompass the scope of education at the work place than in the society at large. Even when the focus is narrowed to formal off-the-job instruction, such basic statistics as employee course hours are found to be unobtainable — that is, known to very few employers.

The Study's Measures

The present study did succeed, however, in developing data on some significant aspects of program scope — the prevalence of formal course programs, the numbers of employees participating in them, and the dollar expenditures made by companies for them — and in identifying certain of the factors that account for differences among companies.[1]

Because corporate education is highly "mission oriented" and variable, concerned in large measure with short-term needs, it must be stressed that the Board's questionnaire was mailed to companies in late-summer 1975, and that the "last year" period it inquired about was 1974-1975, a time of severe recession. And while specific questions (see pages 20-21) indicate that the recession did not strongly influence the programs of most companies, more than a quarter did report cutbacks.

The survey's general findings with respect to the several measured aspects of program scope follow.

Prevalence

Seventy-five percent of all companies provided some in-house courses for their employees in the year prior to the survey.[2] Eighty-nine percent had tuition-aid or refund programs, and 74 percent authorized some of their employees, principally managers and professionals, to take outside courses during working hours, paying attendant costs.

Employee Participation

Among the 32 million or so persons employed by firms with 500 or more employees, about 3.7 million, or 11 percent, took part in in-house courses provided by their companies during working hours, and another 700,000 (or 2 percent) were enrolled in company courses given during nonworking hours. Participation rates are usually higher among exempt than among nonexempt employees. One corporate giant offers a "back of the envelope" estimate that about a quarter of its professional and managerial employees have taken part in an "off-the-job learning experience of at least two days" during each of recent years. The study did not attempt to measure participation in tuition-aid programs directly, but by relating its findings about their prevalence to the evidence of an earlier study that about four percent of the employees of companies having such programs took part in them during a one-year period, an estimate of 1.3 million employee participants is derived.[3]

[1] See Appendix C for a description of how these estimates were derived.

[2] The questionnaire asked about expenditures "Last ... yr," allowing a choice of convenience among fiscal, calendar and past 12 month periods.

[3] L. Roger O'Meara, *Combatting Knowledge Obsolescence, II. Tuition Aid Plans*, The Conference Board, 1970. Studies in Personnel Policy, No. 221. Some of the principal findings of this study are summarized in the box on page 34.

Expenditures

Direct expenditures are projected to have been about $2 billion in the "past year."[4] About 11 percent of this total is accounted for by tuition-aid programs and 9 percent by outside courses pursued by employees during work hours or otherwise "in the line of duty." The remaining 80 percent represents direct costs incurred for in-house company education and training activities.

Because companies tend to be unique in their blendings of products and methods, and in the numbers, character and locations of their employees, so, therefore, are their training programs. But the scope of these programs also reflects the fact that there are other ways than training of meeting skills needs — specifically, going into the labor market and hiring people already trained, and training informally on the job. And how much training a company undertakes is further influenced by the judgments of its managers about costs and benefits. While a few, at one extreme, made no direct expenditures whatever for education and training, others reported spending more than $100 per employee.[5] Expenditures among all companies were distributed as follows:

Dollars per Employee	*Percent of Companies*
Less than $2.00	4%
$2.00 to 4.99	17
5.00 to 9.99	16
10.00 to 19.99	21
20.00 to 39.99	15
40.00 to 99.99	21
$100 and more	6
All companies	100%

Two billion dollars in total comes to a mean average of $60 per employee. The median company, however, spent $16 per employee. The difference between mean and median is accounted for by the upward pull on the mean of a small number of high-spending companies.

Differences by Company Size

Economies of scale often make it feasible for larger companies to engage in education and training activities that smaller ones cannot afford — the smaller firms, particularly those with fewer than 1,000 employees, tending to rely more on the employment of persons already trained, and on on-the-job training.

Prevalence

Since larger firms often have greater numbers of facilities and units and employ a greater variety of specialists, education and training activities are more apt to be found somewhere within such organizations. However, on measurements of program prevalence, the only really wide differences between companies of different size occur above and below the 1,000-employee level (see Table 2.1).

Employee Participation

The percent of employees in company courses in the past year, during or after hours, was virtually identical in the several categories of firms having more than 1,000 employees. It was moderately lower in the smallest size category (see Table 2.2).

Expenditures

There is a tendency, less marked and consistent in the median measures than in the mean (in which the figure for the largest companies is sharply elevated by the spending weight of several corporate giants), for education-training expenditures to correlate with company size.[6] The implications of size pertain to establishments as well as to companies, so that some smaller facilities of large firms may not benefit from advantages of scale. But such effects may be mitigated by the larger firms in two ways. One is by carrying formal programs from a central source to the individual plants or bringing plant personnel to the courses. A second way is by developing, in a headquarters department, courses or programmed instruction material that is tailored more specifically to the needs of such plants than materials available from commercial sources (see Table 2.3).

Company size is as great an influence on how educational expenditures are *distributed* among the three basic

[4] Defined in the questionnaire as: "salaries of employees devoting all or major portions of their time to these activities; travel and living expenses; payments to outside institutions or individual contractors; and costs of equipment and material purchased or rented."

[5] Six of the 351 firms in the sample reported expenditures of over $200 per employee. Three were high technology manufacturing firms, and the other three were an airline, a firm that provides technical medical services, and a bank. The next ten firms in order of magnitude, all spending $150-199 per employee, included four banks, two local telephone companies, a utility, a machine tool manufacturer, a pharmaceutical firm, and an insurance company.

[6] To the extent that smaller firms train *on the job* for skills that larger ones can efficiently impart *off the job*, they may be incurring costs that are not reflected in the survey data.

Table 2.1: Prevalence of Education-Training Programs, by Company Size

Company Size	Percent of Companies Reporting Program			
	Tuition Aid (after hours)	Other Outside (during hours)	Company Courses (after hours)	Company Courses (during hours)
10 000 employees or more	97%	90%	56%	96%
5,000 – 9,999	95	83	51	96
2,500 – 4,999	91	79	52	91
1,000 – 2,499	94	77	45	86
500 – 999	82	66	25	71
All companies	89%	94%	39%	55%

Table 2.2: Percent of Work Force Participating in Company Courses, by Company Size

Company Size	After Hours	During Hours	Either
10,000 employees or more	2%	12%	14%
5,000 – 9,999	2	13	15
2,500 – 4,999	4	12	16
1,000 – 2,499	4	11	15
500 – 999	2	8	10
All companies	2%	11%	13%

Table 2.3: Expenditures per Employee for All Education-Training Programs, by Company Size

Dollars per Employee	Total	Company Size (Number of Employees) 10,000 and over	5,000-9,999	2,500-4,999	1,000-2,499	500-999
$ 2.00 and less	4%	10%	8%	6%	3%	3%
2.01 – 5.00	17	5	5	8	20	21
5.01 – 10.00	16	10	4	16	15	19
10.01 – 20.00	21	20	25	20	18	22
20.01 – 40.00	15	14	21	18	13	15
40.01 – 60.00	9	10	16	12	15	3
60.01 – 80.00	8	11	3	11	4	9
80.01 – 100.00	4	4	5	5	5	4
More than $100.00	6	16	13	4	7	4
Total	100	100%	100%	100%	100%	100%
Median	$16	$20	$28	$20	$17	$13
Mean	60	86	48	32	35	27

resources as on their total amounts. One of the ways smaller firms tend to compensate for their lesser ability to support in-house training is by making greater use of outside resources than the larger ones are required to do. Larger firms, which are more likely to have in-house education-training staff and programs, not only spend a considerably lesser portion of their dollars on tuition-and and other outside programs — for the largest firms their combined share was only 13 percent, as compared with more than 50 percent among smaller ones — but fewer dollars per employee as well (see Tables 2.4 and 2.5 on the following page). The differences are slight for tuition-and programs, more pronounced in the "other" category.

Table 2.4: Expenditures per Employee for Major Education-Training Programs, by Company Size

Company Size	Outside			In-House (Company)	Total
	Tuition Aid	Other	Total		
10,000 or more employees	$ 5.60	$4.80	$10.40	$67.20	$77.60
5,000 - 9,999	8.30	6.10	14.40	37.50	51.90
2,500 - 4,999	8.10	5.60	13.70	17.20	30.90
1,000 - 2,499	11.50	8.40	19.90	15.60	35.50
500 - 999	5.80	8.50	14.30	12.60	26.90
All companies	$ 6.50	$5.60	$12.10	$48.30	$60.40

Table 2.5: Distribution of Expenditures Among Major Education-Training Programs, by Company Size

Company Size	Outside			In-House (Company)	Total
	Tuition Aid	Other	Total		
10,000 or more employees	7%	6%	13%	87%	100%
5,000 - 9,999	16	12	28	72	100
2,500 - 4,999	26	18	44	56	100
1,000 - 2,499	33	24	57	43	100
500 - 999	22	31	53	47	100
All companies	11%	9%	20%	80%	100%

Table 2.6: Prevalence of Education-Training Programs, by Company Type

Company Type	Percent of Companies Reporting Program			
	Tuition Aid (after hours)	Other Outside (during hours)	Company Courses (after hours)	Company Courses (during hours)
Manufacturing	92%	75%	36%	64%
Transportation, Communications, Utilities	91	71	54	79
Wholesale and Retail	64	51	27	57
Financial and Insurance	96	83	47	90
Other[1]	96	91	43	79
All companies	89%	74%	39%	70%

[1] About three quarters of the "other" category is made up of three classes of companies: contract construction firms; business service firms -- mainly advertising, public relations, management consultant, and companies in the mining industry, including oil and natural gas operations. Prominent among the balance are businesses that offer engineering and architectural consulting and design services.

Table 2.7: Percent of Work Force Participating in Company Courses, by Company Type

Company Type	After Hours	During Hours	Either
Manufacturing	2%	5%	7%
Transportation, Communications, Utilities	2	13	15
Wholesale and Retail	1	11	12
Financial and Insurance	3	17	20
Other	4	9	13
All companies	2%	11%	13%

Table 2.8: Expenditures per Employee for All Education-Training Programs, by Company Type

Dollars per Employee	Total	Manufacturing	Transportation, Communications, Utilities	Wholesale and Retail	Financial and Insurance	All Other
$ 2.00 and less	4%	2%	8%	7%	7%	4%
2.01 - 5.00	17	21		27	3	20
5.01 - 10.00	16	24	15	5	4	4
10.01 - 20.00	21	26	10	26	8	20
20.01 - 40.00	15	15	21	12	16	13
40.01 - 60.00	9	6	10	6	15	15
60.01 - 80.00	8	1	18	17	13	6
80.01 - 100.00	4	1	3		13	18
More than $100.000	6	4	15		21	
All companies	100%	100%	100%	100%	100%	100%
Median	$16	$11	$36	$19	$56	$21
Mean	60	60	90	19	82	27

Differences by Company Type

Education and training activities are much more likely to be found in some types of firms than in others. Financial institutions lead other categories in each of the several measures of program scope, with the transportation-communications-utilities group not far behind. Wholesale-retail and manufacturing firms lagged well behind.[7]

Prevalence

To begin with, data on program prevalence show that the financial and transportation-communications-utilities companies are more likely to have internal courses than other industry groups, while the wholesale-retail group is the only one in which a fairly large percentage of companies do not have tuition-aid programs (see Table 2.6).

Employee Participation

One out of five of the employees in financial institutions is estimated to have enrolled in company courses during the previous year — the highest rate for any kind of firm. The lowest rate was in manufacturing firms (see Table 2.7).

Expenditures

Financial institutions also showed the highest *median* expenditure rate per employee ($56), and manufacturing firms, the lowest ($11).

Mean expenditure data for the various categories tell a somewhat different story. The upward pull of high-spending firms raises the transportation-communications-utilities group to the highest rank (with mean expenditures of $90 per employee), while the spread between financial institutions (mean, $82) and manufacturing firms ($60) is considerably reduced. Wholesale and retail firms, which lagged slightly behind other categories in the median comparison, drop much further behind in mean ($19 versus $60 for all companies) per employee (see Table 2.8).

The proportions in which company monies are distributed among the various resources differ no less strikingly than the total dollars. Financial institutions, for example, spent twice as many dollars per employee for outside education and training programs as the transportation-communications-utilities group, although slightly less in total — and spent nearly three times as much in tuition-aid programs as any other group.[8] (See Tables 2.9 and 2.10.)

[7] These differences cannot be explained by company size. Different-sized companies are found in similar proportions among each of the major industry categories (see Appendix C). Rather, it is differences in the prevalence of programs in the smaller companies of each type that usually account for their overall differences. Thus, among firms with 500 to 999 employees, for example, over 80 percent of the financial institutions have company courses during hours. For manufacturing firms the figure is 46 percent, and for wholesale and retail firms only 30 percent.

[8] More detailed analyses of company expenditures, giving breakdowns by company type within size categories, and showing the sample sizes for each, are provided in Appendix D.

Table 2.9: Expenditures per Employee for Major Education-Training Programs, by Company Type

Company Type	Outside			In-House	
	Tuition-Aid	Other	Total	(Company)	Total
Manufacturing	$ 5.90	$4.15	$10.05	$49.40	$59.45
Transportation, Communications, Utilities	5.40	6.30	11.70	77.80	89.50
Wholesale and Retail	1.70	2.60	4.30	14.30	18.60
Financial and Insurance	15.60	9.00	24.60	57.50	82.10
Other	5.00	6.90	11.90	14.70	26.60
All companies	$ 6.50	$5.60	$12.10	$48.30	$60.40

Table 2.10: Distribution of Expenditures Among Major Education-Training Programs, by Company Type

Company Type	Outside			In-House	
	Tuition-Aid	Other	Total	(Company)	Total
Manufacturing	10%	7%	17%	83%	100%
Transportation, Communications, Utilities	6	7	13	87	100
Wholesale and Retail	9	14	23	77	100
Financial and Insurance	19	11	30	70	100
Other	19	26	45	55	100
All companies	11%	9%	20%	80%	100%

Table 2.11: Distribution of Occupational Groups in Work Force, by Company Type

Company Type	Managerial	Professional and Technical	Sales and Marketing	Other Nonexempt	Total
Manufacturing	11%	12%	8%	69%	100%
Transportation, Communications, Utilities	10	10	10	70	100
Wholesale and Retail	9	4	14	73	100
Financial and Insurance	14	14	19	53	100
Other	11	17	5	67	100
All companies	11%	12%	10%	67%	100%

Employee Characteristics

Eleven percent of those employed by companies with 500 or more employees are classified as managerial; 12 percent as professional and technical; 10 percent as sales and marketing; and 67 percent as "other nonexempt" "other" to allow for the inclusion of some exempt employees in technical or sales categories.

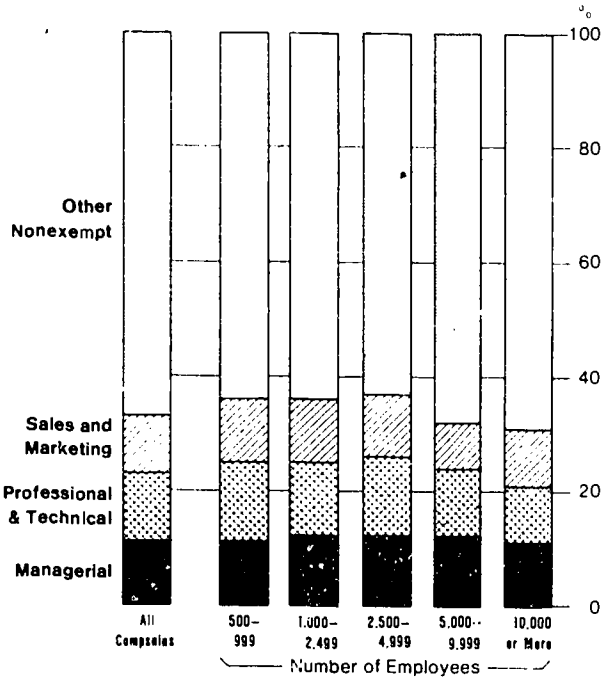
The occupational makeup of larger and smaller companies is much the same — at least in terms of the broad groupings used here — and does not, therefore, help to explain differences in the scope of their training programs (see Chart 2.1).

This is not the case with different *types* of companies, however, where dissimilarities in the configurations of employee characteristics are marked. For example, managerial and professional-technical employees, the objects, as shown later, of disproportionate attention in company education and training, make up less than 13 percent of the total work force of wholesale-retail institutions, compared with 23 percent for all companies. In financial institutions, on the other hand, those two groups account for 28 percent of the total, while sales and marketing personnel, much more likely than "other nonexempt" employees to take part in formal education-training, are nearly twice as numerous (see Table 2.11).

Disproportions

About 32 million workers are employed in the United States by companies having 500 or more employees — the universe embraced in this study. The largest of them, companies with 10,000 or more employees (of which

Chart 2.1: Distribution of Occupational Groups in Work Force, by Company Size



there are fewer than 650), comprise about 8 percent of all companies in this universe, but account for about two-thirds of their total employment.

Reflecting primarily their higher expenditures per employee (but also a somewhat higher prevalance of education-training programs), these large companies account for a still greater part of the direct expenditures 76 percent (see Chart 2.2). By contrast, companies with fewer than 2,500 employees represent 72 percent of all companies, 18 percent of employment, and 10 percent of expenditures.

Similarly, their high per-employee expenditures mean that financial institutions, and companies in transportation, communications and utilities account for disproportionately high shares of total expenditures; wholesale-retail and miscellaneous types, for lower shares (see Chart 2.2).

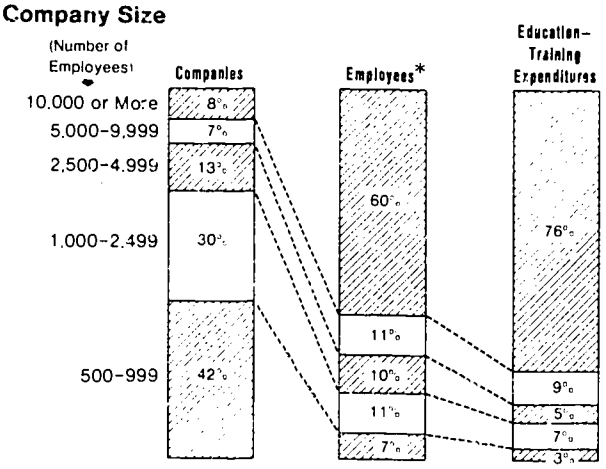
Trend

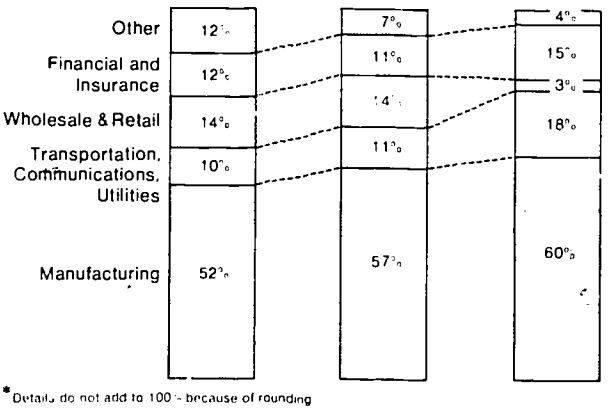
Many human resource executives in industry insist that the important developments of recent years have been in the methods of employee education and training in the "how" rather than the "how much." Some stress a closer scrutiny that top management is said to be giving to developmental activities, an increased insistence that they be justified and validated. This, together with lowered turnover rates and an "improved" labor market, has led to some program curtailments and reductions. Nevertheless, growth has been one of the dominant, and fairly pervasive, characteristics of change in recent years.

Two-thirds of the companies represented in this study increased their per-employee expenditures for education and training "during recent years, but prior to the current business recession." Only 6 percent reduced them (see Table 2.12). Spending increases for internal company programs were more common than for tuition-aid or other outside programs.

Nearly half the companies reported that there was some change during the pre-recession period in "the *portion* or *percent* of total expenditures" that each of these programs came to represent. Again, growth in

Chart 2.2: Proportions of All Companies, Employees and Education-Training Expenditures Accounted for by Companies of Various Sizes and Types





*Details do not add to 100% because of rounding

Table 2.12: Trend of per Employee Spending before 1974-1975 Recession

Spending Trend	Type of Program			
	Tuition Aid	Other Outside	Company (Internal)	Any
Increased	51%	54%	64%	68%
Decreased	3	10	6	6
Varied, no change, or don't know	46	36	30	26
All companies	100%	100%	100%	100%

company (internal) programs was mentioned most often; decline in them least often (see Table 2.13).

A good many executives believe that changes in the "how" of corporate education and training have been more important than in the "how much." Yet, according to nearly half the participants, new programs and growth have been the main events of the recent past. To the question, "What do you judge to be the more significant changes during the past 5 to 10 years in your company's education and training goals, or in its methods of achieving them?"...

- 14 percent referred to growth in general terms to increased dollar investments, wider curricula, enlargements of program scope, and so on.
- 10 percent said that an education or training department had been created or expanded, or a full-time director employed.
- 30 percent reported the initiation or expansion of programs in one or more areas—19 percent managerial development; 6 percent professional, technical or skills; 11 percent affirmative action.
- 3 percent said that tuition-aid programs had been introduced or liberalized.

By comparison, only a handful of these executives accounting for one percent of the total—mentioned a decrease in any aspect of the company's program or in its overall scope.

A related, but somewhat different, emphasis was given by about one out of eight participants, for whom one of the significant developments of recent years—in most instances *the* significant development—was growth or enhancement in the status of the education and training function in the company. Management, they asserted, is more "aware" of it and is according it greater "recognition" and "support." For example, one executive said: "Training is beginning to be recognized as a legitimate and vital function." "Top management in our company," another commented, "is now committed to a continuing, long-term effort for all levels of employees, regardless of changes in the business cycle."

To the extent that the views of senior personnel and training executives about likely or desirable directions for the future anticipate actual events, the future will bring continued growth. In answer to a survey question as to "further changes or changes in emphasis" they thought their companies "may or should initiate in the coming years" to serve their need for properly trained and educated personnel, about half these executives, again, spoke of expansion—in resources, staff and program scope.

A Note about Costs

The subject of employee education and training costs is lacking neither in ambiguities nor controversy. Two questions are mainly involved: What are these costs, and who pays for them?

Table 2.13: Trend in Relative Importance of Major Programs before 1974-1975 Recession

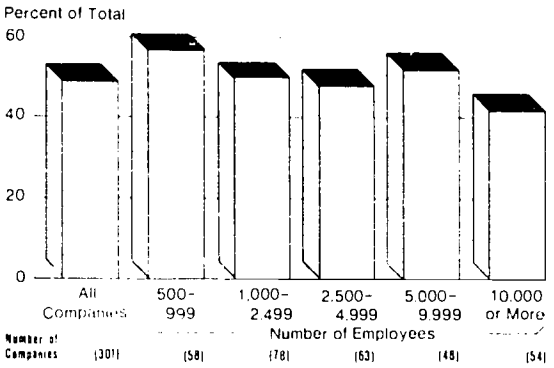
Percent of Total Expenditures	Type of Program		
	Tuition Aid	Other Outside	Company (Internal)
Increased	61%	38%	72%
Decreased	23	29	10
No change mentioned	16	33	18
All companies	100%	100%	100%

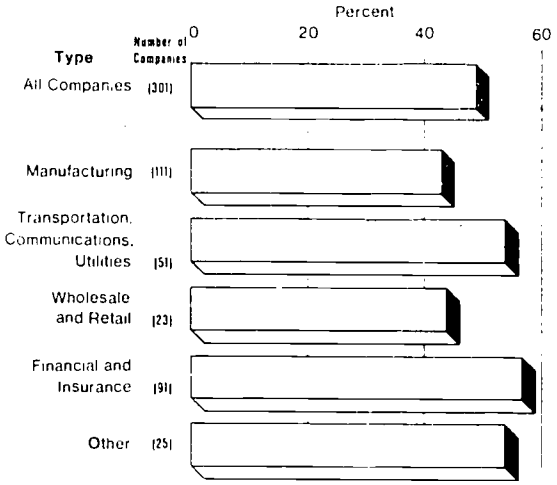
Reporting of Expenditures

Three hundred and one firms, or about half of those surveyed, provided in full the expenditure data requested in the Conference Board questionnaire. Volunteered comments suggest that most of the companies that did not furnish this information were unable to do so – because education-training costs were "buried" in other budgets, were "scattered" in a number of company locations and departments, or both.

The extent, if any, to which per-employee spending may be different in these firms from the ones willing and able to provide figures must be largely a matter of conjecture. There is reassurance, however, in the fact that no major class of companies was ficantly underrepresented. Particularly notable is the fact that the largest companies were not far below the smallest in the proportion reporting their dollar expenditures – 42 percent of those with 10,000 or more employees, as compared with 57 percent in companies with 500 to 999 employees (see chart at bottom left).

Nor was there a greater range of difference between various types of companies. Financial institutions led the list with 57 percent representation but, at the bottom, 43 percent of manufacturing firms also provided figures, as the chart below shows.





What Are They?

The direct expenditures described in this report are only part of the total cost of employee education and training, which also includes wages and salaries paid to learning workers before they reach normative levels of productivity; time that other employees devote to instructing and integrating them into the work of the firm; diversion of supervisors from work-expediting tasks; wear and tear of equipment; higher accident or reject rates; and other interferences with optimum productivity. One corporate giant estimates that 70 to 90 percent of its costs are in the wages and salaries of trainees.

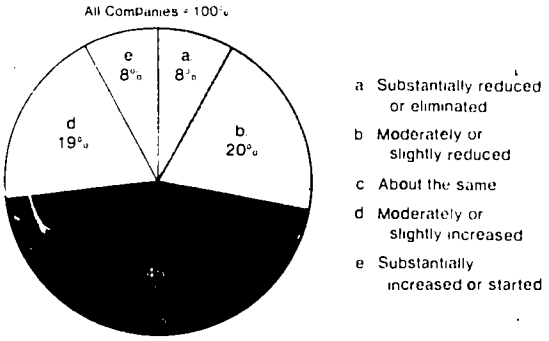
These costs are, of course, extremely difficult to break out from labor, cost of goods, depreciation and other costs. Moreover, some portions of them are investments – moneys spent with the expectation that they will enhance the efficiency and productivity of the firm and yield a profit. At least one economist has suggested that whether training is an investment or an expense depends only on whether employees remain with the firm long enough to produce benefits greater than the cost of their training. When they do, company expenditures become investments.

Attempts are, in fact, being made to apply "human resources accounting" in industry – that is, to discontinue the standard accounting practice of treating all education and training costs as operating expenses and, instead, to introduce them, as appropriate, into the capital budget. William C. Pyle, who was responsible for organizing and directing the development of the first such system in industry (with the R.G. Barry Corporation of Columbus, Ohio), argues that companies are penalized in several ways for their assumption that all education-training benefits are short term.

Effects of Recession

The 1974-1975 business recession, a test of the sensitivity of employee education and training programs to economic conditions, was accompanied by cutbacks in expenditures *per employee* in about a quarter of all companies, growth in an equal number, and no change in the balance.

Expenditures per Employee



Underlying this overall balance of increases and decreases were shifts among program components – increases for internal programs and tuition aid, and reductions in other outside programs; increases in management-supervisory course areas; decreases in basic remedial; and a near standoff in functional-technical and other subject areas (see table).

Several of the companies reporting reductions in per employee expenditures said that these had been achieved without impairment of the scope or effectiveness of their programs – that is, that the recession had spurred them to greater efficiency. A utility reports, for example, that "the difference is only in *when* courses are given. Until last year most of our courses, both managerial and technical, were offered during the working day. Now all are in the evening." A large manufacturer found that: "It's less expensive and more cost effective for two or three general office staff members to go to field locations to conduct training than it is to send 10 or 20 individuals into our general offices."

More often, however, reductions in spending reflected reductions in need, brought on principally by a slowing in staff changes. Such a slowing may occur during recessionary periods because of reductions in overall company employment levels or rates of growth, and/or reductions in employee turnover. Thus, fewer new employees need to be trained, and fewer present employees need to be prepared for new duties.

In other cases, expenditure reductions were attributed by surveyed executives to lower employee participation in tuition-aid programs. One thought this was because exempt employees in his company were required to work longer hours and had less time for study, while nonexempt employees were working shorter hours and had less money to pay their share of tuition costs. Another noted that work-force reductions in his firm were greatest among younger salaried employees, the most "education prone" group.

Finally, and perhaps most commonly, some companies themselves effected a lowering of enrollments through more stringent criteria of job relatedness or simply, as one executive described it, "by the administrative route of lowering the executive program's profile."

"Human resources are not reflected in the firms capital budget. In contrast to the physical plant and equipment, it is therefore more difficult for the manager to justify funds for building human assets since these expenditures are currently charged against revenue in one year. . . . Conventional accounting practice actually overstates operating expenses and understates profitability."

* * *

"The degree to which human capabilities are being maintained cannot be assessed in financial terms. . . . It is difficult to plan for the orderly replacement of unmeasured assets. . . . Conventional accounting practice understates operating expenses and overstates net income."

* * *

"It is also difficult to determine how well human assets are being utilized in various projects. One of the most commonly employed measures of overall efficiency is the return generated on invested capital (ROI). However, investments in human resources are not included in ROI calculations for evaluating current or future projects."[9]

[9] William C. Pyle, "Monitoring Human Resources On-Line," *Michigan Business Review*, July, 1970.

Some companies said that there was no reason for the recession to have affected their education spending since it had not affected their business. A few reported that inflation of tuition costs was the only reason for expenditure increases. But the most common explanation for unchanged or increased expenditures had to do with the growing importance of education-training in the company. A utility reported: "Our management considers training a need – not a luxury – and believes that in times of stress, training can be more meaningful and profitable than at others." A textile maker noted that it is following a "long-range plan that was not suspended even though profits decreased over the past 12 months." A petroleum company responded: "Training is a critical factor in our long-range organization development plans and we cannot afford to pare back expenditures." A bank commented: "We are increasing our activity in this area so as to have an impact on efficiency and productivity." From another bank: "Our training and development function is just emerging, and therefore our costs and numbers of participants are growing each year." Several firms said that affirmative action programs were an important part of their training activity and could not be cut.

Effects of 1974-1975 Recession on per Employee Expenditures

	Type of Program		
Trend	*Tuition-aid*	*Other Outside*	*Company (Internal)*
Reduced or eliminated	13%	36%	26%
About the same	64	45	40
Increased or started	23	19	34
All companies	100%	100%	100%

	Subject Area			
Trend	*Managerial and Supervisory*	*Functional and Technical*	*Basic Remedial*	*Other*
Reduced or eliminated	21%	24%	28%	19%
About the same	47	49	61	59
Increased or started	32	27	11	22
All companies	100%	100%	100%	100%

Who Pays?

The idea that company investments in education-training are expected to pay off in enhanced employee competencies, or increased "human capital," has implications for the second question: How much of the total cost of the education and training that occurs at the workplace is "paid for" by business? If employees leave a firm before the investing company breaks even on its costs and take their recently acquired skills elsewhere, the company has incurred a net expense. In either event, the *employees* have increased their stock of human capital, and new employers who take advantage of it are saved some training costs. Human capital theory, however, reasons that this saving will be offset by higher pay that these trained employees will command – a return to them on the human capital they acquired in their previous jobs. It has been argued that at least part of this acquisition has been paid for by the worker through "foregone earnings" – a sacrifice of higher earnings obtainable elsewhere in exchange for the learning opportunity – and that the employee has, in effect, been the investor.

Jacob Mincer, of Columbia University and the National Bureau of Economic Research, has applied the calculus of foregone earnings – previously an approach

Relationship Between R and D, and Education-Training, Expenditures

Companies that spend heavily for research and development are apt to employ more professionals than other firms, to utilize proprietary processes to a greater degree, and to require more frequent accommodation of manufacturing, sales and management processes to new methods and technologies. Such firms, therefore, might be expected to spend more on employee education and training, a conjecture that gets qualified support from the present study.

In its issue of June 28, 1976, *Business Week* published an analysis of the R and D spending of 730 companies, based on so called 10-K statements – reports filed annually with the Securities and Exchange Commission under recently standardized accounting systems. Forty-nine of these companies were among the firms in the Conference Board's study that provided dollar figures on their education and training expenditures – 45 of them manufacturing firms.

As the table shows, mean education-training expenditures were highest among companies in the top R and D category, the two kinds of spending then diminishing together. Similarly, the highest R and D category included the company that spent the most on education-training, while the top spender in each subsequent R and D category was higher than in the one below it. (The coefficient of correlation between the two variables was +.23.)

Relationship Between Education-Training and R and D Expenditures

Per Employee Expenditures for Research and Development	*Per Employee Expenditures for Education and Training*		*Number of Companies*
	Mean	*Range*	
Over $2,000	$168*	$19-$800	6
$1,000 – 1,999	52	** – 281	11
500 – 999	35	3 – 154	9
250 – 499	18	3 – 68	11
Under $250	19	** – 61	12

*Mean is $42 when top spending company is eliminated.
**Less than $0.50.

to estimating the yield on investments in schooling – to industry, arguing as follows: "Under competitive conditions, all of the firm's costs will be charged to the worker if the training increases his future productivity in other firms as much as in the firm in which he is training. Some fraction of costs will not be charged to the worker if the training contains elements of specificity, that is, if it increases the worker's future productivity in the firm more than in other firms."[10]

A final point that is argued on the subject of who pays is that however employer and employees may share it, education and training is an economic cost that must be reflected in the price of goods and services. In this view, while a mix of opportunity and burden may fall unequally among companies and among employees, it is the public that pays.

[10]Jacob Mincer, "On the Job Training: Costs, Returns, and Some Implications," *Journal of Political Economy*, October, 1962. Using ingenious, but controversial, methods and assumptions, Mincer calculated that the opportunity cost of workers in the United States in 1958 was $16.5 billion, and that "costs borne by firms" might total several billion dollars. The sum of these two calculations – usually adjusted to reflect presumed growth and inflation – has been a source and basis for numerous published estimates of "industry expenditures" for education and training during recent years.

Chapter 3
Staffing and Organization

COMPLETE RESPONSIBILITY for employee education and training is rarely vested in a single department in large, multi-unit firms, and frequently not even in smaller ones. Rather, it tends to be shared by personnel in corporate and line departments who operate more or less independently of each other. A majority of companies, moreover, have no employees who devote all or most of their time to education and training duties. In those that do, these duties are usually shared with employees who have other primary responsibilities.

How to combine effectively the services of full-time educators and trainers with those of line managers and other specialists, and to achieve a proper balance between centralization and decentralization, top-level control and managerial accountability, economies of scale and particular local needs, are the major issues of staffing and organization.

Specialized Staff

The Board's study projects the total number of persons with full-time education, training or "development" responsibilities in companies with 500 or more employees at about 45,000. They are concentrated disproportionately in a relatively small number of firms. In fact, while almost all firms sponsor or support some form of employee education, and three-quarters provide courses in-house, only two in five (42 percent) assign anyone to full-time duties in this area. (Even a sizable proportion — 37 percent — of companies that provide in-house courses *both during and after working hours* employ no full-time education-training specialists.)

The proportion of companies having a corporate-level department with companywide responsibilities is as small (36 percent). Thus, in most firms, all education and training functions are performed by employees who have *other* primary duties — though usually in association with, and placing heavy reliance on, outside consultants and suppliers.

The presence of specialists is related markedly to company size. In fact, about 70 percent of them work in the approximately 650 firms with 10,000 or more employees. All but a handful of the largest firms, and most of those with 2,500 or more employees, report their presence: It is only in the smallest companies, those with fewer than 1,000 employees, that they are uncommon. But among larger and smaller companies employing any, the survey found no consistent difference in the ratio of full-time educators and trainers to total employees (see Table 3-1).

Employees with full-time responsibilities for education and training are much more prevalent in financial institutions and in the transportation-communications-utilities group than in other kinds of businesses — and there are more of them relative to total employment (see Table 3-2). Between them, these two industry categories account for 56 percent of all industry's full-time education-training employees — though for only 22 percent of all its employees.[1]

In most (85 percent) of the companies that have full-time education or training personnel, at least some of these employees are present within a corporate-level education, training or human resources department. About a quarter (27 percent) employ such specialists in other corporate-level departments — notably sales and data processing — and two-fifths (41 percent) in

[1] Of 32 companies in the 500-999 employee class that reported full-time education-training employees, 30 were in one of these two industry categories.

Table 3.1: Full-time Education-Training-Development Employees, by Company Size

Company Size	Percent of Companies with any	Number per 1,000 Employees: In Companies with any	Number per 1,000 Employees: In All Companies	Share of All Education-Training-Development Employees
10,000 employees and over	95%	1.7	1.6	70%
5,000 – 9,999	77	2.4	1.8	14
2,500 – 4,999	63	1.7	1.1	8
1,000 – 2,499	44	1.7	0.7	6
500 – 999	16	2.8	0.4	2
All companies	42%	1.8	1.4	100%

Table 3.2: Full-time Education-Training-Development Employees, by Company Type

Company Type	Percent of Companies with any	Number per 1,000 Employees: In Companies with any	Number per 1,000 Employees: In All Companies	Share of All Education-Training-Development Employees
Manufacturing	30%	1.2	0.4	38%
Transportation, Communications, Utilities	75	3.9	2.9	29
Wholesale and Retail	33	0.7	0.2	2
Financial and Insurance	78	3.8	3.0	27
Other	34	2.2	0.7	4
All companies	42%	1.8	1.4	100%

Table 3.3: Location of Full-time Education-Training Employees in Corporate Organization

Company Size	Corporate Level Departments: Education, Training or Human Resource: Only[2]	Education, Training or Human Resource: Also[2]	Education, Training or Human Resource: Total[2]	Other[1]: Only	Other[1]: Also	Other[1]: Total	Divisional, Plant or Other Operating Units: Only	Divisional, Plant or Other Operating Units: Also	Divisional, Plant or Other Operating Units: Total
10,000 employees and over	18%	73%	91%	1%	39%	40%	5%	61%	66%
5,000 – 9,999	31	66	97	--	38	38	3	40	43
2,500 – 4,999	38	46	84	2	30	32	14	30	44
1,000 – 2,499	56	30	86	6	12	18	8	24	32
500 – 999	55	13	68	10	11	21	23	4	27
All Companies Having Any Full-time Education-Training Employees	42	43	85	4	23	27	10	31	41
Company Type									
Manufacturing	26	56	82	3	20	23	14	50	64
Transportation, Communications, Utilities	32	48	80	5	33	38	14	37	51
Wholesale and Retail	64	14	78	--	6	6	22	12	34
Financial and Insurance	51	42	93	7	33	40	--	14	14
Other	72	19	89	5	13	18	4	9	13
All Companies Having Any Full-time Education-Training Employees	42	43	85	4	23	27	10	31	41

[1] "Other" corporate level departments are those that train for their particular functions - Sales Departments, for example. Data Processing, Finance, and so on.

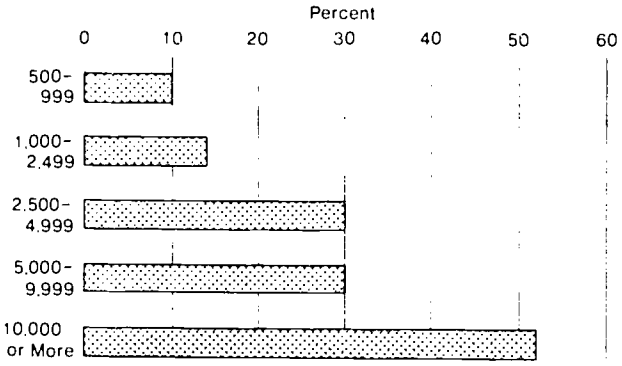
[2] The "Only" column shows the percent of companies in which full-time employees were within the designated locations but nowhere else. "Also" shows the percent in which such employees were present both in the designated location and elsewhere.

divisional, plant or other operating units. More often than not, full-time specialists are at only one place in the company, and in two out of three instances this is a corporate-level education, training or human resources department (see Table 3.3).

Company Teachers

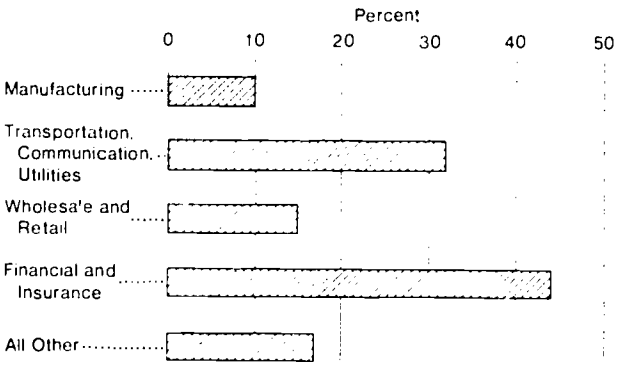
While 42 percent of the firms in this survey employ full-time education-training personnel, only 17 percent have employees who devote all or most of their time to teaching. Again, such employees are found disproportionately in the larger firms. . .

By Company Size



. . . and in the financial and transportation-communications-utilities group:

By Company Type



Increasing Professionalism

As the volume and variety of programs have expanded, so too have the numbers of employees engaged in them — increasingly in such specialized functions as program development, teaching, administration, educational technology, and evaluation. "The corporate education field," observes a plastics and chemical firm executive, "not only reflects the learning explosion, but is an instance of it. Starting with the Hawthorne studies, there has been an enormous increase in our understanding of motivation and behavior at the work place. Programmed learning, and the staggering amount of instructional materials it has produced, are only one example of its application. Education in industry has become a truly professional field."

Education and training departments have in many companies been reputed to be "dumping grounds" for employees being shunted aside, "put out to pasture," or awaiting retirement — reflecting, in the view of one senior company officer, "our general inattention to this costly and important function." Today they are much more often attracting career interest, and assignment to them is used increasingly as a "development experience" (which, as one training director observes, "places in the line people who understand and support our programs").

At the same time, there has been an infusion of outside hires, some with academic training or professional experience in education, others who have evinced a career interest in the field and are deemed suitably qualified — often having degrees in industrial relations, psychology or business administration.

But senior managers in large companies are quick to concede that there is much room for improvement. A study committee of a major national firm recently expressed conclusions about its company's training activities in terms that many executives elsewhere would echo. Asserting, first, that training should utilize "experienced and capable field people" in order to be "practical" and "closely related to our day-to-day job," the report went on to recommend "a good sprinkling in the staff mix of enough training professionals to assure professional guidance for the entire program, provide training for course developers and instructors, and give a professional perspective to the entire program." The group called, in this connection, for the correction of serious deficiencies — that there were no common standards in the company for the selection and development of its training personnel; that many of its present trainers lacked special expertise in the field, had been given no training, and were often assigned to duties for which they had no competence.

Organization

Differences in need, in the character of local education and training resources, and in the many factors that determine relative cost efficiency, make for endless variations among companies in the place, as well as the numbers, of these full-time specialists in the organiza-

tions. It is no less common, for example, for companies to have two or more training departments as to have one, while both reporting lines, and relationships between such units, vary considerably. Nevertheless, certain patterns can be identified.

Central Departments

The Board's study found that better than one out of three companies (85 percent of those that employ any full-time education-training personnel) have a department that carries out some kind of corporatewide education-training activities, usually within the personnel or human resources department. In half of these firms such a central department was the only place in which there were full-time specialists (see Table 3.3).

Central training departments are sometimes responsible for all in-house programs. "All operating divisions are our clients," says a utilities executive, "and we train for their needs and to their standards." More usually, however, they perform one or more of several functions.

One is to provide programs and courses in "generic" subject areas — those in which there is a corporatewide, or at least some interdepartmental, need. This almost always includes, and often consists of, management development courses.

A function of some central departments — occasionally the only one — is to assist other departments and training units in their programs. Such assistance may be in connection with any of the specific functions of program development — needs determination, selection of appropriate resources, course development, use of educational technologies, evaluation. As education and training activities expand, corporate departments may also become more active in coordinating, central information, and even standard-setting, functions.

A third responsibility is also assigned to central corporate education and training departments in some firms — providing skills and, occasionally, basic remedial programs for the clerical, secretarial and other non-exempt employees who work within, or close to, the firm's headquarters offices.

In some companies, there are two or more central corporate groups. Where this is the case, one is typically charged with "management development," another with "training" — that is, with professional, technical and skills development. Both are likely to be within the personnel department.

Other Corporate-level Departments

While central units within corporate personnel are far more usual, corporate-level training units may also be present within other functional departments to serve their own personnel. It is common, for example, for sales or data-processing units to manage and conduct programs for their own employees quite independently of other education and training activities within the firm.[2] Such units may also conduct courses for other company personnel — computer applications for managers or professionals, for example. In a small proportion of firms, they are the only full-time education-training specialists. In 27 percent of companies with any full-time education-training personnel, one or more of them are located within these corporate departments that train for their particular functions.

Operating-level Units

Forty-one percent of companies, ten percent exclusively, have full-time specialists at divisions, plants or other operating units — laboratories, service shops, research centers, and so on. At divisional or group levels in the largest firms, the whole corporate scheme may be replicated in miniature — a training department serving all the facilities, operating units, and staff components that comprise the division or group.

Other Resources for In-house Programs

In companies that do not employ any full-time education and training specialists, in-house programs are assigned to employees who have other primary duties and to outside institutions and consultants. In those that do have their own full-time specialists, such resources almost invariably supplement the activities of the staff specialists. A myriad of consultants and private organizations, the latter including a number of the nation's largest corporations, market programmed courses for self-study and others for administration by company personnel or by the contracting firm itself — some with and some without audiovisual aids, and each tailored more, less — or not at all — to individual company needs.

"Developing your own modules and courses can be extremely expensive," says the training head of a midwest chemicals firm, "so we take advantage of the materials we can buy from companies like Xerox, GE, and Hooker Chemical, and in that way really share the development costs with them. Such large companies also

[2]Strategies for training EDP personnel are discussed by Kenneth T. Garrison, Vice President, Pacific Mutual Life Insurance Company, in *Senior Management and the Data Processing Function*, ed. by Stanley J. PoKempner and Rochelle O'Connor, The Conference Board, 1976, Report No. 636.

Which Budget?

Where training departments serve an entire company or division, or even a number of departments, budgeting and cost-accounting arrangements have serious operational implications, many executives believe. Two basic approaches are used. In one, the training department has its own budget; in the other, it meets its costs through "charge-backs" to users. Each has its protagonists.

Some argue that the first approach encourages employee participation in needed training, while the second raises a subtle barrier. It is often easier for a supervisor to live with a problem, says one training director, than to explain it and persuade higher management to pay for the training.

Others think the first approach encourages unnecessary training, and that the second stimulates more serious thought by line management as to whether particular courses meet their needs and, by extension, to how well the curriculum as a whole does. Therefore, it encourages more involvement by supervisors and managers in the planning process. The rejoinder, of course, is that there are other ways to achieve this. And so the argument goes.

have the staffing depth and expertise to do a better job than we could." One training director says: "We try to avoid the package syndrome, but courses are so abundant in subject areas like sales that it would be wasteful for us not to use one — or at least to adapt it." Asks another: "Why reinvent the wheel?"

A like attitude applies to consultants. The training director of a company with a particularly large and sophisticated program says that "consulting services have been extremely helpful, in our experience. The best ones are those that help you deal with problems that are essentially within your competence."

Similarly, companies with professional education and training personnel usually make extensive use of their own specialists and managers to develop course material and conduct classes — and being called upon to do so is often regarded as a prestigious form of recognition. For example. . .

•At the St. Regis Paper Company, a four-person Corporate Development Staff allocates about 25 percent of its time to coordinating over 3,000 days of development and education programs for about 700 managers each year. More than half the sessions are conducted by some 150 managers from sales, marketing, manufacturing and finance. All are provided instructor training and given audiovisual and other material by the corporate instructors.

•At Anderson-Clayton, an official reports: "It is not unusual to find a division president or controller conducting courses" — though often with some assistance from the training department in the organization and presentation of the material.

•At Cooper Tire & Rubber Company, the training director has prepared a management course several sessions of which he teaches himself, while others are conducted by the heads of key departments and divisions, including one by the Chairman of the Board.

•At the corporate staff of General Electric, a company official estimates, there are about 20 educational professionals who spend about half their time teaching (principally nontechnical courses in management and human relations), and the balance in consultation, course development, and administration. Virtually all of the instruction in professional and technical areas is by employees having other primary duties.

Organizational Trends

Emphasis on the principle managerial accountability and responsibility for education and training is growing in industry. "Employee development is now recognized in our company as no less a responsibility of individual managers than productivity or accident rates," comments one executive. Many companies, accordingly, are enlarging the role and responsibility of lower echelon units.

In part, this reflects awareness that a great amount, perhaps most, learning takes place on the job, and can be accomplished economically and efficiently to the degree that supervisors, who are most intimately familiar with the requirements of the job and with the capabilities of employees, and who are in the closest and most natural tutorial relationship to them, are encouraged or required to plan for such training and are equipped with the proper skills. With their possession of these skills, moreover, training that was once conducted in the classroom can often move to the job site. "We are placing a new emphasis," says one executive, "on job-based methods of learning, in support of our policy of line responsibility for training."

Decentralization is also inherent in a trend toward the coordination and integration or on- and off-the-job learning in the interest of efficiency and individualization. "The notion of learning as separate from working is

shifting in our business: Learning and doing are seen more as a continuous blend or process," says one executive. "There is a trend in our company toward a complete systems approach that combines classroom training with on-the-job training," comments another.

Finally, greater involvement of line managers in the efforts of education-training specialists — from task analysis and the determination of needs to course development and the evaluation of results — is being encouraged and sought in many firms as critical to the effort to tailor programs to needs. Senior executives say that they are striving to "incorporate the skill and experience" of field people into the training process, to "get more feedback from the departments in reference to the efficiency of the training and more involvement in determining what it should be," and so on.

Some companies, to achieve the best of both worlds, are decentralizing certain training activities, but creating or strengthening control and standard-setting functions in a central department. One leading corporation, for example, is pursuing plans to assign to an organizationally "neutral" training department a "major voice" in determining where responsibility should rest for particular programs and employee populations. Others are stressing the use of a central corps of professionals to strengthen the capabilities of line and staff departments.

Organizational Change at a Bank

One large urban bank is nearing the end of a carefully planned evolution of a kind that is occurring in some measure more widely. Some years ago the bank created a Human Resources Department with two divisions. One, Employee Relations, incorporates such functions of the now-defunct Personnel Department as recruitment and placement, compensation, benefits and labor relations. The second, in a role that was new to the company, is responsible for manpower and organization development.

A variety of education and training activities, which had previously been conducted and administered by a unit of the Personnel Department with what had come to be regarded as ill-defined objectives, were now viewed as properly assignable to one of these two divisions. Thus, two separate and distinct programs were evolved, and coexist now, distinguished as "education" and "training."

"Education" is conceived as an employee benefit, and justified by the criteria of employee satisfaction and of management's goals for employee welfare and personal development. "There is no expectation," says a senior vice president, "that an employee who takes part in this program will do a better job because of it." The second program is designed to serve the organization development purposes of the corporation — "to pay off as an investment," as this officer puts it.

Education Plan

The employee benefits program includes several components that together comprise what is known as the Education Plan. This plan, consistently with its rationale, is the responsibility of the bank's employee relations officer and his staff. It has three major component parts.

(1) Tuition refunds and education loans: The plan provides for 100 percent tuition refund for full-time employees and 50 percent tuition refund for part-time employees for approved courses. In general, courses are approved if they meet one of three criteria. The first is that they be job related. The second is that they be related to the employee's career goal in the bank. "The only criterion that should be used is whether or not the employee has reasonable expectation for attaining that goal," says the bank's Education Plan prospectus. Finally, any courses relating to the attainment of a business degree are acceptable under the plan, or any communications or English courses "whose subject matter directly relates to public speaking or composition." Even these broad limitations are waived for "the exemplary employee," who may get approval for courses taken toward a degree or certificate program.

(2) Education programs: By arrangement with various universities and colleges, the bank offers adult education courses on its premises, but during off-hours. These range from a business to a liberal arts curriculum, and also include an MBA program, courses in English as a second language, and a high-school equivalency program. All are approved under the tuition refund plan.

(3) Education counseling: The Employee Relations staff provides special counseling to employees on a wide variety of matters — college credit for life experience; scholarships available for employees and other family members; career counseling; retirement preparation; and a special program for deaf employees.

Training Program

If payoff in operational efficiency is a welcome but unnecessary and unexpected by-product of the Education Plan, it is seen as the sole justification for the training program. "Our approach," says the company's top human resources executive, "is that the burden of

proof is on the training activity: It has to disprove the hypothesis that the bottom line of the balance sheet would really look better without it."

One of the means by which management has sought both to eliminate unnecessary training and to assure that what training is undertaken is as relevant to function as possible, has been to shift more and more of the responsibility for its planning, conduct and funding from a corporate training department to the various functional units. More particularly, the goal has been established that all training for department-specific skills and knowledge be the responsibility of the departments involved. The aim is to integrate responsibility for training and development with that for performance and, as formally stated, "to expand coverage and to foster a commitment within our user areas by building up their capability to participate in the training effort." This new direction has been viewed as a trade-off of "tight quality control" for expanded "impact of training throughout the organization."

Corporate Training Department

To make this principle work, a new conception was also needed of the role of the Corporate Training Department. This group has been assigned. . .

(1) A "strategic role" — helping the line departments to develop the skills they must acquire or improve in order to carry out their training responsibilities. Two units within the Corporate Training Department devote most of their attention to this role. One of these is a Program Development unit. As its name suggests, this unit works with line-department personnel to identify training needs and design responsive programs — and in doing so to enhance their ability to act independently. The second is an Assessment unit, which performs similar roles with respect to evaluating program outcomes. The "strategic role" has long-run as well as short-run implications: The Corporate Training Department will continue to serve as the company's professional center — innovating methods, keeping abreast of developments, and transmitting them to the line.

(2) Responsibility for providing "generic programs" — courses that meet needs common to several departments, or even companywide needs. Still another Corporate Training Department unit, Administration, is responsible for determining the generic course curriculum and for carrying through all of its phases but development and assessment. The generic program includes a core of courses that are repeated each year (or more often) and make up about half the total, and others for which need is less continuous. Last year this program included courses for managers and supervisors in connection with affirmative action, budgeting, salary administration, compensation policy, and performance appraisal; and for appropriate employees in such broadly applicable subjects as accounting and bookkeeping, secretarial skills, and interpersonal relations.

Increasing Line Capabilities

The new importance attached to manpower development at the bank, along with the transfer of responsibility to the line, have combined to give new urgency to the development of suitable competencies in the departments — among trainers, some of whom had been promoted to training roles with no background or preparation, and among managers as well.

One of the ways of doing so was quite direct — reassignment. Nine trained members of the Corporate Training Department staff were transferred over a period of several years to the line. On each occasion, expertise became immediately available where needed most, while the recruitment and training of replacements became the task of the department best able to do it.

Two other Corporate Training Department activities, both considered part of its generic program, were also addressed to the need for new and improved training expertise in the line. One is a program to train instructors; the other a so-called workshop series to enhance the abilities of trainers throughout the bank to analyze needs and to design and evaluate responsive programs.

Enhancing the competence of line managers has, in practice, meant coping with two prevalent limitations, according to the bank's human resources executives — an underestimation of the potential benefits of soundly planned formal training, and resistance to evaluation.

Both have been approached via informal processes — achieved largely through planning meetings and discussions between line managers and Corporate Training Department staffers. "Some managers," says the bank's training director, "resisted the idea that skills can be learned more quickly and efficiently through formal programs than they themselves once picked them up through experience. At the other extreme were managers who sent employees to plausible-sounding courses with too little discrimination. Both had to learn the value of being able to identify the specific skills that a particular employee needed, and of being able to develop programs going directly to their fulfillment."

Validation was a particular problem, says this executive. For one thing, since training was often "a bone

The Industrial Education-Training Market

Training Magazine's 1975 *Buyer's Guide* lists more than 600 firms that supply products and services for the educational programs of U.S. business. Many of them are divisions of major U.S. corporations; others are large independents; and still others, of course, smaller firms.

They offer a variety of software and services — such as audio and video tapes and cassettes, slides, films and film strips, programmed instruction materials, correspondence courses, and tests — as well as production and consulting services. Prerecorded video cassettes and tapes alone are offered by no less than 73 companies — and deal with subjects that range from safety to real estate.

Hardware supplies include the gear and furnishings of the traditional classroom (desks, tables, stands, projectors) as well as study "carrels" and the more sophisticated additions of recent years (cassette recorders and playbacks, video cameras, optical multiflexors).

thrown to employees," managers resisted the idea of trying to measure its effectiveness. For another, they often could not understand the plans for evaluation that were submitted by Corporate Training Department staffers. And, finally, these plans were themselves unnecessarily complex at times, or inappropriately costly. "The truth is," he says, "that for a time our own limitations created as many problems as theirs." The bank's training director believes now that he erred at first in emphasizing academic and professional credentials to the neglect of practical experience in building his staff, and "tended to overlearn it in technology." Both practices have changed in recent years.

Contracts of Commitment

The relationship between the Corporate Training Department and line units has been clarified through formal annual "contracts" and, no less important, changes in the approach of Corporate Training Department staffers that were undertaken to overcome an early "credibility gap."

The "contract of commitment" is by no means a binding agreement; but neither is it far short of one. Barring "unforeseen organizational or labor market changes" that might "force some alteration" as the year unfolds — and except for changes that are mutually agreed to at a midyear review — it spells out the services that the departments, individually and collectively, can expect the Corporate Training Department to provide. These contracts are the result of specific requests formally submitted by the various departments of the bank, each then discussed by members of the Corporate Training Department's Program Development unit with the requesting department. The kinds of services so contracted for range from developing, conducting and evaluating a course program to any of the component parts of this process. The Corporate Training Department may help in modifying a generic course to adapt more particularly to the needs of the department; in planning and analyzing departmental needs; in assessment or validation; in course design, instruction, administration; and so on. The contract of commitment also describes the generic programs that will be offered during the coming year by the Corporate Training Department.

Other Illustrations

Other organizational arrangements among large firms are illustrated by the following examples.

American Airlines

American Airlines is organized into four divisions — Administration, Marketing, Operations, and Finance — each headed by a senior vice president.

Administration includes a training department that has various corporatewide responsibilities. These are for the development and administration of supervisory-managerial programs; for train-the-trainer programs; for other technical and course-development assistance to training departments in other divisions — particularly marketing; and for special developmental programs conducted on a corporatewide basis for high-potential employees — both managerial and nonmanagerial. This department, however, conducts no courses that are specifically designed for, or limited to, administration division employees.

The *Marketing* division has seven departments, two with formal training organizations. One of these is Passenger Service, which runs a company Learning Center in Dallas-Fort Worth, where basic training is given to new flight attendants (yesteryear's "stewardesses") and for specialists in Ground Passenger Services (reservations, ticketing and terminal services). The second is Field Sales and Services, responsible for all training activities carried on in the field. These include the subsequent [illegible] of employees who have gone through the Learning Center's programs, as well as all training for

Ramp Services and Freight Marketing personnel. In larger cities, this field training activity may be a responsibility of entire training staffs; in smaller ones, of a single individual; and, in the smallest, of supervisors having other primary duties.

Operations includes six departments, of which two -- Flight, and Maintenance and Engineering -- have major training organizations. The Flight department operates a so-called Flight Academy, consisting of a "ground" school for preflying classroom instruction and flight simulation, and a "flying" school in which training moves to the aircraft. Maintenance and Engineering is responsible for technical training for acquainting new employees with the company's specific equipment and maintenance procedures, as well as for "upgrading and updating."

Finance has no formal training unit, although its management employees take part in courses provided by the Administration Department's training group. One of these courses, Instructor Training, is normally taken by specialists who provide on-the-job training within the Finance Department.

E. I. du Pont de Nemours and Company, Inc.

Du Pont is organized into eleven "industrial" departments, each manufacturing different product lines. In addition, it has fourteen "auxiliary" departments that operate in the corporate staff function. Each department, whether "industrial" or "auxiliary," is responsible for the training of its own employees, and combines job-based experience with formal instruction. Some departments have training and development sections with full-time employees.

One of the auxiliary departments, "Employee Relations," includes a division that counsels and advises all the others in planning, organizing and administering their respective training efforts.

J.C. Penney

The roles of top management, line and staff management, and education-training specialists have recently become formally structured at J.C. Penney. As applied to the training of its managerial personnel, this national retail organization's system works as follows.

A corporate plan sets basic rules and procedures. Designed and overseen by a Management Development Committee that is made up of the chairman of the board, the president, the vice president for personnel, and the executive vice president, the plan provides that as managerial employees are being prepared to move up from one of four levels, they must take certain "company" courses that are considered to be essential preparation for their new responsibilities.

Department heads must see to it that their personnel do, in fact, take these courses. But they must also develop their own plans -- that is, initiate, conduct and budget for appropriate educational development activities. The priorities under which the various departments move into the program are set by the Management Development Committee, which also reviews each department's plans before they are put into effect.

A professional training and development unit, known as the Management Development Division, plays two essential roles. First, it provides and schedules the company courses -- both those required by the Management Development Committee for all employees who are moving up to particular managerial levels, and a number of electives that departments may incorporate into their plans. It may design and conduct these courses itself or, as has been more common, select them from among the offerings of outside organizations and institutions. Second, it provides staff support to the department heads in the development of their plans, assigning a representative to each in accordance with the priorities of the Management Development Committee.

Chapter 4

Use of Resources Outside the Company

EVEN THOSE FIRMS with highly developed in-house programs make use of outside courses — courses, that is, for which enrollment is open to a wider public than employees of a particular company. One of the arrangements by which this is done is the tuition-aid plan, under which employees are reimbursed for all or part of the costs of certain after-hours study — typically in connection with job or career-related courses.[1] Employees may also be assigned, encouraged or permitted to take outside courses at company expense during working hours — and even, on occasion, given extended educational leaves of absence.

After Hours: Tuition-aid Programs

Tuition-aid programs have two functions, as described by one corporate educator interviewed in this study: "First, to give the individual employee more freedom to pursue his own educational interests; and, second, to fill a vast area of educational and training purposes that companies cannot possibly encompass within their educational structures."

They are something of an anomaly in employer-employee relations. While part of a firm's employee-development system, and invariably thought to contribute to the system's goals, the amount of their contribution is not always considered to be commensurate with their costs.

Many companies have, in fact, been encouraged to adopt tuition-aid plans for much the same reason they have certain fringe benefits — so as better to compete in the labor market and retain employees. In some companies, these tuition plans are administered by "benefits" departments or sections; in a small number, bargained benefits are spelled out in labor contracts.[2] However, as one personnel officer put it, tuition-aid plans have become "so fixed a feature of company policy that any abrogation or major reduction of employee rights under them is, for all practical purposes, no longer a management prerogative."

Prevalence

The Board's study found that tuition-aid programs are virtually omnipresent among all classes of companies with 1,000 or more employees (see Table 4.1). Even in the 500-to-999 employees category, they are present in 82 percent of the firms.

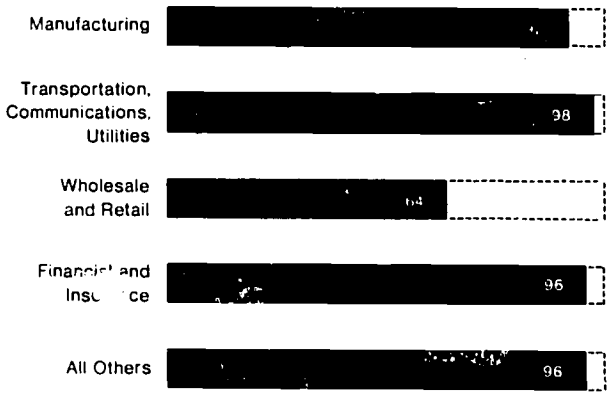
[1] In special circumstances, of course, employees are sometimes allowed to leave work early or otherwise take time off to attend classes.

[2] Only 60 of 1,500 agreements analyzed by the U.S. Department of Labor in its most recent (July 1, 1974) report on *Characteristics of Major Collective Bargaining Agreements* included provisions relating to tuition aid. These covered 862,000 workers.

Table 4.1: Prevalence of Tuition-aid Programs, by Company Size

Company Size	Percent with Tuition-aid Programs
10,000 or more employees	97%
5,000 – 9,000	95
2,500 – 4,999	92
1,000 – 2,499	94
500 – 999	82
All companies	89%

Chart 4.1: Percent of Companies Having Tuition-aid Programs



Moreover, wholesale and retail businesses were the only industry category in which such programs were not found in more than 9 out of 10 companies (see Chart 4.1).

Expenditures

Companies with 500 or more employees spent about $225 million on tuition-aid reimbursement in 1974-1975, the present study estimates.

Per employee, nearly three out of five firms spent $5.00 or less. A small group, however, spent four times that amount.

$0.01 to $2.00	29%
2.01 to 5.00	29
5.01 to 10.00	22
10.01 to 20.00	12
20.01 and over	8
All companies	100%

The median company expenditure per employee was $4.00.

Employee Participation

A 1970 Conference Board study (see box) showed that the median rate of employee participation in the tuition-aid programs of companies offering them was just under 4 percent. This figure appears still to be the best and most current available. Relating it to the findings of the present study yields the estimate that about 1.25 million employees were enrolled in courses "last year" under tuition-aid plans. (Tuition-aid programs, perhaps uniquely among corporate education activities, are not uncommon among companies that employ fewer than 500 workers, so that an industrywide total would be appreciably higher than this estimate.)

Among the 155 companies that provided figures for the earlier study, employee participation rates ranged from less than one percent to over twenty percent. Part of this wide difference is due, of course, to the fact that the plans themselves vary, both in their eligibility requirements and in their financial provisions. Moreover, their imprecise criteria — "job-," "company-," or "career-" relatedness — may be construed differently from one company to the next, and by different people — or at different times — within the same firm.

But diverse participation rates also reflect, of course, the resources of the community, and the character, interests and motives of the work force. "Entitlements" are fictitious when schools are inaccessible, and diminish in attractiveness and value to the extent that they are distant from employees' homes, do not offer desired courses of study, or schedule classes at inconvenient times. And they are underutilized to the degree that employees do not grasp the value of these programs to themselves.

Improving Access

Various measures have been taken by companies to ameliorate such problems. One has been to bring the school to the workplace. Many companies have found that where there are enough employees, local educational institutions consider it worthwhile to send instructors to the plant or office to conduct classes there. American Telephone and Telegraph Company, for example, has worked out such arrangements with Pace University, Middlesex Community College, Fairleigh Dickinson University and Drew University, for its General Departments personnel in the New York-New Jersey area.

Each institution conducts different courses and has its own minimum class-size requirements, ranging upward from 12 to 15. A broad range of core courses is offered. "The accessibility of the courses at a company facility seems to encourage many employees to start or continue their efforts toward a degree," says Mr. W. E. Luthle, Jr., Supervisor of Corporate Education. "Lunch-hour classes and classes starting immediately after work hours seem to overcome many commuting problems to and from school as well as some child-care concerns. Faculty members have also found this to be a growth experience. They have found exposure to a completely new environment and a new culture of students very stimulating and rewarding. Many use the experiences

Tuition-aid Programs: Some Basics

A report published by The Conference Board in 1970 analyzed the tuition-aid programs of 200 large companies. While benefits and eligibility criteria in some of these firms may now be more liberal, this study continues to be a useful guide to the provisions of tuition-aid programs, the administrative practices that surround them, and the judgments of company officials as to their value. Its main findings were:

Aims and results: Principal aims of tuition-aid programs are to maintain and improve employees' competencies, and to prepare them for other — usually higher level — assignments. Virtually all participants in the study believed that, in some measure at least, these aims were being achieved. Other benefits to the firm were also identified: support for recruitment efforts; employee morale; reduced turnover; help in identifying promotable employees; community relations. But these appraisals of benefit, reporting executives emphasized, were based on impressions and anecdotal evidence. "We have never been able to measure results in any meaningful way, but we feel our plan is a good investment and a necessary part of our benefit package," said one.

Acceptable courses: Stated standards for acceptable courses vary considerably. Job relatedness was a requirement in all but two firms. Some firms required that job relatedness be in terms of present jobs only, but more included "next" or "closest higher neighbor" jobs, and a few "any future" jobs. In each case, criteria varied as to how direct the relationship had to be. A number approved courses taken by employees in order to prepare them for different kinds of jobs.

Monetary allowances: About half the companies paid 100 percent of tuition costs, and most of the remainder either 50 or 75 percent. Frequently, however, the portion paid varied with grades, the degree to which courses were judged to be job related, and course level (graduate, undergraduate, secondary). Maximum limits were often stipulated.

Eligibility: In five-sixths of the companies, all employees were eligible to take courses under tuition-aid programs. Some of the others restricted them to salaried personnel, and a few to supervisory or managerial categories.

Participation: Among 155 companies reporting them, participation rates ranged about a median of 4 percent of eligible employees. It was over 10 percent in 17 of the firms. There is evidence that participation skews very heavily toward younger employees.

Time off: About one-quarter of the 200 companies allowed some time off with pay for tuition-aid study. But this privilege was reserved in most cases for technical, professional or managerial personnel who were taking degree courses not available outside of regular hours, or for study in which the company had a special business interest.

Summarizing trends, the report noted no change during preceding years in the main objective of tuition-aid plans: "They are always designed to promote the mutual welfare of the participating employees and the sponsoring companies." But "some companies now allow certain employees limited amounts of paid time to pursue courses"; or pay tuition-aid in advance "so that a lack of ready funds will not prevent employees from taking courses related to their jobs"; and many have extended eligibility to wider employee categories and have boosted plan allowances to offset rising tuition costs. Some further change along these lines, as well as growth in the number of companies having tuition-aid plans since that report was conducted, seems likely.

shared by the students of the business world with their campus students."

If the employee population is large enough, entire degree curricula can be brought to it. At the Tektronix Company's Industrial Park in Portland, Oregon, three degree programs can be taken after work from 4 o'clock on. One is a Bachelor of Science degree in electrical or mechanical engineering from the University of Portland; another an M.B.A. from the same institution; and the third a Master of Science degree in electrical engineering from Oregon State University. In addition, some classes are given at the company by Portland Community College as part of a General Equivalency Certificate Program.

The "Uncommon" Banking School

The American Institute of Banking (AIB) is an educational division of the American Bankers Association, the national organization of the banking industry. Calling itself "an uncommon school without a campus," AIB describes its aims so:

"The underlying purpose of the Institute is to satisfy research-determined common needs of banks for cooperative education and training programs, activities and materials at the highest possible levels of quality for the lowest possible cost, without necessary or undesirable duplication. Its underlying goal is excellence in job performance by bank personnel as reflected through improved knowledge, skills and attitudes; increased effectiveness and efficiency, productivity and professionalism; more competent bankers, better banks, and full service to the public."

Supported by a full-time staff in Washington, about 15,000 volunteers across the country serve as chapter officers and in a variety of other roles. The national network of educational programs that they manage also employs about 3,500 part-time instructors – most, officers or other employees of banks, but including attorneys, accountants, faculty members of high schools and colleges, management consultants, and so on – who, with a 30-member correspondence faculty, make up AIB's faculty.

Admission to AIB courses is open only to "officers, directors and employees of banks or other financial institutions that are members or eligible for membership in the American Bankers Association." Nationwide, 150,000 took advantage of such eligibility in 1975. Ninety percent or so participated through courses that were provided under the auspices of local AIB chapters – most of the rest through correspondence courses and study groups.

The curriculum is made up of both nationally and locally developed courses, grouped into five major subject areas – foundations of banking, banking functions, management and supervision, language and communications, and miscellaneous. Credits – one of which requires at least 15 hours of instruction in academic subjects and at least 30 in skills areas – may be earned toward various levels of AIB certificarion. These are Basic, Standard, and Advanced – involving 15, 21, and 30 credits respectively of required and elected subjects – and a general certificate that is based on the accumulation of credits but has no required courses.

A variant of the school-at-the-company is the school convenient to a number of companies. A consortium of business firms and government agencies in Oakland, California has made arrangements with five Bay Area educational institutions for a variety of undergraduate and graduate college courses to be held after work in downtown facilities that are provided by several members of the consortium. On a far larger scale, the banking industry has organized an institution to provide after-hours courses for its employees in communities throughout the country (see box).

Another way of getting around the inevitable limitations of course availabilities in the community is through correspondence courses. Most companies include these in their reimbursement plans – but selectively and as a last resort. "Courses taken by correspondence will be offered only if there is no comparable course made available at other educational facilities in the vicinity," says an education policy document of GE's Research and Engineering Department. But they play an important role for some companies – and an 18-course home study program of Cornell University serves the grocery supermarket industry.

Increasing Motivation

Availability is a necessary condition for employee participation in after-hours courses, and accessibility a desirable one, but neither is sufficient. A banking executive notes: "Unless employees grasp the relevance of the program to themselves, and see how it can be turned into an opportunity, it will remain beyond the perimeter of their awareness. In a psychological sense, it will be for someone else's benefit – not theirs."

Company programs to aid employees in this respect are sparse. "Unless an employee specifically requests guidance, counseling usually consists of no more than a review of tuition-aid applications to make sure the

Table 4.2: Prevalence of Outside During-hours Course Programs and Authorizations, by Company Size and Type

Company Size	Percent with Programs
10,000 or more employees	90%
5,000 – 9,999	83
2,500 – 4,999	79
1,000 – 2,499	77
500 – 999	66
All companies	74%
Company Type	
Manufacturing	75%
Transportation, Communications, Utilities	71
Wholesale and Retail	51
Financial and Insurance	83
Other	91
All companies	74%

applicants do not intend to pursue studies beyond their potential or outside the sphere of company interests." This assessment, made in the 1970 Conference Board report, still appears to be valid.

"Many companies are paralyzed by ambivalence," one company educator says. "They talk about mutual benefits, but they really think there is not much in it for the business. One result is that employees are not encouraged to take courses. Another, which may be even less excusable, is that many employees are taking the wrong courses at the wrong places. They are not being helped to take advantage of the program wisely."

Others note that many employees are uncertain about their capabilities, about their career goals, and about the educational steps needed to attain career goals. One training director asks, "Why not use assessment and guidance programs to protect the company's investment in tuition aid and bring it a better return?"

Tuition-aid Dilemma

A number of executives interviewed in the course of this study reported that appraisals of tuition-aid programs were under way at their firm, or were on their firm's agenda. "The tuition-aid program in our company and I suspect in most companies," says an airline executive, "is a haphazard affair. We have to find ways to make it a more integral part of our human resource development system."

A large public utility, that is trying to do just this, reports that it is easier said than done, citing this example: One provision of its plan is reimbursement for costs of "company-related degree programs." But, as its administrator puts it, "there seems to be no kind of degree that doesn't in some way fit this description." During the past three years one in five employees who completed either a bachelors or advanced degree under the program was promoted afterward. Four out of five were not — though their supervisors typically reported that they were "doing a better job" or had "shown personal growth" — because jobs were not available for them. Management is not sure this is a good enough return for the company's outlay — particularly since many of the employees who got their degrees do not think it is a good enough result for theirs. Moreover, last year 12 percent of the new degree winners quit.

"Are we better off or worse off for this program?" the company is asking. "Can we, as a regulated industry, justify it? Should we, like some companies, require that employees repay our costs if they leave within two years of completing the program?"

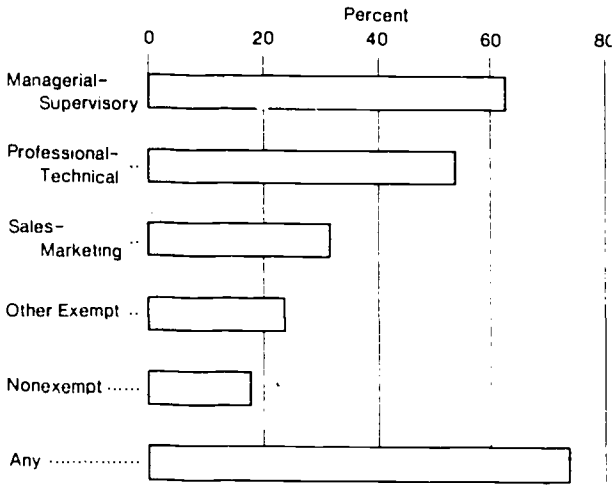
During-hours Programs

"A basic precept at our company is that if something can be obtained from existing sources we don't do it ourselves," one corporate education executive states. While most managers would add an "other-things-being-equal" qualifier, it is a fact that three-quarters (74 percent) of the companies surveyed — the proportion varying by company size and type — send some of their employees to take courses or seminars at outside education-training resources *during working hours* or otherwise "in the line of duty" (see Table 4.2).

These are most likely to be employees in management-supervisory and professional-technical occupations, and least likely to be those in the nonexempt hourly class (see Chart 4.2).

The relative importance of each of the outside resources that companies employ for education and training is not known. An important role is, of course, played by the colleges and universities, which often tailor courses and programs to business needs. Certainly the American Management Association, whose income from managerial education programs in 1975 was $38 million, is a prominent resource. The Conference Board, too, conducts conferences and various courses and seminars which are also viewed as educational and training experiences for middle- and top-level executives. Professional organizations as varied as the American Chemical Society, the American Association of Petroleum Geologists, and the American Institute of Certified Public Accountants sponsor extensive educational pro-

Chart 4.2: Percent of Companies in Which Occupational Group Is Represented in Outside, During-hours Courses



grams to help members keep current and develop in their fields.

A great deal of employee education is also provided through a variety of joint and cooperative arrangements that have been developed by business sometimes exclusively for that purpose. Many of the 3,000 or so trade and business associations include education among their functions. While this most often consists of the dissemination of information by mail, it sometimes includes workshops, seminars and courses. The programs of the banking and insurance industries, in each of which companies share a body of common skills and knowledge needs that are specific to the industry, are the most highly developed instances (see page 35). Nor is it uncommon for insurance, utilities and other industries to conduct joint programs on a regional or smaller areawide basis, often on the premises of a host firm, for managerial, professional or technical education.

Finally, there is a considerable amount of intercompany education and training courses and other forms of instruction that are provided by business firms to employees of other firms. In some instances these courses are essentially a service provided in connection with the sale or use of the company's products or services; in others they are marketed for gain (see Appendix A).

Educational Leaves

Virtually all education and training that takes employees away from their regular duties is, in a literal sense, paid leave time, and many of the men and women who are employed by large U.S. firms will have accumulated considerable amounts of such leave, in hours and days of intermittent study, during the course of their working lives. Formal company policy or special arrangements may also make it possible for employees to take *extended* educational leaves absences that range from a month or so to as long as two or three years.

Just under a tenth of the surveyed companies reported that they had authorized paid leaves or sabbaticals of a month or longer in the past year. The larger a company's work force, the greater was the likelihood that *one or more of its employees* had gained such authorization (see Table 4.3).

Table 4.3: Prevalence of Paid Educational Leave Programs, by Company Size

Company Size	*Percent Authorizing Paid Leaves in Past Year*
10,000 or more employees	28%
5,000 – 9,999	19
2,500 – 4,999	14
1,000 – 2,499	7
500 – 999	3
All companies	9%

Financial and "other" establishments were more likely than others to authorize any extended paid leaves; wholesale and retail firms least likely (see Table 4.4).

Table 4.4: Prevalence of Paid Educational Leave Programs, by Company Type

Company Type	*Percent Authorizing Paid Leaves in Past Year*
Manufacturing	8%
Transportation, Communications, Utilities	7
Wholesale and Retail	3
Financial and Insurance	12
Other	14
All companies	9%

Extended educational leaves offer individual employees the opportunity to significantly advance or alter the course of their careers, and the company to gain significant new competencies, with relative speed. Such leave entails a substantial educational investment by the firm, and tends, therefore, to be infrequent, extended to few employees, and prompted by unusual circumstance. Thus, while many companies have adopted formal, written policies with respect to educational leaves

establishing objective eligibility criteria – these usually anticipate, too, that participants will be selected on the basis of particular circumstances and individual merit. Leaves "may" be granted, one policy statement cautiously notes, to "outstanding" employees who meet various requirements. Kimberly Clark Corporation has developed an increasingly renowned "educational opportunities plan" that allots funds each year to employees' accounts and allows up to two weeks of paid time off. It has stimulated a manyfold increase in employee after-hours study. Under this plan, grants of leave of more than two weeks (and up to a year) with pay are provided on a highly selective basis. No provision is made for leaves without pay.

Paid leaves may involve something less than full pay. IBM has carried this principle close to its limit through an unusual plan that keeps company costs low but offers a level of support sufficient to have encouraged a good many employees to take advantage of it. Under this arrangement, leaves are granted without pay; but employees retain certain benefits and some service credit, and are guaranteed reemployment at the end of the leave period. They pay their own tuition costs. Varying with economic conditions, the number of employees taking such leaves annually has ranged from 100 to 700 (a total work force of about 153,000). More than four out of five have returned to the company afterward.

Under more traditional IBM plans, paid leave is viewed as a job assignment for selected employees. A "residential study program," in which there are about 50 employees at any time, involves up to two years of full-time study at 75 percent of salary – plus certain other expenses; an "executive resource program" provides for eight to nine months of study at a management institute of one of several leading universities.

Leaves are often authorized under special "fellowship" plans of corporations or corporate divisions rather than under regular education, training or other operating budgets. However funded, they are usually predicated on some company benefit. This may be related to a specific need – as when scientists are sent to gain expertise in a new area of technology that a company plans to adopt – or to broader manpower-development goals. On the other hand, one company recently awarded a six-month fellowship leave with pay to a black woman in an unskilled job who had been trying for ten years to complete a bachelors degree but had been prevented from doing so by family responsibilities.

Chapter 5
After-hours Company Programs

WITH THEIR OWN after-hours courses, many companies provide employees with what has been called a "convenient opportunity" for self-advancement and, at the same time, reduce the need for more costly during-hours courses. Curricula are apt to include company-specific subjects and skills that cannot be taught elsewhere, and areas in which community resources are inadequate or do not attract enough employees. As one company official put it: "The company knows it can get improved skills this way at much lower cost than by providing them during the work day. Employees know that those who have completed certain courses on their own time gain advantage in salary and promotion."

Insofar as employer and employee interests in education and training are not fully congruent, after-hours courses may overlap the "employee benefit" edge to a greater degree than during-hours courses. A phone company executive, for example, regards her company's after-hours courses as, in large measure, a supplement to the tuition-aid programs (which she calls "a middle-class benefit that presupposes a decent educational base") one designed in large measure for high school dropouts or others with limited educational attainment. However, though similar to tuition-aid courses in that they are taken by employees voluntarily and on their own time, after-hours company courses can usually be more finely tuned to the firm's needs.

Prevalence and Participation

In a small group of companies, about one in twenty, after-hours courses constitute the sole employee education and training activity. Among the rest, they supplement tuition-aid courses, other outside programs, and company courses that are provided during working hours. In all, two out of five (39 percent) firms provide some after-hours courses. Projections of survey data indicate that about 700,000 employees took part in such formal, off-hours study programs in the "past year" or two percent of all employees.

Among companies with fewer than 1,000 employees, only one in four offered any after-hours courses; among larger firms the ratio was about one in two (see Table 5.1).

Table 5.1: Prevalence of Company After-hours Programs, by Company Size

Company Size	*Percent Providing After-hours Courses*
10,000 employees or over	56%
5,000 – 9,999	51
2,500 – 4,999	52
1,000 – 2,499	45
500 – 999	25
All companies	39%

However, large firms are apt to have more than one facility, and even if one of these has an after-hours program the others may not. As a rule, the larger the firm, the greater the fragmentation of its work force so that, while the largest companies are most likely to provide after-hours courses *somewhere*, they are least likely to have them available to all or most of their employees (see Table 5.3, page 40).

After-hours courses are more prevalent among financial institutions, the transportation-communication-utilities group, and "others" than among manufacturing and wholesaling and retailing companies (see Table 5.2).

Table 5.2: Prevalence of Company After-hours Programs, by Company Type

Company Type	Percent Providing After-hours Courses
Manufacturing	36%
Transportation, Communications, Utilities	54
Wholesale and Retail	27
Financial and Insurance	47
Other	43
All companies	39%

Accessibility to employees is particularly high in financial institutions, which are more likely than others to have all or most of their employees in a single location (see Table 5.3).

Curriculum

The great majority of companies reported that these courses dealt with job- or career-related subjects only. However, 13 percent of those providing any — and 5 percent of all companies — said that their after-hours programs included basic remedial education — reading, writing and arithmetic — and a slightly smaller number that courses were given in "other" subjects (see Table 5.4).

The borderline of job- and career-relatedness sometimes shifts with the observer. A course in "reading improvement" may be described as remedial by one company and as job- or career-related by another; consumer skills courses lie in still more misty terrain, being classed in their several appearances in this study in each of the three categories. Most "other" courses are either in "hobby" subjects or in life-coping skills — dressmaking, personal finances and budgeting, home and car repair are examples. Courses in the arts or humanities, like those of McGraw Hill, Inc., in "Western Intellectual Traditions: The Divine Comedy," or "Approaches to Art History," are extremely rare. (To the degree that corporate executives may tend to justify or rationalize their companies' programs in terms of business aims, the "other courses" category may be larger than reported.)

After-hours programs are often quite modest and informal. They may consist of courses conducted by particular departments — engineering, marketing research, or personnel, for example — for certain of their own personnel. In a tenth of the companies, after-hours programs included fewer than 25 employees; in a third, fewer than 50.

At the opposite end of the spectrum are programs like that of Honeywell, Inc., which enrolled about 2,500 employees last year. After-hours courses at this company are offered at five locations in the Minneapolis-St. Paul Twin Cities area and, by arrangement with the public school system, at two high schools as well. A catalog of courses is published for spring and fall semesters. Its 70 or so pages include course titles and descriptions, prerequisites (if any), as

Table 5.3: Accessibility of After-hours Courses to Employees, by Company Size and Type

Company Size	None	Percent of Employees Located at Facilities Having After-hours Courses: Less than 10%	10%-49%	50%-89%	90%-100%	No Answer	Total
10,000 or more employees	44%	19%	17%	10%	5%	5%	100%
5,000 — 9,999	46	13	10	17	12	2	100
2,500 — 4,999	46	12	12	14	13	3	100
1,000 — 2,499	54	9	14	9	13	1	100
500 — 999	75	1	2	11	11	-	100
All companies	60%	7%	9%	11%	12%	1%	100%
Company Type							
Manufacturing	63	8	8	10	10	1	100
Transportation, Communications, Utilities	46	10	24	10	9	2	100[a]
Wholesale and Retail	72	6	5	10	3	3	100[a]
Financial and Insurance	52	4	8	13	23	-	100
Other	55	7	7	13	18	-	100
All companies	60%	7	9	11	12	1	100%

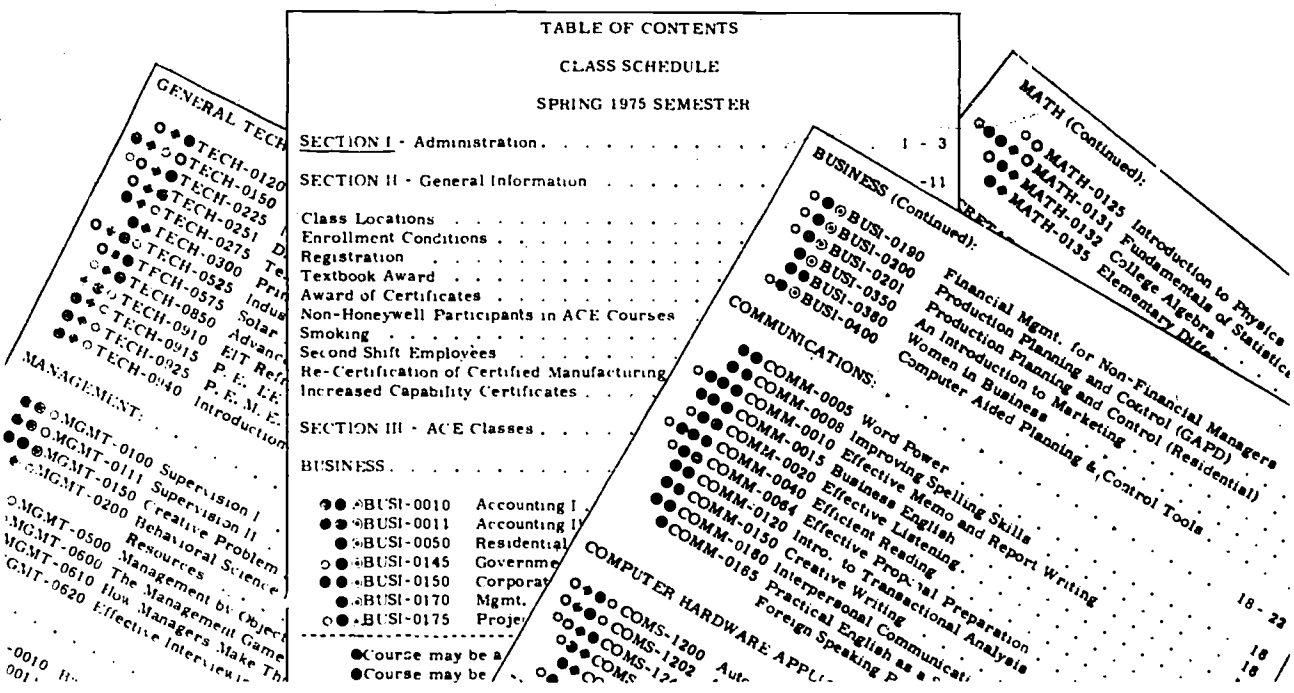
[a]Details do not add to 100 percent because of rounding

Table 5.4: Subject Areas of After-hours Company Courses, by Company Size and Type

Company Size	Subject Areas: Job-or Career-related	Basic Remedial	Other	Any Subject
10,000 employees or over	50%	14%	14%	53%
5,000 – 9,999	48	6	9	53
2,500 – 4,999	46	13	8	52
1,000 – 2,499	42	6	5	45
500 – 999	25	-	-	25
All companies	36%	5%	4%	39%
Company Type				
Manufacturing	33	5	4	36
Transportation, Communications, Utilities	52	8	8	56
Wholesale and Retail	25	-	-	26
Financial and Insurance	44	5	4	47
Other	43	6	5	45
All companies	36%	5%	4%	39%

well as the names of the instructors and the times and places of meetings. Formal registration procedures are followed and completion certificates awarded for satisfactory attendance and performance. Honeywell's courses, like those of a small number of other firms, are open to nonemployees on payment of a registration fee and modest tuition charges, but only if employees themselves have not filled the courses. A recent catalog showed over 100 courses in 10 subject areas (see box below).

Course Catalog Index, After-hours Continuing Education, Honeywell, Inc.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BUSINESS . . . . .

BUSI-0010 Accounting I
BUSI-0011 Accounting II
BUSI-0050 Residential
BUSI-0145 Governme
BUSI-0150 Corporat
BUSI-0170 Mgmt.
BUSI-0175 Proje

Course may be a
Course may be

GENERAL TECH
TECH-0120
TECH-0150
TECH-0225
TECH-0251
TECH-0275
TECH-0300
TECH-0525
TECH-0575
TECH-0850
TECH-0910
TECH-0915
TECH-0925
TECH-0940 Introduction

MANAGEMENT:
MGMT-0100 Supervision I
MGMT-0111 Supervision II
MGMT-0150 Creative Problem
MGMT-0200 Behavioral Science
MGMT-0500 Resources
MGMT-0600 The Management by Objec
MGMT-0610 Flow Managers Make Th
MGMT-0620 Effective Interview

BUSINESS (Continued):
BUSI-0190 Financial Mgmt. for Non-Financial Managers
BUSI-0300 Production Planning and Control (CAPD)
BUSI-0201 Production Planning and Control (Residential)
BUSI-0350 An Introduction to Marketing
BUSI-0360 Women in Business
BUSI-0400 Computer Aided Planning & Control Tools

COMMUNICATIONS:
COMM-0005 Word Power
COMM-0008 Improving Spelling Skills
COMM-0010 Effective Memo and Report Writing
COMM-0015 Business English
COMM-0020 Effective Listening
COMM-0040 Efficient Reading
COMM-0064 Effective Proposal Preparation
COMM-0120 Intro. to Transactional Analysis
COMM-0150 Creative Writing
COMM-0160 Interpersonal Communicati
COMM-0165 Practical English as a
Foreign Speaking P

COMPUTER HARDWARE APPLI
COMS-1200 Aut
COMS-1202
COMS-12

MATH (Continued):
MATH-0125 Introduction to Physics
MATH-0131 Fundamentals of Statistics
MATH-0132 College Algebra
MATH-0135 Elementary Diffe

18 - 22
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18

An After-hours Course

(Description of one of twenty after-hours courses provided for employees in 1975 by the Boeing Aerospace Company.)

Digital Integrated Circuit Design

Prerequisites

Applicants should have a degree in engineering, and be familiar with the basic theory and principles of solid state devices and circuits and logic design.

Abstract

The advent of low-cost, small-size, and reliable integrated circuits has revolutionized electronic circuits and system design. Discrete electronics is fading away and is being replaced by integrated circuits. This course will provide the circuit designer with basic fundamentals of processing and fabrication of integrated circuits, design evaluation, specification and application of digital circuits. A wide variety of circuits will be analyzed. Among those are logic gates (AND, OR, NOT, NAND, TTL, etc.), digital MOSFET circuits, flip-flops, shift registers, multiplexers, decoders, binary adders, counters, memories (ROM and RAM), digital-to-analog converters and analog-to-digital converters. Various examples of the application of digital integrated circuits to electronic system design will be given.

Objectives

Upon the completion of this course, the successful student will be:

- Acquainted with fabrication technologies of integrated circuits.
- Able to specify, evaluate and optimally utilize integrated devices.
- Able to implement the basic logic functions of NOT, OR, AND, NOR, NAND, using DTL, TTL, MOSFET and CMOS.
- Able to analyze and design multivibrators.
- Able to analyze and design combinational and sequential logic circuits.
- Able to analyze and design basic A/D and D/A conversion circuits.

Outside Preparation

The course will require about 8 hours per week.

Required Text

Millman, J. and Halkias, C. C., *Integrated Electronics*, New York: McGraw-Hill, 1972. Cost approximately $16.50.

Length

40 Hours

In large, high-technology companies, more than one, and sometimes all, divisions provide after-hours courses. At Boeing, Seattle-area courses provided by the corporation's Aerospace Company, the Commercial Airplane Company, and Computer Services, Inc. are open to any employee of the corporation. "Learning centers" provide courses that are in self-paced automated formats and that can be pursued by employees at the Company, using its audiovisual equipment, or at home using their own audiotape equipment. Otherwise, the great majority of company courses currently well over 100 are group study, or classroom type. One of them is illustrated in the box above.

Resources

Outside resources, as well as those of the company, may be involved in the design and administration of after-hours courses. A Pennsylvania-based engineering firm of 2,000 or so employees, for example, includes in its "Career Development" program after-hours courses that have been developed and are conducted by employees of the firm, others developed on the outside but conducted by employees, and still others developed and conducted by university and private contractors. Illustrative excerpts from a recent company catalog are shown on page 43.

Course Title	Cost Basis to Employees	Developed by:	Conducted by:
Management Discussion Skills	No Tuition	Outside	Company
Technical Presentations	No Tuition	Outside	Outside
Managing for Motivation	No Tuition	Outside	Company
Construction Management for Nonfield Employees	No Tuition	Company	Company
Speed Reading	Tuition/50% Refund*	Outside	Outside
Typing	No Tuition	Outside	Programmed/Self Taught
Stenography	No Tuition	Outside	Programmed/Self Taught
Excel – A Career Course for Office Employees	No Tuition	Outside	Company
Technical Writing	No Tuition	Outside	Outside
Professional Engineering Examination Refresher/Courses	Tuition/50% Refund	Outside	Company
Engineering-in-Training Examination Refresher Course	Tuition/50% Refund	Outside	Company
Structural Steel Design	Tuition/100% Refund	Company	Company
Electric Power Distribution	Tuition/50% Refund	Outside	Outside

*Refund by company subsequent to satisfactory course completion.

Classroom and Self-study Modes

Self-study, sometimes through correspondence courses, but more often with programmed instruction or other materials provided by the company, supplements classroom-group instruction in one out of four of the companies reporting after-hours programs, and is the only mode in a few instances.

•Citibank is one of a small number of companies that have established "learning centers" on company premises. Citibank's center at corporate headquarters has a large room that contains study carrels, shelves of "courses," and a variety of audiovisual equipment audiotape machines, filmstrip projectors, videotape machines, and tape cassettes. Included are both job-related and other materials. The center, attended by educational counselors, is open from 9:30 to 5:30.

•Mobil Oil Corporation provided self-study correspondence course materials in 1966 for exploration, production, R and D, and engineering employees who worked at isolated locations. The company has gradually enlarged the curriculum and the employee groups eligible to participate and, in March, 1974, extended it to all employees. Over 200 courses are now available, ranging in subject matter from geophysics to foreign languages to management. But all are intended to be job related.

Chapter 6
During-hours Company Programs

FOUR OUT OF every five corporate education and training dollars are spent in connection with in-house activities, and the greatest portion of them by far are for programs conducted during working hours. It is fairly certain, too, that the share of industry's total education and training expenditures accounted for by these internal programs has been on the rise in recent decades. For one thing, as needs grow, the cost-efficiency scale begins to tip toward "making" rather than "buying." And where firms have had to put personnel, facilities, and programs in place to teach company- or industry-specific skills — or to formalize and standardize the orientation of new employees to company rules, policies, benefits, safety procedures, and so on — the incremental costs of further programs have often been lower than the costs of acquiring them outside.

Management's judgments about the value of in-house programs take into consideration benefits that cannot readily be quantified. Internal programs, for example, offer greater opportunity than external ones do to shape instruction to the measure of company needs and to the needs of particular employees at particular times and places, and to facilitate the integration of training with performance appraisal and human resource planning systems. Company specialists may be the best available instructors. Course material may be scheduled to administrative convenience and to such pedagogic purposes as phasing classroom learning with on-the-job experience.

Other more or less intangible benefits from internal programs are sometimes cited by corporate executives. They afford companies more opportunity to establish controls and standards for employee performance in the learning situation. They make it easier to find out how well learning is transferred and applied to the job, and to make necessary changes. They reduce or eliminate the need to share with outsiders confidential company plans or other proprietary matters. And, many executives believe, they tend to engender employee loyalties.

Program Areas

There is no standard way in which companies categorize and describe the various courses that comprise their education and training programs. One large bank, for example, conceives of its training in terms of three "levels" — "job skills," such as typing, keypunch operation, and forms processing; "supervisory development," which teaches concepts of administration, work planning, and control, and techniques of administration; and "management development."

A beverage firm's program consists of "managerial" and "marketing" courses. The curriculum groupings of an electronics firm are "managerial," "marketing," "service," "manufacturing" and "engineering." Other companies distinguish between professional, technical and crafts programs, and so on.

The present study has grouped these subject areas into two broad curriculum categories — management development-supervisory skills, and functional technical skills.[1] These were defined and illustrated in the Board's questionnaire this way:

[1] Instructions to participants defined a course as

"a planned series of lectures and/or other means of off-the-job instruction, designed to impart knowledge and skills or to increase competence. Its length is measured by hours or days of employee participation. This may be continuous or intermittent (e.g., one full week, or an hour a week for 35 weeks are equivalent in course length). Where course modules are used, a single module may constitute a course for certain employees, while a group of modules may make up a course for others."

- "*Management development and supervisory skills:* For example, principles of management, organization development, sensitivity training, management by objective, decision making, interpersonal skills, electronic data processing for management, equal employment opportunity, training of trainers."
- "*Functional and technical skills:* For example, such areas as production, maintenance, marketing, sales service, office, administration, internal systems, finance, personnel."

The examples cited for the management category, it should be noted, include not only subjects relevant only to managers and supervisors, but any that are designed to enhance organizational effectiveness.

The functional category was intended to reflect — and seems for the most part to have been interpreted in this light — all courses related to work skills and knowledge other than those specifically included in the managerial group.

Provision was also made in the survey for data about courses in. . .

- "*Basic remedial education:* That is, reading, writing, arithmetic."
- "*Other subjects:* Any not included in the categories mentioned above: for example, economic education, foreign language, English as a second language."

Prevalence

More than half of all companies have courses in the management-supervisory and in the functional-technical areas, while roughly a tenth do in each of the others. Management-supervisory programs are slightly more prevalent than functional-technical ones, and more often involve lengthy courses — courses, that is, of 30 hours or more (see Table 6.1).

Table 6.1: Prevalence of Company During-hours Courses

Subject Area	Percent of Companies Providing Courses	
	Any	30 Hours or More
Management-Development-Supervisory	60%	27%
Functional-Technical	54	21
Basic Remedial	8	n.a.[1]
Other	11	n.a.[1]
All companies	70%	30%

[1] Not available — i.e., information not called for in questionnaire.

Expenditures

Of the nearly 2 billion dollars that were spent "last year," three times as many were for functional training as for managerial training, when the expenditures of all companies are added together. As shown later, however, this is because the heaviest spenders tend to devote an above-average share of their expenditures to functional programs: Only one in three firms reported that its expenditures in the functional area accounted for more than 50 percent of all its direct training costs (see Table 6.2).

Table 6.2: Expenditures for Company Courses[1]

Subject Area	Millions of Dollars	Percent of Total
Management Development-Supervisory	$ 430	24%
Functional-Technical	1,340	74
Basic Remedial	15	1
Other	15	1
All companies	$1,800	100%

[1] Figures include the cost of courses taken outside the company during working hours as well as inside. Outside expenditures account for about a tenth of the total.

Employee Participation

Projections of data provided by surveyed companies to the study's universe (companies with 500 or more employees) indicate that, of the nearly 4 million employees who took part in company courses last year, all but two percent were involved in management and/or functional courses. The numbers of participants in functional courses far exceeded those in managerial. The small remainder was divided about equally between those taking basic remedial and "other" courses (see Table 6.3).

Table 6.3: Employee Participation in Company During-hours Courses

Subject Area	Number of Employees (000's)	Percent of Total
Management Development-Supervisory	1,400	37%
Functional-Technical	2,300	61
Basic Remedial	30	1
Other	30	1
All companies	3,760	100%

Participants

Employees not in managerial roles often participate in courses that have been classified here as management-supervisory, and those who are in such roles often take part in functional courses (see Tables 6.7 and 6.10, pages 50 and 53). In part this reflects the survey's definition of the two categories – its inclusion of "interpersonal skills," for example, as a management subject. Further, the assignment by a company of particular courses to one category or the other is often a matter of judgment, and many firms make no attempt to distinguish them. But such ambiguities do not tell the whole story.

Many of the participants in what are clearly management-supervisory courses are professional employees, technicians, salespersons, craftsmen, operators and clerks, who are being prepared for first-line managerial responsibility. And many managers take part in functional courses to enhance their knowledge and skills in their specialized roles as professionals and technicians and, sometimes, to gain familiarity with the work of subordinates in order to supervise them effectively.

New Employees

An important class of participants in both subject categories are the new recruits who fill the vacancies created in companies by separations, transfers, promotions, growth and other processes of change. The rates of flow in and out are, of course, higher for some occupations than for others: low-paid unskilled jobs, for example, have much higher turnover than managerial jobs.

Rates of change also vary considerably among companies in different industries, partly because of their different occupational mixes, and partly because of differences in their manpower needs. Some, like the construction industry, for example, are quite volatile – expanding and contracting over relatively brief periods; others are relatively stable.

Reflecting, too, the state of the economy, demographics and a variety of local circumstances, this flow carries into companies ever-changing blends of experienced and inexperienced employees – some who have just finished school or are otherwise starting their first jobs; others returning to work after layoffs, illness, child rearing, additional schooling, loafing and so on; and still others who may simply be changing jobs. It is, of course, the character of this flow in particular companies and at particular times that largely determines how important a place new employees occupy in education and training programs.

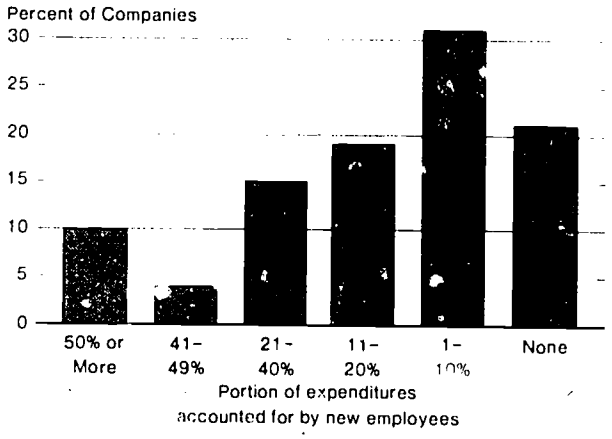
Methods

Most of the training of new employees occurs on the job, and much of that is relatively unplanned. However, as line managers become more clearly accountable for training, as more of them are trained in learning theory and teaching methods, and as they are provided with more professional support by expanding education and training departments, improvisation and informality are increasingly giving way to planning and structure. Training on the job may follow prescribed sequences and employ teaching aids. New employees may be given manuals or programmed materials to study, and tested for knowledge and comprehension.

Many companies that provide courses for new employees are shortening or deferring them, placing greater reliance on on-the-job experience – learning by exposure to realistic work problems. Professionals and candidates for managerial jobs, in particular, may be assigned directly to specific functional areas and not begin off-the-job courses until, as one company trainer succinctly put it, "it's clearer what their duties are going to be, and we can size up what they need to know – and until they've had enough experience to understand the significance of what they're learning."

But many companies design courses specifically for new employees, or bring them into existing ones. Thirty percent reported that new employees had taken part in courses during the preceding year. These were more likely to be in functional than in managerial skills, while only a handful of companies mentioned remedial courses.

For one company in ten, 50 percent or more of all training expenditure was devoted to this group of employees, but in the median average firm the ratio was about 10 percent.



Affirmative Action for Women: Two Courses at Honeywell, Inc.

A course for *"male employees, particularly supervisors"*:

Title: **Working with Women**

Description: *"Working with Women* was designed for all male employees, particularly supervisors, who would like some information on the changing roles of women in today's society. The seminar fulfills affirmative action planning requirements with the following objectives:

"(1) To examine the new role perspectives for men and women in society.

"(2) To learn ways of working with women on a professional basis.

"(3) To discuss career planning advice for subordinates – especially females.

"(4) To review Honeywell's EEO policy and affirmative action planning.

"The seminar makes use of role playing, case studies, a role-reversal film of a day at Honeywell, and group discussions. The intent is to provide enjoyable insights into constructive social evolution."

And a course for *"female employees"*:

Title: **Women in Business**

Description: "Women are a significant portion (one third) of our work force. Many females are clustered in the lower paying jobs. Two questions need to be asked: One, is this an effective utilization of our human resources? And, two, how does this relate to our EEO compliance status? The *Women in Business* class was developed to help women and the company arrive at a better 'fit.'

"The objectives of the class are:

"(1) To give women the improved self-image and self-confidence necessary for success in business.

"(2) To create a climate of professional support among women.

"(3) To provide exposure to the educational and developmental resources available in the company and the community.

"(4) To discuss career planning and how to interview for job openings within the company."

Minorities and Women

Equal employment legislation and "affirmative action" requirements of regulatory agencies have had two expansionary effects on company education and training. First, as described earlier, programs have been developed to provide managers and supervisors with the understanding and skills they need in order to share in planning and implementing affirmative action goals and, through "sensitivity training" and other techniques, to change attitudes that could interfere with realization of these goals. "On-the-job training means that experienced workers and supervisors teach inexperienced ones skills they have learned over the years," says a steel executive. "If they don't see why they ought to cooperate in equal employment programs for women or blacks – and some may even feel like sabotaging them – the whole effort obviously bogs down."

Affirmative action goals have also led to increases in the participation of women and minorities in company courses – and, in some cases, the introduction of special courses (see box). Those classes of companies in which education-training programs are most prevalent – the larger companies, those in finance, and in transportation, communications and utilities businesses – are also most likely to have taken such steps.

Several explanations are offered by company officials for the increased participation of these groups in existing courses (see Table 6.4).

- More are being nominated and assigned to such courses by their managers and supervisors in pursuance of affirmative action plans. "We are currently setting objectives to increase the participation by minorities in all types of training programs," reports a major manufacturer.
- Increased hopefulness about jobs and careers appears to have encouraged more women and minority members to seek out developmental opportunities more actively than in the past. A number of companies have developed special communications programs to "advise women and minorities of the programs and the opportunities for them to participate," in the words of an air conditioning executive.

Table 6.4: Steps Taken to Increase Course Participation by Women and Minorities

Steps Taken	Percent Reporting Steps in Subject Area			
	Any	Management Supervisory	Functional-Technical	Remedial Education
For Women:				
Brought more women into existing courses	40%	31%	23%	3%
Provided new courses of special interest and value to women	11	5	7	*
Either	43	34	25	3
For Minorities:				
Brought more minorities into courses	35	26	25	3
Provided new courses of special interest and value to minorities	8	2	6	1
Either	37	27	27	3

*Less than ½ of 1 percent

• The numbers of women and minorities taking courses have increased as more of them have been employed by some companies and given greater responsibilities. A utilities executive describes this arithmetic: "Since 1965 an aggressive program of hiring and promoting minorities has been followed at our organization. A result of this is that as these people move up in the organization there are more in our classes. This is not because of any special action now."

Differences by Company Size

The prevalence of course programs in each of the major subject areas, the expenditures for them, and the patterns and rate of employee participation in them, vary markedly by company size.

Prevalence: Approximately nine out of ten of the largest companies provide courses in managerial subjects and a like number in functional ones; fewer than half of

Executive Views of "Affirmative Action"

Human resource executives, invited to comment on the federal role in employee education and training, split into three groups – approvers, disapprovers and neutralists – of roughly equal size.[1]

Disapproval: The attitude of most of those who disapproved is reflected in the comment of an executive who said that "companies know the value of training without prods," that the "administrative red tape demands far more time than the results justify," and that "the net result is an overall loss in our training accomplishment." Several stated more explicitly that they are in agreement with the government's aims, but find its administrative requirements unduly onerous and even counterproductive – "actually siphoning manpower dollars in resources away from our training programs," as one put it.

Approval: Among those who endorsed the government's role a few saw benefits from being "challenged" to recognize the vast wasted talent of certain minority groups. Most simply thought it was right. "The government is waking us up to what we should have been doing all along," was a typical comment.

Neutral Comments: Those who commented in nonevaluative terms simply noted one or more of these consequences of the government's regulatory activities: that they have created a need for training or "briefing" supervisors and managers to assure compliance, and that they have added a heavy record-keeping burden.

[1] The Conference Board's questionnaire asked: "Do you believe that employee education-training by business is presently being impeded or aided by government programs or policies, or that new programs, policies or legislation are desirable? If so, please describe."

Table 6.5: Percent of Companies Providing Any Courses in Each Course Area, by Company Size

Course Area	Total	10,000 or more Employees	5,000-9,999	2,500-4,999	1,000-2,499	500-999
Management-Supervisory:						
Less than 30 hours only	33%	25%	32%	35%	40%	35%
Some 30 hours or more	27	66	56	37	27	12
Total	60	91	88	82	67	47
Functional-Technical:						
Less than 30 hours only	33	35	42	27	37	30
Some 30 hours or more	21	52	38	29	19	12
Total	54	87	80	56	56	42
Basic Remedial (Total)[1]	8	29	14	14	4	4
All Other (Total)[1]	11	22	17	19	5	10
Any Courses:						
Less than 30 hours only	34	22	26	39	37	34
Some 30 hours or more	36	74	65	47	34	21
Any (Total)	70%	96%	91%	86%	71%	55%

[1] Course hours breakdown not available.

the smallest companies provide courses in either of these areas (see Table 6.5). Among companies offering any, the largest firms are much more likely than the smaller ones to have lengthy courses — that is, courses of 30 hours or more.

Expenditures: With higher overall spending rates per employee than smaller companies, the larger ones devote a higher proportion of their dollars to functional skills (see Table 6.6). Among companies with 10,000 or more employees, the ratio of functional-to-managerial in training expenditures was 81 to 17. Among each of the categories below 5,000 employees, functional and managerial expenditures were fairly similar.

Participation: Without exception, the frequency with which employees in each occupational group participate in company courses increases as company size does (see Table 6.7). This relationship is present for both managerial and functional courses. (These ratios, it should be stressed, tell nothing about how many employees, or what proportions of them, participate in

Table 6.6: Distribution of Expenditures for Company Courses, by Company Size[1]

	Total	10,000 or more Employees	5,000-9,999	2,500-4,999	1,000-2,499	500-999
Course Area:						
Management-Supervisory	24%	17%	36%	46%	47%	43%
Functional-Technical	74	81	62	50	51	51
Basic Remedial	1	1	1	2	1	3
Other	1	1	1	2	1	3
Total Expenditures	100	100%	100%	100%	100%	100%
Participants:						
New Employees	10%	14%	15%	12%	8%	9%
Present Employees	90	86	85	88	92	91
Total Expenditures	100%	100%	100%	100%	100%	100%
Expenditures per Employee (mean)	$53.90	$72.00	$44.10	$22.80	$24.00	$19.10

[1] Figures include the cost of courses taken outside the company during working hours as well as inside. Outside expenditures account for about a tenth of the total.

Table 6.7: Percent of Companies in Which Members of Particular Employee Groups Participated in Courses, by Company Size

Participating Employee Group	Total	10,000 or more Employees	5,000-9,999	2,500-4,999	1,000-2,499	500-999
Top or Senior Management	26%	39%	36%	34%	27%	18%
Middle Management	47	86	73	61	50	28
Supervisors	52	90	82	74	56	29
Management (any level)	60%	91%	88%	82%	67%	47%
Professional-Technical	35	69	65	49	29	23
Sales-Marketing	27	67	52	35	26	14
Other Nonexempt Salaried	19	47	37	29	15	10
Other Nonexempt Hourly	11	26	24	17	11	2
Any	60%	91%	88%	82%	67%	47%
New Employees (included in above)	13%	38%	32%	19%	12%	4%
			Functional-Technical Courses			
Managerial (any level)	37%	66%	53%	46%	40%	23%
Professional-Technical	30	61	55	38	30	17
Sales-Marketing	30	68	53	32	26	20
Other Nonexempt Salaried	22	43	29	23	17	20
Other Nonexempt Hourly	21	36	34	25	25	13
Any	54%	87%	80%	56%	56%	42%
New Employees (included in above)	21%	60%	40%	33%	20%	7%

each group. Such data were found in the developmental stages of the present study to be unobtainable in most companies.)

New Employees: The likelihood that new employees will be included in managerial or functional programs diminishes with decreasing company size at an even steeper rate than the prevalence of such programs. Similarly, the share of dollars devoted to new employees is lower among the smaller and low-spending companies than among the larger and high-spending ones.

Differences by Company Type

The range of difference in each of the measurement criteria among different types of companies is hardly narrower than among companies of different size (see Tables 6.8, 6.9 and 6.10, pages 52 and 53).

Prevalence: Both managerial and functional course programs were more common among financial firms than among any other type. Companies in the transportation-communications-utilities group were a close second in both categories, and were most likely to offer courses of 30 hours or more.

Expenditures: Those company categories having the highest per employee expenditures (financial and transportation-communications-utilities) devoted the largest *portion* of their spending to functional training. Among firms with the lowest per employee expenditures (wholesale-retail and "all other"), dollars were apportioned almost equally between the two major subject areas.

Participation: It is not surprising that rates of participation for each occupational group correspond generally with the prevalence of company courses in the various types of companies. Notable, however, is the high incidence of participation in functional courses by nonexempt employees of financial and transportation-communications-utilities companies, and of hourly ones in the latter group particularly.

New Employees: Financial companies stand out conspicuously for the high share (21 percent) of expenditures devoted to the training of new employees.

Curricula and Methods

Corporate education touches on areas of knowledge as diverse as mathematics, language and communications, the physical sciences, human behavior, and the

Roles for Government?

Most human resource executives see no need for new federal "programs, policies or legislation" dealing with employee education, the Conference Board survey found. On the contrary, experiences as participants in manpower programs and with equal employment regulatory agencies have caused or reenforced considerable wariness of further governmental roles, even among many who applaud the objectives of current ones.

They say that "red tape," "bureaucratic hassles," "excessive rules and record-keeping requirements," and "cumbersome procedures that are not suited to the needs of industry" bog programs down and "negate much of their positive effect." "Most of the management people I know," says one executive, "are reluctant to ask for government assistance or funds to train veterans, minorities or the handicapped because of the red tape and bureaucratic procedures." Only "large companies," says another, "dare become involved."

But there were exceptions. Several officials called for financial support for employee education and training programs. "Subsidies" for these activities, said one executive, "would lead us to look with favor" on federal involvement; another urged "imaginative change" in government tax policy to encourage employee education. Others suggested change in wage-and-hour laws, which, as one put it, "prevent companies from offering training to upgrade skills on employees' own time without paying overtime." Another commented that "hourly people are not included in after-hours programs because of the possibility of having to pay overtime."

One executive suggested that reimbursement to companies under CETA "should include upgrading as well as basic skills training." Still others called for a greater federal role in improving education in traditional or other nonbusiness institutions, or in aid and encouragement to vocational institutions; in support of efforts by state and local governments to "determine business needs and develop responsive education programs"; in setting up "standards of performance and accountability for the use of public funds by educational institutions"; in legislating greater emphasis on "the three R's" and creating ways, as one executive put it, to "take the burden of remedial education off industry's back."

management and control of systems, and embraces an almost infinite variety of skills.[2] Still, even in what has been termed the "functional" area, diversity is not quite the rule. Certain courses — for example, selling technique, computer programming, basics of electricity, and the use of tools — appear with some regularity. And the "management" component as a whole, relating as it does to needs that are shared by all business organizations, has a more or less bounded, or circumscribed, curriculum.

Management and Its Curriculum

Management has been described as "the process by which the elements of a group are integrated, coordinated and/or utilized so as to efficiently and effectively achieve organizational objectives."[3] The particular functions that inhere in this process are commonly identified as: *planning* — setting objectives and analyzing conditions, needs and resources; *organizing* — assigning responsibilities and coordinating the work of the individuals who make up the group; *staffing* — identifying and providing for skills needs; *direction* — translating more general objectives to specific work tasks; *control* — moving the whole process toward established goals, more often than not adjusting and accommodating to changing conditions.

The course programs that companies provide for those assigned to carry out these functions, though endlessly variable in length and scope and in the degree to which they are tailored for different managerial levels, tend to share common subjects and aims. They seek to increase participants' competencies in three principal respects:

[2] The Kodak Park program, described later in this chapter, indicates how extremely varied the subject matter — and the levels of treatment — can be within one division of a large company. To illustrate the character and diversity of industry's curriculum, a more or less random selection of courses — one from each of a number of companies — is presented in Appendix B.

[3] Howard M. Carlisle, *Management: Concepts and Situations*, Science Research Associates, Inc. 1976.

Table 6.8: Percent of Companies Providing Any Courses in Each Course Area, by Company Type

Course Area	Total	Manufacturing	Transportation-Communications-Utilities	Wholesale and Retail	Financial and Insurance	All Others
Management-Supervisory:						
Less than 30 hours only	33%	29%	30%	33%	48%	35%
Some 30 hours or more	27	24	43	20	35	27
Total	60	53	73	53	83	62
Functional-Technical:						
Less than 30 hours only	33	30	26	38	45	34
Some 30 hours or more	21	17	46	5	33	24
Total	54	47	72	43	78	58
Basic Remedial (Total)[1]	8	7	8	2	18	4
All Other (Total)[1]	11	11	12	5	18	5
Any Courses:						
Less than 30 hours only	34	31	20	37	38	41
Some 30 hours or more	36	33	59	20	52	38
Any (Total)	70%	64%	79%	57%	90%	79%

[1] Course-hours breakdown not available.

• *Management of people:* Managing, by definition, involves interaction with people — supervisors, subordinates and peers. At their simplest level, training programs provide information about company personnel policies, provisions of union agreements, and requirements of the law in such areas as safety and health, equal employment, and so on. Company courses may also teach and train in techniques of supervision — setting standards and appraising performance, job training and coaching, motivating, handling grievances, disciplining. Finally, managerial programs may incorporate theories of human behavior — as subjects of courses, or integrated with more pragmatic, "how to" instruction.

• *Functional skills:* Managers may require instruction in functional areas. . .

when their responsibilities come to embrace specialized areas with which they must become more familiar if they are to manage properly;

to learn aspects of managerial technique, such as the theory and practice of budgeting and control systems, and the use of computers.

Table 6.9: Distribution of Expenditures for Company Courses, by Company Type[1]

	Total	Manufacturing	Transportation-Communications-Utilities	Wholesale and Retail	Financial and Insurance	All Others
Course Area:						
Management-Supervisory	24%	22%	16%	45%	20%	53%
Functional-Technical	74	76	82	51	69	45
Basic Remedial	1	1	1	1	3	1
All Other	1	1	1	3	2	1
Total Expenditures	100%	100%	100%	100%	100%	100%
Participants:						
New Employees	10%	8%	8%	8%	21%	8%
Present Employees	90	92	92	92	79	92
Total Expenditures	100%	100%	100%	100%	100%	100%
Expenditures per Employee (mean)	$53.90	$53.60	$84.10	$16.90	$66.50	$21.60

[1] Figures include the cost of courses taken outside the company during working hours as well as inside. Outside expenditures account for about one tenth of the total.

Table 6.10: Percent of Companies in Which Members of Particular Employee Groups Participated in Courses, by Company Type

Participating Employee Group	Total	Manufacturing	Transportation-Communications-Utilities	Wholesale and Retail	Financial and Insurance	All Others
Management-Supervisory Courses						
Top and Senior Management	26%	24%	24%	23%	37%	23%
Middle Management	47	42	51	40	75	42
Supervisors	52	44	65	40	80	58
Management (any level)	60%	53%	73%	53%	83%	62%
Professional-Technical	35	29	51	18	57	39
Sales-Marketing	27	27	38	16	37	20
Other Nonexempt Salaried	19	12	26	15	47	16
Other Nonexempt Hourly	11	7	16	17	15	5
Any	60%	53%	73%	53%	83%	62%
New Employees (included in above)	73%	11%	19%	13%	19%	13%
Functional-Technical Courses						
Managerial (any level)	37%	33%	35%	29%	63%	36%
Professional-Technical	30	20	45	16	59	44
Sales-Marketing	30	28	29	32	46	11
Other Nonexempt Salaried	22	13	37	7	56	24
Other Nonexempt Hourly	21	18	44	21	24	13
Any	54%	47%	72%	43%	78%	58%
New Employees (included in above)	21%	15%	37%	19%	43%	11%

•*Personal skills:* How well managerial tasks are performed depends also on the ability to approach and solve problems analytically; to communicate and deal maturely with others; to use time effectively; and to adapt to change. It depends, too, on creative, innovative and integrative abilities. And, some company educators have begun to believe, on an ability to understand the connections between business and society. ("Unfortunately," says an official of one of the major multinational corporations, "a business career tends to limit intellectual vision, and something more than traditional 'trade school courses' are needed today.")

Programs

Company courses are often elements of "programs" — clusters of related courses, and/or of classroom and experiential sequences, that are designed around a particular skills or knowledge area. "Programs" vary considerably in the degree of their structural cohesiveness and in their length. Some are designed to carry particular groups of employees through a process of learning in which the subject matter, methods, duration, and even evaluation criteria are carefully structured in advance. Apprentice programs, entailing two to four years of phased work and study, are a prime example. They have a counterpart in similar programs that many companies have themsleves designed to serve their specific skills needs or to circumvent formal requirements of the U.S. Department of Labor's Bureau of Apprenticeship and Training that they consider to be irrelevant or wasteful.

There are many instances in industry of programs that are much briefer, aiming at more limited increments of knowledge or skill, but no less highly structured than the apprentice programs. The teller-training program of an eastern bank, which integrates programmed instruction, lectures, discussion and role playing into a three-week whole, is one example. The four-week study and work program through which a midwest railroad trains its locomotive engineers is another.

Looser "programs" exist as well, clusters of courses belonging to a subject family — sales, management, information systems — the completion of which may be a necessary or desirable condition for promotion. (Some, like GM's Management Progression Curriculum, discussed on page 57, have both "required" and "recommended" courses at each stage.)

Illustration: Kodak Park

The uses of programs for more extensive developmental goals than individual courses aspire to, and their relationship to a total corporate education and training program, is illustrated by the activities of the Eastman Kodak Company's largest manufacturing division — Kodak Park. Serving a division of 30,000 people, the Kodak Park Training Department administers four service areas that provide individual training, specially designed courses, and programs with extensive developmental goals related to the total corporate education and training program.

Vocational Training Services: The most important component of this area is the company's Apprentice Programs offering training in 16 skills, ranging from carpenter to glassblower. Each apprenticeship combines 480 classroom hours with on-the-job training over a three-year period. Vocational Training Services also offers a 320-hour technician training curriculum, a 272-hour program for laboratory trainees, 120 hours in "sheet metal layout," a 12-hour program in "thin layer chromatography," and 8 hours in hand soldering.

Professional Training Services: These programs consist of computer-related and information systems courses and statistical and mathematical courses. Self-instructional courses are also used in both these areas. "Programming: Concentrated Version" is a 160-hour course divided equally between classroom instruction and programming workshop. Other programs run from 66 to 120 hours. "Mini-computer orientation" courses are taught in both four- and eight-hour periods.

Management Training Services: The most comprehensive management training course, Basic Training for Supervisors, consists of three-hour sessions held twice a week for nine weeks. Special courses are designed to train supervisors to appraise and review individual job performance; develop writing skills; improve reading, and meet many other needs of individuals. Special orientation programs for new employees are developed as requested by Kodak Park departments — need determining the program's time span.

Photographic Training Services: These programs, designed to develop an understanding of photography, are attended by middle-level managers, newly hired college graduates, and experienced technicians. Programs include: three courses in "fundamental photography"; five courses in "photographic science"; and seven courses describing company products and processes — principally to technicians and professionals. Various "package courses" of one to four days, sponsored by the American Chemical Society and taught by outside specialists, are offered during the year. In addition, many self-instruction courses are available.

Methods

Referred to frequently by survey participants as a significant recent development in corporate education and training has been what one official described as "the change from presentation to show-and-tell — to learning by doing." Accompanying it have been an increasing use of programmed self-instruction modes and of audiovisual technology.

Since the design of programmed and audiovisual materials requires specialists who are familiar with the particular subjects, and is costly in time, custom-tailored courses tend to be limited to the largest companies. Economic considerations also influence the use of media. For instance, one executive reports that his company has "gone heavily into programmed self-instruction only with audio aids and notebooks, since visual aids are too costly."

Several examples illustrate the use of these newer techniques.

Mobil Oil: Certain courses are based on videotapes — one, for example, consists of 11 sessions on economics and risk analysis. The tapes run 45 to 60 minutes. With several breaks for discussion and problem solving, each session is about 1.5 hours in length. The overall program is equivalent to 2.5 days of instruction.

The course focuses on a basic treatment of economics and risk analysis. Although some theory is given, emphasis is on the practical application of the principles and methods presented. The course does not include detailed calculation procedures, but some problem solving is included. Participants receive handout materials consisting of detailed topic outlines, major graphs and tables, class problems, glossary of terms and concepts, references and an index of the materials.

Butt Grocery Company: This firm operates 131 outlets in Texas. Because these are "spread all over the state," in the words of the company's training manager, programmed instruction is used to teach basic skills for a variety of positions in the company. Originally bought from a large chain in another part of the country, programs are now being developed by the company for its own particular needs.

American Airlines: Audiovisuals, ranging from simple transparencies to interactive videocassette programs, are used extensively at American Airlines. First employed for Flight training and Maintenance training over

twenty-five years ago, their use has spread to all departments of the company. Program development is primarily in-house.

Slide-tape programs have for some time been heavily used in the training of Cabin Service, Line Cargo, and Freight Terminal employees to reduce to a minimum the time needed for working with and in the airplanes and related equipment. More recently, audiovisuals have been combined with self-instructional techniques through the medium of the Caramate — a compact, lightweight rear-screen slide projector with synchronized sound track — and workbooks, for the training of passenger and ramp services personnel as well as sales and in-flight service personnel. One hundred forty-six Caramates are located in company "learning centers" in 56 cities.

As compared with the former lecture-demonstration method, says a company official, the new system requires less classroom space, simplifies scheduling and administration, and reduces preparation time and instruction time — particularly the need for "hands-on" training that may tie up costly equipment and be difficult to arrange at all.

IBM: Much of the training of IBM's "customer engineering" personnel, once conducted at a single Center and then decentralized to 14, now takes place in offices throughout the country by virtue of self-study programs and computer-assisted instruction.

A system of learner-based study for employees who service typewriters and other office equipment has been built around 600 carrels — individual study areas having a desk onto which audio and visual equipment is fixed — at 160 locations. A company official says: "By taking training to the student, travel costs and time have been reduced. The method is also preferred by employees, and they are better trained. Furthermore, they remain with their managers, who have an opportunity to assess their progress and develop a relationship with them at this early stage. Weaknesses of the carrel system are that projectors often break down, course development is slow, and some students dislike self-study — though more dislike classroom study."

Computer-assisted instruction (CAI) is distinguished from computer-managed instruction in that more than half the instruction involves interaction between the student and the terminal; less than half is in such other forms of self-study as video and audio tapes, books, films, microfiche, and so on. A company spokesman reports that employees find CAI more interesting than programmed instruction, but that its start-up costs are much higher — requiring in some cases as much as 100 preparation hours per student hour — even where, as at IBM, the necessary teams of specialists and the equipment are available.

Computer-assisted and self-paced instruction share an estimated 10 percent of IBM's total education budget — though about a third of it is in the division that is its prime user, customer engineering. "Management," says an internal company memorandum, "stresses the necessity of using cost-effectiveness and cost-benefit criteria for the selection of new education media such as television and computer-assisted instruction, as well as in the choice of new educational techniques such as learner-paced instruction."

General Electric: At GE's Management Institute, computer simulations are used to teach basic principles of business management. Teams are formed and given situational information, on the basis of which they are required to make decisions. Their decisions are fed into the computer model, which describes their consequences — a whole new set of conditions that require new decisions — and so on.

Two "Generals"

How and when employees are brought into management courses also varies by company and within divisions and departments of the same company. Most companies that provide courses for new first-line supervisors, for example, do so after the employees have been promoted to these jobs; but many others conduct such courses for employees who have been identified as *candidates* and are interested in supervisory jobs — on the grounds that their performance in the training program provides further opportunity to evaluate their suitability, that a pool of candidates is created from which the best can be selected, and that those chosen are more apt than otherwise to start their duties with basic competencies.[4]

The range of approaches to management development activities are broadly exemplified by the programs of two corporate giants — General Electric and General Motors.

General Electric: Management courses are available within General Electric under three arrangements.

First, a Management Development Institute, located at a campus-like facility in Crotonville, New York, to which employees — primarily at middle-management levels — are assigned at the direction of their supervisors for more or less "generic" management courses. The

[4]See Walter S. Wikstrom, *Supervisory Training*, The Conference Board, 1973, Report No. 612.

GE Foremen's Supervisory Program Modules

General Electric employs over 8,000 foremen and first-line supervisors in 170 different departments. To provide relevant and quality training that is suited to their diverse needs and that is capable of being administered locally, the staff of GE's Management Development Institute created a program of training modules and, for each, a leader's guide – films, slides, tapes, and so on – and text and exercises for the number of students specified. The subjects and content of these modules, the time each requires, and the employee categories for which they are intended, are shown below.

Module	Length (in hours)	Content	Suitable for: Pre-supervisor	New Supervisor	Experienced Supervisor
Elements of Foremanship	2	Foreman-supervisor role as seen by foreman-supervisor, his manager, and his manager's manager.	x	x	x
Styles of Leadership	4	Comparison of leadership styles and their results.	x	x	x
Two-way Communication	3	Concepts and techniques of effective one-on-one verbal communication in the business environment.	x	x	x
Listening Awareness	2	The need for active listening in daily work activities.	x	x	x
Grievance Handling	4	The foreman-supervisor's role in anticipating, preventing, investigating and resolving employee grievances.	x	x	x
Constructive Discipline	4	Using discipline as a positive, constructive force to stimulate an atmosphere of willing cooperation.	x	x	x
Facilitating Change	3	Techniques for introducing change and anticipating possible problem areas.		x	x
Interpersonal	4	Avoiding or minimizing day-to-day conflict situations.		x	x
Job Instruction Training	6	Techniques for analyzing skills of work force, preparing detailed job breakdowns, effective job instruction.		x	x
Safety and OSHA	4	Occupational Safety and Health Act and its impact on first-line supervision.		x	x
Work Station Control	3	Technique for analyzing a work station to determine cause of a problem.		x	x
Labor Relations-I	4	Foreman-supervisor responsibility for administration of local labor agreement.		x	x
Handling Work Assignments	4	Principles and techniques of effective job assignments.		x	x
Improving Employee Performance	4	Use of positive reinforcement to stimulate employee productivity.		x	x
Setting Performance Standards	4	Technique for developing objective, measurable performance standards.		x	x

Institute, in effect, markets its services to the rest of the company, and in some measure competes with non-company resources.

Second, various operating divisions and departments of the company conduct courses at various locations in management subjects that have a more specific technical content – a course, for example, in the application of simulation to various administrative and operating systems, conducted in Schnectady by the Professional Education Operation.

Third, a multiplicity of staff and line groups conduct training for the over 8,000 foremen and first-line

A Prescient View

Half a century ago, the English mathematician and philosopher, Alfred North Whitehead, wrote:

"Today business organization requires an imaginative grasp of the psychologies of populations engaged in differing modes of occupation; of populations scattered through cities, through mountains, through plains. It requires an imaginative grasp of conditions in the tropics and of conditions in temperate zones. It requires an imaginative grasp of the interlocking interests of great organizations and of the reactions of the whole complex to any change in one of its elements. It requires an imaginative understanding of laws of political economy, not merely in the abstract, but also with the power to construe them in terms of a particular circumstance of a concrete business. It requires some knowledge of the habits of government, and of the variations of those habits under diverse conditions. It requires an imaginative vision of the binding forces of any human organization, a sympathetic vision of the limits of human nature and of the conditions which evoke loyalty of service. It requires some knowledge of the laws of health, and the laws of fatigue, and of the conditions of sustained mentality. It requires an imaginative understanding of the social effects of the conditions of factories. It requires a sufficient conception of the role of applied science in modern society. It requires the discipline of character when one can say 'yes' or 'no' to other men, not by reason of blind obstinacy, but with firmness derived from a conscious evaluation of relevant alternatives."[1]

[1] Alfred North Whitehead, *The Aims of Education and Other Essays*, The Macmillan Company, 1929.

supervisors who are presently in the company's 170 different departments.

General Motors: A Management Progression Curriculum has been developed at General Motors to serve the needs of manufacturing, engineering/technical, and administrative personnel.

The "Curriculum" provides a logical sequence of development for managers as they prepare for, and progress through, various career stages and responsibility levels. There are courses in Preparing for Supervision, Management Fundamentals, Intermediate Management, and Advanced Management.

Some programs are mandatory for all managers of a particular level and meet certain of the development requirements of GM's Human Resources Management System. Other programs are utilized on a "prescription" basis to meet the individualized improvement needs of particular managers. These programs emphasize skill development in specific managerial skills. Subjects include Problem Solving, Analyzing and Improving Performance, Oral Presentations.

Programs are taught by the Corporate Education and Training Staff, by in-plant trainers and/or by experienced managers carefully selected from the local organization. Classroom instruction is supplemented by the use of self-instruction materials. The size of the population to be trained and the nature of the program content determine the delivery method to be used.

Required, recommended and individual improvement programs at the lower levels of supervision tend to be unique to the particular populations - Manufacturing, Engineering, Administrative - where a task-oriented flavor exists. Programs for middle and upper levels are more "educational" and broadening as job content becomes more managerial and administrative. They include courses with such titles as: Management Relationships and Responsibilities, and Management Practices and the Business Environment.

In addition to the "mainstreams" of the curriculum, there are other courses for special populations - college recruiters, plant security officers, workman compensation administrators. Broad efforts are under way to improve the quality of managerial development and performance in every part of the organization.

Certificates are issued to employees at each level upon completion of "required" courses, groups of "recommended" programs, and individual "continuing development" programs.

Evaluation

As senior management has demanded greater accountability from line and staff units and managing by objective has become more common, increasing attention has been given to the evaluation of education and training programs - an emphasis that many executives expect to grow in future years. Usually basing their appraisals on judgmental evidence, responsible executives tend to express themselves as moderately satisfied with the achievement of their in-house

Table 6.11: Executives' Appraisals of Effectiveness of Company Courses

Think Objectives Were Met	Management-Supervisory Courses: To Train New Employees	To Improve Performance in Present Jobs	To Prepare for New Jobs or Responsibilities
Very well	51%	35%	[illegible]
Satisfactory	45	64	[illegible]
Unsatisfactory	4	1	[illegible]
Total making appraisal	100%	100%	100
		Functional Courses	
Very well	50%	37%	33
Satisfactory	50	61	66
Unsatisfactory		2	1
Total making appraisal	100%	100%	100

courses in meeting the particular objectives to which they are addressed. While few rate their companies' courses, either in management or functional subject areas, as "unsatisfactory," most are reserved in their praise. Only half, for example, think that they have succeeded "very well" in their aim of training new employees; and still fewer that they have done so with respect to other goals (see Table 6.11).

Larger companies were no more likely than smaller ones to laud or denigrate the achievement of their courses, and very little difference was found in this respect among the various types of firms.

Cost Analyses

Few of those offering appraisals can justify them on the basis of quantifiable criteria or objective measurements. Cost-benefit and cost-effectiveness studies have been feasible and useful here and there. Trainers in a steel company, for example, have been able to demonstrate that certain training efforts have more than paid for themselves in decreased production-line rejection rates for reasons of quality. Utilizing the circumstance that similar occupations are carried out in numerous locations, the U.S. Postal Service has been able to set up experiments in which employee performance in training locations has been compared with that in nontraining control locations.

But such analysis is usually found to be impractical and thought to have quite limited uses. "We have no problem establishing measurement models for speed reading or other training in the skills area," says an oil company executive, "but we have considerable difficulty in tying more sophisticated or more abstract kinds of management training to specific costs and, if you please, return on investment." "For anything but simple and repetitive production or service operations," one personnel director comments, "cost-benefit analysis is a snare and a delusion. The courses that are most important to us, that we think have the greatest bearing on our future, are just the ones that are least amenable to it."

Cost analyses may have retrospective interest only, some observe. A textile company trainer says, "By the time you've finished the study, and gone to all the trouble and expense, you have a whole new situation." Finally, it is said that such analysis even where feasible and related to still-present circumstances, is insufficient, offering no diagnostic insights or guidance and may, in fact, be misleading to the extent that its quantitative estimates have the trappings of scientific truth.

Behavioral Change

Work is behavior, and judgment and logic can usually describe for each occupation the particular behaviors that are related to such basic business aims as profit, viability and growth. Increasingly, corporate educators have been defining training goals in behavioral terms — and, therefore, adopting observable behavioral change as their criterion for evaluation.

"The key," says one human relations vice president, "is to analyze correctly the behaviors that are needed for a job. If we do that, and then find that after taking a course employees can and do put those behaviors to use — whether the employees are supervisors handling disciplinary problems or lab technicians moving through quality-control steps — then we know we've succeeded."

The behavioral criterion shares certain of the problems of cost analysis. In at least one training director's

Table 6.12: Methods Used for Determining Effectiveness of Company Courses

Method	Management-Supervisory Courses: To Train New Employees	Management-Supervisory Courses: To Improve Performance in Present Jobs	Management-Supervisory Courses: To Prepare for New Jobs or Responsibilities
Opinions of participants (instructors and/or students)	91%	90%	88%
Opinions of participants' superiors	55	61	60
Tests of skill or learnings on completion of course	35	16	20
Measurement of on-the-job performance	36	34	33
Other	4	4	4
Functional Courses			
Opinions of participants (instructors and/or students)	74%	77%	79%
Opinions of participants' superiors	69	59	60
Tests of skill or learning on completion of course	51	27	33
Measurement of on-the-job performance	60	47	44
Other	1	1	1

view, it also is "only as good as our understanding of the kinds of behavior that are desirable, our ability to observe and otherwise identify behavioral change, and our insights into how durable such change is likely to be." These conditions, as many agree, become progressively more difficult to meet as education and training moves up from simple manual and clerical skills, and aims to develop conceptual, managerial and professional abilities.

Multiple Criteria

The result is that whether evaluation is informal or planned, and to whatever degree planned, it tends to incorporate a variety of criteria. This is exemplified by an approach to which AT&T's education and training personnel throughout the country have recently been introduced. It stresses four criteria for evaluating training programs and for diagnosing aspects of them that might be improved.[5]

Validity. The extent to which trainees can accomplish the behavioral or other objectives of the instruction. This is measured by "before" and "after" tests which, the company says, should match the objectives of the instruction with regard to the nature and conditions of actual performance and its quality criteria.

Transfer. The extent to which trainees are able to perform "in the on-the-job situation." This is measured by direct observation – either of performance of the tasks from which the instructional objectives were derived, or of the results of the performance.

Acceptance. The extent to which users of the instruction approve or accept both the content and its manner of presentation. "Users" are instructors, trainers, supervisors and managers. Indications of acceptance are "expressed liking" and use.

Worth. The ratio of value received to cost of training, as measured either by direct dollar comparisons – or by estimates of increased productivity, reduced turnover, absenteeism or lateness, and savings in time or materials, as compared with direct or estimated costs of providing the training.

Sources of "Feedback"

Various methods are used in industry to determine how well behavioral objectives (or other ends thought to be predictors or precursors of behavior) have been realized, or specific skills or information have been imparted in the training process – and to gain insight into ways in which subject matter, methodology or other elements might be improved.

According to the Board's survey. . .

– The most common source of information is perhaps the least objective one and certainly the most remote from on-the-job behavior – the "opinions of participants (instructors and/or students)."

Next in order of frequency of mentions, was the "opinions of participants' supervisors." These opinions

[5] These criteria relate to what the company calls "external evaluation." Assessment of the extent to which courses or programs conform to "accepted principles of industrial design, development and delivery" – appearance of materials, behavior of instructors, accuracy and completeness of content, and so on – involve a second recommended process of "internal evaluation."

presumably reflect observations of performance that have been made informally after course completions.

A fairly close third in rank order was "measurement of on-the-job performance." However, as phone conversations with a sizable number of companies in this group disclosed, "measurement" was interpreted as any effort, however informal or "subjective" — a word that appeared often — to judge performance improvement.

Reported least often were "tests of skill or learning on completion of courses."

The opinions of participants figure more prominently in the evaluation of management courses than functional ones, while the reverse is true for testing and measurement methods (see Table 6.12).

The frequency with which each method was used proved to be quite similar among companies of different size and type. Nor, except for a greater tendency to mention more than one method, did companies that rated their programs highly indicate any difference from others in the methods used. The training director of a large manufacturing firm may have summed it all up: "If the ability to cope with uncertainty is one of the marks of a mature executive, experience in education and training may be the best kind of preparation. Yes, we're trying to manage by objectives. I think we're clearer than we used to be about what we want to achieve in a course or program, and we've developed more efficient playback systems. But common sense and good judgment are still vital ingredients."

Chapter 7
Industry and the Schools

COMPANY EDUCATION AND training is addressed to the gap between the knowledge and skills that employees possess and those they are thought to need – a condition that poses two important questions: How do the senior personnel executives of major corporations define the respective responsibilities of industry and of the schools and colleges for work preparation; and how well, in their views, are the educational institutions doing their part?

They are closest to consensus in their belief that our education system should give greater emphasis to preparation for work. Asked in the Board's survey to comment on the "apparent trend" among many secondary and post secondary institutions toward increased emphasis on vocational skills and career education, three out of four voiced approval of it – often in quite emphatic terms – some stressing the need of individuals, others of the economy or "society," and still others of business and industry.

Among the relative handful that demur, some say that too much emphasis is already being placed on vocational education, but most voice concern about the possibility of overspecialization – the emergence of a system that "trains narrowly" instead of "educating" – and about the neglect, particularly, of basic literacy, the 3 R's.

Remedial Aspects

As a group these executives tend to think poorly of the present performance of the schools and colleges in preparing people for work. Of those who express an opinion in this area, 47 percent think that the performance of the schools in their work-preparation role is only "adequate or fair." Nearly as many, 41 percent, characterize it as "inadequate or poor"; only 12 percent think it is "good or excellent."

When executives were asked to select from the different types of educational institutions those that are performing particularly well or poorly their role of preparing people for work, clear and strong discriminations appear (Table 7.1). Institutions specializing in occupationally related knowledge and skills are markedly favored. By nearly 10 to 1 executives think that "four-year colleges – engineering/science" are doing particularly well; 7 to 1 think the same of "two-year colleges – vocational curriculum." By contrast, unfavorable ratings outnumber the favorable by more than 3 to 1 both for "four-year colleges – liberal arts" and for "secondary – academic curriculum."

But this predilection for occupationally oriented institutions is not itself without discrimination. "Four-year colleges – business" and "secondary schools – vocational curriculum," for example, fare much worse than others. Moreover, as will be seen, an important element in business's quarrel with academic high schools and liberal arts colleges is not that they lack a vocational curriculum, but that they perform poorly what they themselves perceive to be their most basic function – developing competence and skill in the use of language and the intellect.

Areas of Neglect and Deficiency

Work skills are said to be "general" to the degree they are applicable to a variety of jobs or tasks within a firm. They are "specific" to the extent that they are limited to particular jobs and firms – that is, are not transferable. It has been observed that while there are no true examples of completely general skills, these are

Table 7.1: How Executives Rated Educational Institutions on Their Work-Preparation Role

	Believe Institution Performs Work-Preparation Role . . .			
	Particularly Well	*Particularly Poorly*	*Total Mentions*	*Percent "Poorly" of Total Mentions*
Four year colleges – engineering/science	44%	4%	48%	8%
Two year colleges – vocational curriculum	51	7	58	12
Private vocational	29	10	38	25
Graduate schools	28	12	40	31
Four year colleges – business	28	20	48	41
Secondary schools – vocational curriculum	26	27	53	51
Two year colleges – academic	17	23	40	57
Primary	13	22	34	63
Four year colleges – liberal arts	10	34	44	78
Secondary – academic curriculum	9	39	48	81

approximated in an industrial economy by "basic literacy, by the ability to communicate, and by a commitment to industrial work rules."[1] Or, as an officer of a leading manufacturing firm put it: "It's impossible to know what our manpower needs will be in five or ten years, and therefore the basic need is for flexible people who have been trained in reading, writing, basic computational skills, and thinking. We can teach them the rest."

A striking comment on the responsiveness and achievement, as well as the limitation, of the relatively uncoordinated complex of institutions that comprise our education system: is that on the threshold of "the post-industrial age" it is about *general* work competencies, not about *specific* technical skills and professional knowledge, that business executives most commonly complain. When queried as to subjects, skills or other areas receiving insufficient attention in the schools and colleges, or being overlooked or neglected, only one executive in seven mentions a *specific* skill or knowledge area. Moreover, these are so varied that only a few such areas are mentioned by as many as two or three percent.[2]

By contrast, over 54 percent of the executives refer to *language skills* English, communication skills, reading, writing, and so on as areas of deficiency. It is often impossible to distinguish in such comments either the precise nature, or the degree, of the deficiencies perceived. But it is clear that they encompass a wide range. Some executives refer to basic literacy: "The most elementary ability to read, write and speak properly," "reading with comprehension," "grammar," "punctuation." Among others the reference is to "communication," defined by one to include "all verbal interaction and the environmental and personality factors that influence it."

If any generalization can be made it is that, at all levels of schooling, too many employees lack the language capabilities that executives think they should have. Entry level blue-collar workers may be functionally illiterate; clerical workers may spell or punctuate poorly, speak or write ungrammatically; supervisors, managers, scientists and other professionals may be unable to organize and present ideas well, orally or in writing.

Mathematical or computational skills are mentioned by about one in four (24 percent), often in addition to language skills. However, this area was rarely elaborated upon, most executives simply noting "math" or "arithmetic."

Language and computational skills are not the only general competencies said too often to be lacking, and for which at least some measure of blame was placed on the schools. Nearly one-fifth (18 percent), for example, mention one or more *nonskills aspects* of work readiness. Heading a small catalog of such deficiencies is an understanding of what some executives call the "workplace realities." These range from ignorance about beginning rates of pay, speed of advancement, and standards of behavior, to faulty attitudes toward work, discipline and accomplishment sometimes expressed as a reluctance to accept

[1] Peter B. Doeringer and Michael J. Piore, *Internal Labor Markets and Manpower Analysis*, Lexington, Mass.: D.C. Heath and Company, 1971.

[2] The skills were in such categories as: industrial instrumentation technology, testing and "laboratory" (3 percent); typing and secretarial (2 percent); sales and marketing (2 percent); and welding, machineshop and metal cutting (2 percent).

Table 7.2: Portions of Company Programs Executives Believe Are "Really the Responsibility of the Schools to Provide"

Company Size		Little	Some	Much	Most or All	Portion Not Indicated	Total
10,000 employees and over	40%	14%	32%	11%	1%	2%	100%
5,000 – 9,999	49	11	25	8	2	5	100
2,500 – 4,999	62	9	23	3	–	3	100
1,000 – 2,499	60	5	26	6	2	1	100
500 – 999	78	7	11	3	–	1	100
Company Type							
Manufacturing	69	8	18	5	–	–	100
Transportation, Communications, Utilities	50	15	28	4	–	3	100
Wholesale and Retail	71	3	15	2	6	3	100
Financial and Insurance	48	10	30	8	1	3	100
Other	66	4	21	6	–	3	100
Total	63%	8%	21%	5%	1%	2%	100%

Note: Base is those companies providing any courses for employees during working hours (75 percent of all companies).

responsibility, or as a "breakdown of the Puritan work ethic."

Some executives (7 percent) also complain about deficiencies in "interpersonal skills." These are often conceived as outcomes of formal study (e.g., courses in management psychology), but sometimes simply as an inability to get along with peers or supervisors. A final complaint by a number of executives (6 percent) in the area of general work competencies is about the poor development of various intellectual and conceptual abilities, such as "analytical skills," the ability to "plan," "organize," or "make decisions."

One subject, related only tangentially to work preparation, is mentioned by a fair number (12 percent) — economic education. Otherwise, most of the remaining criticisms fall into two categories: reiteration of the view that the school system as a whole is not sufficiently oriented toward the teaching of "practical" or "marketable" skills, that there is too much emphasis on liberal arts; and that particular kinds of schools or curricula — engineering, business, vocation, post-secondary — place insufficient stress on problem solving and "practice." In other words, there's too much "theory."

Compensatory and Remedial Programs

However much these deficiencies may detract from the efficiency with which specific work skills are learned or work itself performed, their impact on formal education training activities has, in most instances, been modest. Only 5 percent of participants in the study say that "much" of their employee education and training during recent years includes subjects or skills that are really the responsibility of the schools and colleges to provide. Only one percent describe this portion as "most or all." Somewhat over one-third, in total, say that such subjects or skills are any part of their program — and, conversely, nearly two-thirds that they are not part of it at all (Table 7.2).

Remediation is an imprecise concept, and is used in industry in a number of ways. For some executives it refers to the correction of bad work habits or faulty methods; for others the relearning of forgotten knowledge and skills; and for still others any instruction in language. A large bank offers "upper remedial programs" that include instruction and coaching in such "college study skills" as how to take notes, prepare for exams, and use a library; a manufacturing firm reported that its Board Chairman took part in a "remedial" communications course.

"Basic" remedial education has a narrower and more commonly shared meaning. But even "basic" language and mathematical competencies are far from precisely defined. One company placed courses in "effective reading, speaking and listening" on the basic side of the line; another, courses designed to help employees gain high school equivalency diplomas; still another, "brush-up courses in typing and steno."

Using criteria that thus range fairly broadly, 11 percent of companies report that they provide some basic remedial courses for their employees. Eight percent say they do so *during* working hours, and 5 percent *after* working hours (see Table 7.3).

Table 7.3: Percent of Companies Providing Courses in "Basic 'Remedial' Education" Last Year

Company Size	After Work Hours	During Work Hours	Total During and/or After
10,000 employees and over	14%	29%	35%
5,000 – 9,999	6	14	18
2,500 – 4,999	12	14	22
1,000 – 2,499	6	4	10
500 – 999	*	4	4
Company Type			
Manufacturing	5	7	11
Transportation, Communications, Utilities	8	8	13
Wholesale and Retail	1	2	3
Financial and Insurance	6	18	20
Other	6	4	10
All companies	5%	8%	11%

* Less than ½ of 1 percent.

Nearly half the companies that provided remedial courses said they did so to train or instruct newly hired employees. Two out of three said that an objective was to improve the skills of present employees; about a third that it was to prepare present employees for new jobs and responsibilities.

One final perspective on the relative importance of basic remedial courses in the scheme of total corporate education-training is that something on the order of 30,000 employees are estimated to have participated in such courses last year during working hours — less than one percent of the well over three million who took part in other courses of study "on company time."[3]

Program Determinants

What distinguishes the relatively small group of companies having remedial programs — whether these are defined in the narrower or the broader sense — from the much larger number that do not; and what determines the scope of their programs? As is true for company education-training activities generally, the answer seems to be a blend of need and resources.

In its rarest and most acute form, remedial education may be necessary if jobs are to be filled at even minimum levels of competency. Most commonly, however, it is undertaken to improve or upgrade employees' skills and to increase the number available for promotion. To the extent that affirmative action goals are involved, as is often the case, cost-benefit is not the only, or even the most important, consideration. Moreover, competencies sought in these programs are not solely related to job performance. For example, a stated aim of basic literacy education in some firms is that employees be able to read job postings on bulletin boards. One company began a reading course following the death of an employee who could not read a warning sign. In general, the need for remedial education is greatest when two conditions are present — large minority-group representation in the labor market, and a business enterprise that requires basic language, communication or computational skill in a large proportion of its work force.

Given these conditions (and the frequent absence of a dollar return on expenditures), remedial programs are likely to be encountered in firms that can most easily absorb their costs. These, of course, tend to be larger firms — which are also under greater scrutiny by governmental agencies concerned with affirmative action. The economies of scale that encourage large companies to organize and staff for other kinds of education and training apply to remedial education as well. And remedial programs involve only marginal costs when other programs are already in place. Companies better able to pass these costs along in their pricing, whether by virtue of market dominance or regulation, are also more apt than others to assume the kinds of social programs of which remedial education is an example.

One further consideration is known to have influenced some companies — the notion that remedial programs are inappropriate to business. This may be a matter of dogma (a belief that the only proper task of business is to provide goods and services at maximum profit), or it may be more pragmatic. As one company educator expresses it: "Industry people simply don't have the special competencies that are needed"; a point of view that other industry educators dispute, sometimes with ardor.

The net of all these influences is that remedial programs are found in an unusually high proportion of financial institutions — banks and insurance companies (20 percent) — but in very few (2 percent) retailing or wholesaling firms. They are found in 35 percent of large companies, those with 10,000 or more employees, but in only 4 percent of those with fewer than 1,000 employees. Finally, they are nearly twice as

[3] According to survey projections, about 700,000 employees also took part in a variety of courses that were provided by the company after hours — but no breakout of numbers can be made for remedial courses.

likely to be present in companies located in cities with 20 percent or more nonwhite population than in other places — particularly those in the Boston-Washington corridor, which account for 12 percent of all companies surveyed but for 30 percent of those with during-hours remedial programs.

Appraisal

While executives responsible for them differ in their appraisals of the effectiveness of basic remedial programs, as well as in their opinions as to whether what successes they have had reflect unfavorably on the performance of the schools, none appears to believe that industry educators are privy to skills, insights or tools that are unknown to the world of nonbusiness educators.

Some see their results as mixed, and interpret their achievements among student-employees who had not learned at school as a reflection of different conditions. They argue more or less as follows: "Yes, we've had a good deal of success — we've greatly improved the reading and writing skills of many employees, helped others through General Equivalency Degrees, and even put a few onto pretty fast tracks.[4] But we haven't always been successful, and where we have it's hard to say how much of our accomplishment is due to our methods and how much to two other important factors — that our students are older, more mature, and more settled than when they were at school, and that they are much more powerfully motivated by financial and career prospects. Moreover, we tend to select the best we can — to 'cream' the market. One of us, for example, screened 300 applicants not so long ago to select 24 for a remedial program for clerical jobs."

Others see their success as evidence that the schools could have saved them the trouble. "The failure of the schools would be evident to educators if they ever took the trouble to go into a classroom," said the director of management development of one large firm. "We're doing what they ought to be doing, and as a result are not able to do properly what we ought to be doing. College graduates can't write reports, high school graduates can't read, spell, or write, and typists can't type more than 30 words a minute — and they all have poor vocabularies. Twelve years is a long time to spend in school and not come away with the basics. Maybe kids should come to us when they're eight years old."

Finally, a few believe they have failed. "We tried it several times," a bank official said, "and it was a disaster. We do run a sort of remedial program to bring people up to necessary typing and secretarial skills levels, but basic remedial education is an area for specialists — for experts — and, quite frankly, we've been out of our depth."

Industry as Model

The corporate education system has three characteristics that set it apart from more traditional ones.

First, there is the unusually high motivation of its participants. All are adults, and learning in circumstances in which the rewards of success and penalties of failure are perceived by them to [illegible] involving present and future earnings as well as prestige, self-esteem, and the realization of career goals. Because their motivation and learning readiness can be assumed, it becomes possible, as two industry educators have recently written, "to accept an educational philosophy which implies that responsibility for learning does not lie with the students, . . but with the organization and staff and teaching materials."[5] It also becomes possible to make extensive use of programmed materials and self-instructional technologies.

A second characteristic of corporate education is that the workplace is the setting for both the learning and the doing. This means, for one thing, that the formal courses and other off-the-job instruction that one out of eight employees were involved in during 1975 are only the more visible, and measurable, parts of a far greater whole. Most employee learning takes place on the job — through private instruction and coaching by supervisors and peers, and through observation, problem solving, and even trial and error. A good deal of this on-the-job training is planned. Many firms have courses to teach supervisors how to train; employees may be taken through discrete and formal learning steps; specialized training personnel and supportive materials may be brought into play. Moreover, on-the-job — that is, work experience may be integrated with classroom instruction in planned and often individualized and serialized sequences of theory and practice, formal learning and problem solving. It is by no means easy to distinguish work from learning.

[4] Since the start of a remedial program in 1970, for example, about 900 employees of Polaroid Corporation have taken part in its GED program, 200 getting high school diplomas, 100 reviewing or preparing for college. The head of the program reports: "We've just about gone through our employee population with GED's, and are now responding to the real needs of these people."

[5] Branscome and Gilmore, op. cit., p. 229.

Attitudes of Executives Toward Vocational Skills and Career Education Trend in Schools and Colleges

Following is a recap of responses to the Conference Board survey question: "We are interested in your views about the proper division of responsibility for career and job training as between industry and the schools. For example, increased emphasis is being placed on vocational skills and career education by many secondary and post-secondary instructions. Please describe what your attitude is toward this apparent trend, and why?"

Approve of trend	*44%*
People need to be prepared to get and hold jobs	18
Society or the economy need more and better trained people	12
Industry or employers need better trained people	12
College degrees (especially in liberal arts) are overvalued	10
Vocational guidance needs more emphasis	3
Other	6
Approve of trend -- made no further comment	*32%*
Disapprove of trend	*4%*
Other attitudes and opinions	*20%*
Schools and industry each have roles	10
Problem is not vocational, but basic and interpersonal skills	5
Other	5

The third characteristic of corporate education is its pragmatic orientation -- its role as an instrument for achieving other goals -- business profit, growth, and viability -- and its accountability to a private and relatively narrow constituency. In this role it is, in fact, part of a larger, corporate human resources, system -- one that includes, for example, such activities as recruitment, selection, and placement; pay and other forms of compensation; and manpower planning by which companies seek to assure themselves of the present and future availability of competent employees. Corporate education is concerned with achieving limited and specific ends in the most economic and efficient way. Since paid time off the job is generally the most expensive aspect of employee education, efforts are made to keep courses as short as possible and to make maximum use of self-study materials, which can be pursued during off-hours. Course content, related as it is to company problems, products, and processes, verges toward the particular and away from the abstract, the utilitarian rather than the theoretical. Much of this material is more appropriately taught by operating specialists and managers than by professional educators. The length of company courses tends to be determined by no criterion other than what is needed to convey particular skills or knowledge to specific employee groups. Courses, or "modules," of just a few hours are common. ("Off-the-job instruction is given in small doses, as needed," one training official said.)

These characteristics -- that is, the special attributes of the student body, the instructional setting, and the educational goals -- shape the forms and methods of the corporate system.

Executives' View

A rather small minority -- about one in five -- of the participants in this study rejected the idea that business has anything to teach traditional institutions about educational methods -- several, indeed, suggesting that the reverse may more usually be the case. These executives tend to view differences in practice between industry and the schools and colleges as stemming entirely from their different conditions and goals, and not at all from anything special either in business's understanding of learning theory or in its teaching methods.

Most, however, while also acknowledging differences in aims and circumstances, believe that certain of industry's methods could advantageously be adopted, or put to wider use, by these institutions.[6] They identified and recommended a variety of such methods, which tended to be strands of a single fabric, and to reflect shared perceptions of a basic difference in the business approach. Its chief elements are a stress on greater student involvement in education processes; tailoring of methods, course length, and curriculum to individual needs; and increased use of instructional technologies.

[6] The question they responded to, in full, was: "Some observers believe that certain of the methods of education and training employed by industry could advantageously be adopted by the schools and colleges. Please comment on this view, noting reasons why you agree or disagree, and citing relevant examples."

Mentioned most frequently was an emphasis on "active learning" and "participative techniques," in contrast to what one called "lecturing and student passivity." Industry's use of role playing, simulation, "hands-on" instruction, case study, practical applications, and "involvement," many executives believe, can serve as a useful model for the schools and colleges. From a major firm of accountants comes this comment: "Learning by doing (basic John Dewey) cannot be overlooked. The more direct and applied learning is, the better the learner learns." A pharmaceutical executive says that if "simulation exercises" have been applied to such subjects as philosophy, they surely can be to "more mundane subjects like math, English and art."

Inherent in participative and active learning techniques, others suggest, is "feedback" and "two-way communication," and thus a greater role for students in influencing how, and at what rate, they are taught. This may occur not only in the classroom, or through students' evaluations and suggestions on completion of courses, but by the involvement of employees in course and curriculum planning. "Educators talk democracy and participative society," says an insurance executive "but too many do not practice it."

Some emphasized "teamwork" described by one as "small groups of three to six working on applicable exercises" as a participative form that has a specific learning goal as well. A food manufacturer believes: "Learning methods that stress peer support and teamwork, and that involve participation, self-instruction and self-evaluation, are missing in the schools, but are essential in the business environment." And an aerospace executive calls for "more emphasis on cooperation, less on competition."

The theme of greater attention and adaptation of instruction to individual needs was stated explicitly by a number of executives, and appears in other guises as well. A bank official thinks that there is "a more realistic approach by business to individual capabilities and attainable levels"; a publications executive, that there is "more tailoring to the individual's needs." The schools and colleges should give "more attention to the assessment of each person's needs and abilities" which means, among other changes in method, "loosening up rigidities of course-length instruction," and "making greater use of course modules," others suggest.

Self-teaching

To many in industry, another potent means for individualization is self-instruction with programmed materials, and particularly with the support of audiovisual technology. "Education is bound by tradition and past practice," says a bank official, who goes on to describe the speed with which typing trainees move "from zero knowledge to 30 words per minute through self-instruction programs with the aid of audiovisuals. The instructors show students how to use equipment, and students come in at their convenience with the instructor meeting the entire class only periodically."

A chemical official says that "audiovisual techniques and programmed learning techniques were pioneered in business, and are still not being used as extensively as they could." In the view of an executive in a top electronics firm: "Colleges could utilize self-study media, such as computer-assisted, or managed, instruction, for a number of internal 'mass courses' such as freshman math, statistics and sociology freeing faculty for smaller group discussion."

Emphasizing the Practical

Methods, of course, are shaped by purposes, and sometimes it is difficult to distinguish one from the other. Thus, second in frequency of mentions only to the idea that the schools should adapt industry's emphasis on techniques of active, participative learning, keyed to the individual, is that instruction should be balanced more on the side of the "practical," "real," and "results oriented"; less on the "theoretical." This theme has several variations that opportunity for applying theoretical knowledge to actual situations is not provided in the schools; that the theory itself is too often irrelevant, or tangential to "real world" needs; and that too little use is made of actual practitioners in teaching and course development. An electronics official, for example, touching on each of these points, says: "Too many universities do not provide, or show, or know, the practical approach of what they are teaching. Many engineering schools, for example, have faculties with no practical or industrial experience. As a consequence, they emphasize more theory to the engineering student than applied aspects of engineering." A manufacturer of electrical appliances finds the same lack in business schools, commenting that "employees in professional and managerial positions seem ill-equipped to deal with the reality of the business problem or situation. Particularly the most recent graduates and most of all, the MBA's know the theoretical, textbook answer, but fail to understand or recognize that costs in a recession may make the theoretical solution impractical or unmanageable."

Joining others who call for an infusion of experienced people into industrial instruction, an insurance executive adds a further point: "Teaching requirements are far too rigid in my opinion. A man with 15 years of experience in industry, who could be an effective teacher, cannot teach unless he has so many hours toward his masters degree. Thus students never have the opportunity to learn from business people with practical experience, but only from those with classroom exposure."

Company Profiles

THE FOLLOWING PROFILES offer a perspective on company programs somewhat different from that of the main report — a glimpse at the range of programs within individual firms and at their place in the organization. The several companies represented here were selected to illustrate the activities of different kinds of firms — not, necessarily, the best.

Cincinnati Milacron

Cincinnati Milacron, known as the Cincinnati Milling Machine Company until 1970 (and earlier as the Cincinnati Screw and Tap Company) employs about 15,000 people at facilities in the United States and six European countries. About half this number are in the United States, most of them in or around Cincinnati. Formal training for some of its new employees has been integral and essential to the company's operations since its beginnings in the mid-nineteenth century. But after decades of relative stability in their content and methods, Milacron's training programs are today in a process of considerable change. The main elements:

decentralization in customer training programs;
a shift from standardized to flexible and individualized programs;
an emphasis on managerial skills;
a greater role for continuing education;
a formal training program for new operators;
an assessment center;
performance appraisal programs for both hourly and salaried employees.

Behind these changes are changes at Milacron itself, in the society at large, and in the state of the art of personnel development.

Earlier Programs

Prior to these changes, all training at Milacron was accomplished through three programs, which were standardized in content and administration and, with few exceptions, addressed to new employees. During their training, these employees would be on the payroll of the Training Department. Training was conducted at a Training Center that included a "vestibule" shop, at which saleable products were manufactured.

The three basic programs were:

(1) *An "Apprentice Training" Program.* Those who completed it were not accredited as journeymen by the U.S. Bureau of Apprenticeship and Training but did, company officials say, acquire more advanced technical knowledge than most apprentices do. Prior to the 1974-1975 business downturn about 50 young men entered the program in a typical year. Each was slotted into one of ten skills areas, such as engineering drawing, mechanical, electrical, foundry, metal fabricating, and patternmaking. All began their training with 80 hours of classes — in shop mathematics, blueprint reading, hand tools, safety, measuring and the use of measuring instruments, as well as more general information — and then moved to a schedule of planned job experience. This schedule varied according to the skills area, but was essentially identical for all going into a particular area. These apprenticeships ranged from 4,000 to 8,000 hours, or from 2 to 4 years.

(2) *A College Training Program.* A number of college graduates, usually about 50, have been employed each year as trainees — in business administration, computer science, marketing and a range of engineering and technical occupations. Like the Ap-

prentice Program, this system had a common core of early classroom and shop work, followed by a prescribed sequence of job assignments and other tasks.

(3) *A Cooperative Education Program.* Milacron was one of the nation's earliest cooperative employers. Its program, which began with the University of Cincinnati, presently includes other colleges — two year, associate degree colleges among them. Typically, a four-year college student will spend the first year full time at school; the next three alternating 10 weeks of school and 10 weeks of work; and then spend a fifth full term at school. In most cases, the student has become a full-time employee of the company upon graduation.

Changes at Milacron

Until recent years these programs for new employees were virtually synonymous with training at the company. "Anything else was incidental," an executive says.

The most critical factors accounting for Milacron's new approach to training and development have been changes in the technology of its traditional business — the manufacture of machine tools — and the company's diversification into a variety of fields related to the new technology. A company executive says: "We have been caught up in the development of minicomputers, microcircuitry and numerical control systems. These developments have led to machines capable of previously unachievable precision. We are in plastics, with processing machinery and with some of the manufacturing chemicals — stabilizers, catalysts and additives. Printed circuit-board material, silicone expitaxial wafers, and plastics are a long way from grinding and milling machines."

Technological change and diversification have been sufficient, if not the only, reasons for changing Milacron's centralized and standardized system. "The time when we were such a relatively simple tool-building business that a trainee could end up as a generalist, flexible enough to do a variety of machine-tool jobs, is long gone," says a company official. "If we tried to continue with that — to include electronics, plastics and the rest — the training would go on forever. Training needs used to be basic, involving hydraulics, electric mechanisms, and so on. Suddenly things like the minicomputer and electronic control devices came along and everything changed."

Moreover, if generalists were no longer feasible, specialists often could not be properly trained at a central facility. Neither the necessary tools and equipment, nor the specialized teaching capability, could be economically assembled there. Finally, equipment and technique were changing so rapidly that keeping pace at the Training Center became increasingly difficult. "The gap between the new needs and the existing means was tolerable, if troubling during the 1960's, but became too large to overlook by the early 1970's."

Changes in Approach to Present Programs

The new approaches that have been developed to meet these conditions involve changes in the design and administration of existing programs, and the development of new ones.

One desirable step, management concluded, was decentralization. Cincinnati Milacron is organized into six divisions, each a profit center responsible for a product or product line. Three of them, Machine Tools, Plastics Machinery, and Process Control, market products of such complexity that customers must be given formal instruction in their use and maintenance. For this purpose these divisions have long had Customer Training Departments. These departments have now been assigned responsibility for all division-specific training of employees.

Even the more generic training that will still be managed centrally will shift its locale from the vestibule. "In this new concept," says a Milacron trainer, "school will not be divorced from the main manufacturing plants. As far as possible we will use existing, in place, equipment during down time."

If decentralization of training was necessary, steps toward a system more responsive to new and emerging needs, requisite flexibility, and cost efficiency called for other changes as well — most important, a revamping of the standardized and institutionalized method of prescribed courses and sequences. Various factors contributed to the obsolescence of this approach.

First, under the cost pressures of the business downturn of 1974-1975, the scope and rigidity of this system came increasingly into question. (This period, during which hiring and training of new employees was at a virtual standstill, also provided planning time and a helpful interruption of routine.) Another factor was the creation of a network of joint vocational schools and school districts in the county, and greatly improved vocational instruction. "We hardly had to teach fundamentals anymore," says a Milacron training official. Third, technological change increased the need for retaining present employees, as well as for training new ones, and the training system had to accommodate to

this. Finally, a whole new training and development methodology, which had emerged in response to similar circumstances in many other companies, had been permeating the thinking of industrial trainers and educators.

The key concept of this methodology is individualization, or "training based on careful diagnosis and prescription," and an important technique is the "module." A module is defined at Milacron as "a basic concept," a unit of needed information and/or skill that has been translated into a unit of study. Developing needed modules requires that jobs be described in behavioral terms (i.e., "doing the job means being able to do X, Y and Z") and that the ability of an individual to perform these tasks be observable and measurable. Thus, the theory goes, a performance appraisal process can match existing knowledge and skills against needed ones, and ascertain in which modules an employee is deficient. A "prescription" can be written for each employee. A library of modules, to which new ones are added and from which others are subtracted constantly, parallels a continuing redefinition of need.

"Clearly," says a Milacron official, "this is a methodology that applies both to new hires, who come with dissimilar knowledge and skills, as well as to present employees. And in many cases the same modules will be applicable. At the start, the modular concept is being applied to technical training. Ultimately it will include management development and education as well."

Although training will, thus, depend on the knowledge, skills and learning rates of individuals relative to corporate needs, the Apprentice program will be designed so that it will be approved by the Federal Bureau of Apprenticeship and Training — something that was not true in the past. "The Federal Bureau of Apprenticeship and Training has changed in recent years," says a Milacron official. "It now agrees that if it can be proven that a student had learned a subject or skill previously, or can learn at a faster rate, the program can adapt to these considerations."

While technical training has long been an integral part of Milacron's operations, the attempt to develop and improve supervisory and other managerial skills through formal instruction had its tentative beginnings only about 17 years ago. At that time, management contracted with a private consultant for a course in basic management concepts that all salaried employees were required to take. Since then, but particularly in the last few years, *a more selective program* has been in effect. But management training has moved into prominence: During the recession period it represented most of the company's training activity.

"There's no mystery about our conversion to management development," says a company official. "On the one hand new laws and government regulations, changing attitudes of workers, and more complicated communications needs generally, made the role of the supervisors a more sensitive and important one. Experience was convincing us that we needed a management development program to keep pace with the times. On the other hand, a body of ideas and techniques was being developed. Management was becoming a profession, with its own body of knowledge and skills."

Continuing Education

Thus a training activity that was once developed almost entirely to serve anticipated needs for machinists, engineers and other technically oriented specialists, now devotes major attention to supervisors and to others who have long since completed their "basic training."

"Continuing education" is conducted in daytime and evening programs. Employees are "nominated" by their immediate superiors to the daytime, or during working hours, courses, and simply volunteer for the evening ones. In 1975, about 400 employees took daytime courses — most of them a week long — in managerial and supervisory skills, and about 250 in technical skills. The evening program was attended by about 220 (see box).

Three separate sources of information provide the employee education-needs intelligence from which both the day and evening components of the continuing education curriculum are determined. One of these is the evidence of employee needs and interests that is acquired in the course of career counseling. Second, the same kind of information is gleaned from completed performance appraisals, all of which are routed to the Personnel Development Department. Finally, a tentative list of courses and descriptions is sent to all supervisors who are asked to add subjects they feel are missing, and to indicate how many employees they would send and/or recommend to individual courses.

As an information aid to supervisors, computer programs are being developed to provide printouts showing subjects and dates of course completions by employees in each department. This is already being done at the managerial level, is being extended to technical employees, and ultimately will include hourly people as well.

Courses Offered in Milacron Evening Educational Program

Electronic Data Processing Courses:

Introduction to Computers
Engineering Computer Applications
Cobol Programming
CIP-2200

Electronics Courses:

Fundamentals of Electronics I
Fundamentals of Electronics II
Control Circuit Fundamentals
Digital Computer Principles
Electronic Circuit Design

Management Related Courses:

Methods and Work Measurement
Production Management
Behavior of Organizational Personnel
Effective Communications
Finance and Accounting

Mathematics Courses:

Basic Industrial Mathematics
Basic Statistical Methods
Modern Engineering Math

Numerical Control Courses:

N/C Programming Fundamentals
APT Programming
N/C Maintenance

Technology Courses:

Basic Machine Tool Technology
Applied Industrial Hydraulics
Gage Systems
Basic Metrology
Plastic Technology
Basic Foundry Practices
Engineering Standards
Chip Formation
Servo-Control
Maintenance Injection Molding

New Machine Operators

Machine operators are by far the largest employee category at Cincinnati Milacron, and normally constitute the largest number engaged in skills or technical training at any time. "An eighteen-year-old, just out of high school, who finds himself in front of a $100,000 machine and is told that he'll learn to use it to grind metal to a precision of many thousandths of an inch, doesn't know whether to flee in panic or stand awestruck," says a Milacron trainer.

Several years ago a fourth new employee program, "Machine Operator Shop Learning," was introduced in large part to give young recruits, with whom the company had been experiencing high turnover and other evidences of restlessness, "a better understanding of the point in what they were doing its value in relation to the other work of the company," this official reports.

The formal phase of their training has been about four weeks, though they have remained in a "Learner Incentive Program" for up to a full year as required for them to reach normative performance levels. A substantial portion of the formal phase has been in the classroom, and devoted to basic shop math, blueprint reading, and the technique of precision measurement. Most of the remaining time has been spent, first, in an introduction to machining processes turning, milling, drilling and grinding and then in specialized instruction in the particular machine the new employee will operate.

The Personnel Development Department

Training at the corporate level is the responsibility of the Personnel Development Department, which is a division of the Personnel and Community Relations Group one of eight corporate staff groups. The current strength of the department is four people, seven in mid-1975, but down from a previous peak of 57 or so. It is divided into two functional units. One is Basic/Technical Training, responsible for the relatively brief formal programs for new operators and for the longer and more complex programs for apprentices, new college hires, and cooperative education employees. The second is a Continuing Education group which develops classroom programs for employees.

The senior corporate executive for Personnel Development, George Jaeger, has the responsibility not only for the programs of these two units, but for ensuring that the Customer Training Departments of the divisions follow company policy. As Mr. Jaeger puts it: "We oversee their training activities in a functional, but not line, way. This would include, for example, our approval of training equipment purchases, or ensuring that a division includes employees of other divisions when it offers courses of general interest."

John Breuner Company

The John Breuner Company is a 120-year-old retail home furnishings firm. It has 14 stores, in northern California, Arizona and Nevada, and a work force of about 1,600. Its earnings in 1975 were nearly $2.5 million; its sales about $85 million. Several years ago, Breuner added a training professional to its corporate staff and launched its first significant in-house training program. The move, highlighted in the Annual Report for 1974, was taken, the company said, "to accelerate the continuing program of improving the productivity of all employees, as well as to develop manpower for future planned growth." Largely responsible for it was a new vice president and General Personnel Manager, who had come to Breuner from a major manufacturing firm. The person chosen to be the new Corporate Training Director, Mr. Bob Eddy, had similarly gained much of his experience with two large national corporations.

The Work Force

Most of the company's formal training activities involve its managers and sales personnel, with the weight of its newer programs directed to the former. About 150 of its employees are classified by the company as managers. They include a small corporate-level group; the managers of individual stores; the merchandising, operations and, in a few cases, sales managers, who report to the store managers; and those who manage or assist in the management of particular departments.

The company's sales personnel comprise a much larger group, and are of two classes. One handles "big ticket" items — furniture, carpeting, outside draperies and is commissioned. The rest sell "accessories" and are on hourly payrolls.

Finally, the company's work force includes technicians, clerks and laborers in such varied functions as customer service, merchandise inventory control, credit, personnel, warehousing and delivery.

Management Development Program

"The principle we tried to follow," Mr. Eddy says, "was to work from the higher echelons of the store to the lower — partly because it is logical to start by trying to improve the skills of those who make the most important decisions, but also because the supervisors of those who are to be trained play vital roles in the process, which they must learn." Five specific managerial roles are identified:

- selecting appropriate candidates for training;
- structuring jobs to provide "opportunity to practice new learning for performance improvement";
- fostering a work climate of support and encouragement to learning and growth;
- teaching and otherwise "helping the learner" to learn while accomplishing assigned tasks;
- dealing promptly and effectively with "non-performing" managers.

The more formal aspect of the development process is a nine-day program, conducted in three, three-day, sessions that are spaced at three-week intervals, and timed for the company's slowest months — early February to June. By now the program has been in effect for two years and virtually all those in higher and middle-management jobs have been through it. "The idea from here on," says Mr. Eddy, "is to use it for new employees as they come in. The basic entry levels for managerial jobs are management trainees and department heads. But all will have had a period on the job before coming into the program."

Management development at Breuner's is conceived as involving three skills areas — conceptual, human and technical. As described in an internal memorandum...

"Conceptual skills are those management abilities, such as planning and problem solving, to coordinate and integrate the activities, resources and interests of the company and channel them toward a common objective. The need for conceptual skills increases and that for technical skills decreases as a manager ascends the corporate hierarchy. Human skills are those abilities needed to relate effectively with people — to lead, to communicate, to motivate, to delegate, to train, and so on. Technical skills are those abilities to perform the job function with professional expertise and a thorough understanding of retail business."

The nine-day management course deals primarily with acquiring conceptual and human skills. Technical

skills development is the responsibility of store management.

Fifty-one technical skills needed by store management employees have been identified — in the areas of merchandising; of personnel; of advertising and promotion; of credit; of control, accounting and financial systems; and of operations. They range from the ability to develop sales plans to knowledge of federal safety requirements; from appraising the performance of subordinates to truth-in-lending; from writing advertising copy to warehousing operations.

For the most part these skills are learned on the job, usually as the occasions to employ them arise or are anticipated, and in one-to-one encounters between learners and their supervisors. "To teach a new department manager to develop his or her first markdown budget," Mr. Eddy explains, "a merchandise manager may first walk through the standard steps of the monthly budget, review the merchandise arithmetic and cost areas involved with the manager and then require — both as an exercise in simulation, and to test whether the process has been mastered — that the new manager develops the next month's department budget." Some instruction takes place in group sessions, often at weekly managers' meetings in the stores. And while there is not as much prepared training material at Breuner's as a few of the national retailing organizations are said to have, a short course in merchandising arithmetic has been developed for general use, and other learning aids have been devised in individual stores and are often shared. Supervisors are required to evaluate the proficiency of each of their subordinates with respect to the 51 technical skills items, and to set objectives for them in a quarterly progress report to the Corporate Training Director.

Sales Training

Sales training is also viewed at Breuner's as having three components — product knowledge; administration, which "takes in all of the paper processing and documentation connected with the business"; and sales technique.

"Basically," Mr. Eddy says, "the sales manager, who in many stores is the same person as the merchandise manager, is responsible that his or her people learn what they need to know about the products they sell." A great deal of such knowledge is acquired informally from superiors, associates, customers and suppliers. But the most important *formal* source is the traditional "Saturday morning meeting," held each week during the hour before the stores open. Often an separate gatherings of "big ticket" and "accessories" people, vendors and manufacturers' representatives, who have been invited to do so by the company, make presentations describing the fabrics or other materials used in their products, the methods of construction, and so on. Carpet salespeople have two special resources: A consortium of carpet manufacturers puts on a one-day seminar twice a year (attended last year by about 40 Breuner employees), while one manufacturer has developed a course kit that the company bought and uses.

Administrative procedures are taught to all new sales personnel by their supervisors, on an individual basis. To aid them, the company has prepared an extensive 112-page sales manual, which describes and illustrates the various transactions and forms the employee will encounter.

Sales technique, the third component of sales training, involves one of the program's more elaborate features. Sales managers, who are responsible for the training of sales personnel, are guided by evaluative reports from "store shoppers." Employed by a security firm, but trained by Breuner's for the purpose, these shoppers visit each store every 90 days. Ostensibly customers making purchases, they "shop" about six salespeople on each visit — a schedule which assures that most salespeople will be shopped once a year.

A "shopping report," submitted by the shopper after the visit, characterizes sales personnel on "sales approach and opening," "appearance, dress and grooming," "salesmanship and information," "closing the sale," "suggestive and add-on selling," "attitude of politeness toward customer," and "goodwill and winning customers." It also comments on how promptly service was offered within the department. "It is then up to the sales managers," says Mr. Eddy, "to decide whether the problems described are such as to require training solutions, or are attitudinal problems that require other handling."

John Hancock Mutual Life Insurance Company

John Hancock Mutual Life Insurance ranks among the giants in its field — the fourth largest of the mutual life companies in terms of insurance in force, and fifth in total assets. It has about 17,000 employees. Six thousand of this work force are located at the firm's headquarters in Boston. Eleven thousand work in or out of six regional offices and 420 agencies. All those in Boston, and well over 3,000 of those at regional and agency offices (about 9,000 in all), are

salaried "Home Office" employees. The remaining 8,000 or so constitute the company's "field force" and are wholly or partially paid on a commission basis.

Reporting to the John Hancock's Chairman and Chief Executive Officer and to the President and Chief Operations Officer are "executive areas" headed by executive vice presidents Corporate Secretary (which includes the human resources functions), Insurance Operations, Group Operations, Field Management and Marketing, and Financial Operations. Two key staff functions which also report directly are the Law Department, headed by a senior vice president and general counsel, and Advertising - Public Relations, headed by a senior vice president.

John Hancock's staffing policy emphasizes promotion from within. And formal education and training programs, designed to improve job skills and prepare employees for new responsibilities, are a key to this strategy.

Like many large companies, John Hancock offers tuition assistance payments to employees for courses taken at educational institutions. And like most other insurance companies, it also encourages them to take technical "insurance education" courses that are provided by organizations serving the insurance industry as a whole. Other outside educational resources are used as well notably, advanced management programs offered at colleges and universities across the country and courses offered by the American Management Association.

In-house Programs

In addition, however, there are several different in-house education and training programs, for which 33 staff specialists are employed full time. These are carried out not by one central company department but by a variety of units, each of which emerged independently of the others at different times and each of which continues to serve special constituencies and functions. These are. . .

(1) A unit within the Corporate Secretary's area that provides "career education" through some 70 courses for Home Office employees. The program of this division of Personnel Operations covers a range from basic skills to executive development and includes a variety of courses for people at the secretarial, presupervisory, supervisory, management and junior executive levels. It is the only education unit in the company whose basic responsibilities and services extend beyond the employees in its own executive area.

(2) A unit in Field Management and Marketing that assists the company's local agencies, of which there are over 400, in their training of sales personnel.

(3) A unit in Group Operations that conducts education relating to the selling and servicing of group policies.

(4) A unit in Electronic Data Processing that offers training to the more than 600 personnel who provide computer services to the company.

While each executive department has the responsibility and authority to conduct the education and training it deems necessary, some measure of coordination is achieved through the work of two corporate-level committees. A Personnel and Budget Control Committee one of several key corporate committees is charged with the development and administration of all policies affecting personnel and budget matters. Its membership includes several of the executive vice presidents and others at the senior management level. The second group is a Training and Development Subcommittee of the Personnel and Budget Control Committee, chaired by the Second Vice President of Personnel Operations, whose membership includes representatives from each major operating area, several of whom are directly responsible for the administration of company education and training programs.

The Personnel and Budget Control Committee influences education and training in several ways. Most important is its approval of department budgets, by which it establishes the financial parameters within which programs can be conducted. Hardly less important, in the opinion of at least one of the executive vice presidents on the committee, is its role as a sounding board for new ideas. "None of us has complete freedom," he says, and "the opinion of others is a powerful constraint." A role in which both committees play a part is the exchange of information primarily about equipment and outside education and training resources - and some coordination in their use.

Management Education

The two committees also share certain responsibilities in connection with the selection of employees for outside management courses.

In-house programs provide extensive training activities up to and including the junior executive level. Complementing and extending beyond these are the external programs. A company official describes the following stages: "Employees may take a variety of

supervisory and management development courses under the Career Education Program and, according to job-related training needs, especially in some of the specialized or more technical areas, may also attend an external management or other type of training program at one of several organizations, such as the American Management Association or the Life Office Management Association. In addition, the company also utilizes a number of college and university programs. We normally send candidates for such programs to Columbia, Harvard, Williams, Northeastern and the Aspen Institute."

Recommendations for attendance at college and university programs are submitted to the Training and Development Subcommittee by executive area heads. This committee creates from candidate lists prepared by each executive area "a logical slate in terms of moneys budgeted," as one executive put it. One key function of the Training and Development Subcommittee is to oversee the company's participation in such programs and, based on participant feedback and other information, to recommend which programs should be selected for company participation.

The number attending such courses ranges from several to about 20 a year, depending on the needs of the corporation, which are influenced by such factors as retirements and promotions into jobs. By contrast, there have been about 2,800 enrollments in some kind of company-conducted, away-from-the-job education during each of recent years — though with many individuals participating in more than one course.

Career Education Program

An average of 2,000 employees have participated annually over the past three years in Career Education Program courses. These are conducted by the Career Education Unit of the Education, Counseling and Research Division, which is part of the Corporate Personnel Department. Its origins, as described by John G. McElwee, Executive Vice President and Secretary of John Hancock, go back to the early 1960's. "At that time, two phenomena were apparent to people at John Hancock — as elsewhere in the nation. One was an increasing recognition that continuing education would be a requirement for working adults — most apparent at that time among engineers and M.D.'s and people in technical jobs. Secondly, there had been a deterioration in the quality of high school graduates, especially in urban areas. Many were deficient in the fundamentals. If we were to continue drawing most of our new employees from urban educational school systems, we would have to stress the fundamentals ourselves, as well as to train for specific company requirements." From this perception of the education role the company would have to play, at least in its Home Office area, came "the implication that we would have to develop our professional competence." The decision was made, says McElwee, to develop an educational staff based on state-certified teachers. "We went into the market to find such professionals — looking particularly for adult education experience and, if possible, some administrative experience as well."

The staff that began to be assembled on this basis undertook not only to revamp eight or ten existing skills courses and supervisory programs — with help from university professors — but also undertook a survey of company needs and community resources. Two concepts, considered basic to the Career Education Program, were developed in the course of these efforts. One is the *curriculum pattern* — courses that have been grouped to meet the needs of particular employee groups or levels. Employees are encouraged, as an alternative to enrolling in individual courses, to make a "three-year commitment to a group of related courses" — on completion of which a certificate is awarded. These groups are secretarial, pre-supervisory, supervisory and management. The first two are built around required courses; supervisory and management are based on a "core" group plus electives.

The second concept is that education and training should support employee *career paths* — that is, that courses should be available for all levels with some logical progression and that, as a company official puts it, "we should have the training capability to move anybody from one level to another."

About 35 or 40 courses are conducted in each of three yearly terms — during working hours and entirely by company personnel. This curriculum includes the courses that are part of the three-year programs — but that also can be taken independently of them — and some others as well (see box). The total program-offering changes from term to term with some "steadies," some courses that are repeated infrequently as demand builds, some given once or twice a year — and all continually adapted to changing needs.

The *curriculum pattern* and *career path* concepts support the underlying aims of the Career Education Program. As described by the training director, these are: "to improve employees' skills and performance; to increase the pool of company talent from which job openings can be filled; and to enlarge career opportunities for employees individually." Thus, the standard of need is that a course be "useful or necessary on the current job or applicable to future ones."

A Recent John Hancock Career Education Program Course Listing
(All courses given during working hours)

Typing
Marchant Calculator (beginners)
Ten Key Adding Machine
Key Punch I (Beginners)
Business Arithmetic II
Briefhand
Transcription
Secretarial Procedures
Typing Procedures
Shorthand (Beginners)
Recordkeeping
Elementary Accounting
Spelling/Word Study
Shorthand (Refresher)
Business English II
Job Instruction Training
Effective Writing
Effective Communications
Insurance Orientation
Supervisory Practices
Statistical Presentation
Introduction to E.D.P.
Effective Speaking
Elements of Supervision
Business Statistics I
Cases and Problems in Supervision
Incident Process
Fundamentals of Data Processing
Report Writing
Effective Speaking
Communications
Personnel Policies and Procedures
Interviewing - Employee Problems
Introduction to Law
Operations Analysis
Job Design
Interviewing Techniques
User's Role in Systems Development
Modern Concepts of Management
General Management
Cases and Concepts in Management
Trainers' Institute
Supervisors' Institute
Seminar on Corporate Operations
Advanced Seminar in Management
English as a Second Language

Participation may be at employee or management initiative; supervisory approval is needed because of the time away from the job which is required. Whether supervisors sponsor participation or exercise their responsibility to act on requests, they often consult with career education staff members for advice in judging employees' qualifications for particular courses or selecting suitable alternatives.

Offerings and Enrollments

The Career Education Program, which enrolls about 2,000 Boston-area employees per year in one or more of its some 70 courses and three terms, is in many ways administered like a school. Courses are offered in a "three-term cycle" - fall, winter, spring. A schedule describing prerequisites, course titles, times and places is distributed before each term to department heads and division managers and further publicized through employee bulletin boards and an employee publication. Final exams are sometimes required, and grades and credits are entered into employees' records or "individual transcripts."

Courses are as long or short as their subject matter and purpose dictates. Some meet for an hour a day, daily or less often, and for all or part of the "term." Others are more intensive. In some instances "block time" scheduling is used - three consecutive half days, for example, or even four or five full days (e.g., an intensive course for new supervisors). One of the shorter courses (10 hours) is Secretarial Procedures; examples of comparatively long courses are Shorthand for Beginners (60 hours) or the Seminar on Corporate Operations (48 hours). A number of the Career Education Program courses have been recommended for college credit by the Project on Noncollegiate Sponsored Accreditation (see box on page 3).

Staff

In accordance with the decision made in the mid-1960's when the education program was revamped, the Career Education unit is staffed primarily with certified, experienced teachers. "English as a Second Language" occupies a heavy percentage of one instructor's time because, in the words of a company official: "Those whose native language is not English are an important segment of our employee population, and we are obligated to help them to hurdle the language barrier." Other staff members teach three to four classes a day; their remaining time is spent on administrative projects (such as scheduling of classes) or as education specialists, working directly with

departments on training needs. As consultants, they provide professional advice on adult education practices along with effective teaching methodology and materials. In short, they help departments to make learning and training more effective. Some typical services include: (1) providing academic counseling on Career Education programs, (2) working with departments in solving special training needs, and (3) helping evaluate training sessions held within departments.

Though staff instructors account for the largest portion of total course hours, their task has been shared by a cadre of other company employees who are part-time instructors — in the past two years by about 80 of them. Most have been selected because of line or technical experience; the majority are at management or executive levels.

Evaluation

How well is the Career Education Program serving its goals? Very well, management believes. The evidence? Management commitment and support, sustained course enrollments, and the findings of occasional formal surveys. "Ultimately," says Ms. Marion Nierintz, the executive in charge of this program, "the assumption has to be made that we have soundly appraised our needs. Through regularly scheduled meetings of our resources people with the various departments, evaluation forms that are routinely filled out by students on completion of courses, and responses to a formal solicitation of employee suggestions a year or so ago, we have been getting both needed inputs for change and confirmation of the basic soundness of the program."

Other Corporate Roles

The Career Education Program is not the only education and training role of the Corporate Secretary's Education Counseling and Research Division. As described later in this report, it trains trainers for departments and divisions in all Home Office executive areas. The services of its staff are also offered to these units for assistance in determining education and training needs and developing suitable programs — as well as to individual employees for career education counseling.

Field Management and Marketing

Field Management and Marketing is the larger of John Hancock's two "marketing forces." Aside from a small headquarters group in Boston, its 10,000 or so sales representatives work out of 425 different agencies. This "executive area" conducts all sales and sales management activities other than group insurance. The number of employees involved each year in its Education and Training Program is about the same as in the Career Education Program, but its methods as well as curriculum are markedly different.

William Kiel, Jr., is General Director of Education for Marketing Operations. He is responsible for all current educational activities in the Field Management and Marketing executive area.

1. To provide the agencies with the tools necessary for field training — from tapes and other audiovisual materials to courses and curricula.
2. To supplement agency training with Home Office courses at the John Hancock Institute (see box).
3. To go out into the agencies and monitor their performance through research, observation and coaching — or, as Mr. Kiel emphasizes, "to observe, demonstrate and correct."

Corresponding to these three roles are three organizational centers reporting to Kiel — known, respectively, as Materials, Schools, and Field.

Materials

With five people, this is the smallest staff. They are writers and designers, who develop new training materials where necessary, and otherwise modify and update what has been created in the past. "It is the backlog of years of development that makes it possible for so few people to cope with the demands for materials," says Mr. Kiel. "Also, they do not prepare material where commercial material is available. And there are good materials available, especially in business insurance, estate planning and retirement plans, from commercial firms that prepare such material for the insurance industry."

Schools

A "school" refers to a course of study — of which there are about 60. Most take five days, but they range up to eleven days. Mr. Kiel emphasizes that since the salespeople work on commission, "time is really money," and there is a particular urgency about designing productive courses.

The "schools unit" employs a full-time staff, but enlists the teaching services of field and Home Office people.

About 1,200 of the 10,000 or so sales personnel in the field are brought into the John Hancock Institute

John Hancock Institute

The John Hancock Institute provides training for the company's agents. Its curriculum is arranged in six categories or "series," in each of which courses are provided at more than one level. The "basic" level courses that are distributed through these six series constitute a so-called Basic School, and Intermediate and Advanced Schools are similarly comprised.

Course Listing

100 Series: Agents, General Agency:

Career Agents' Conference ..... Basic
Intermediate Estate-Business Planning Workshop ..... Intermediate
Intermediate Retirement Plan Workshop ..... Intermediate
Advanced Financial Planning Seminar ..... Advanced
Advanced Retirement Plan Seminar ..... Advanced

200 Series: Agents, District Agency:

Career Agents' Sales Conference ..... Basic
Intermediate Estate-Business Planning Workshop ..... Intermediate
Intermediate Retirement Plan Workshop ..... Intermediate

300 Series: Supervisors, General Agency:

Advanced Financial Planning Seminar ..... Advanced
Advanced Retirement Plan Seminar ..... Advanced
Technical Workshop ..... Intermediate
Supervisors' Conference ..... Basic
Advanced Supervisors' Seminar ..... Advanced
Brokerage Supervisors' Workshop ..... Intermediate

400 Series: Staff Managers, District Agency:

Technical Workshop ..... Intermediate
Staff Managers' Seminar ..... Advanced

500 Series: General Agents:

Advanced Financial Planning Seminar ..... Advanced
Advanced Retirement Plan Seminar ..... Advanced
Management Technical Workshop ..... Intermediate
Agency Management Workshop ..... Basic
Intermediate Agency Management Workshop ..... Intermediate
Advanced Agency Management Workshop ..... Advanced

600 Series: District Managers:

Advanced Financial Planning Seminar ..... Advanced
Advanced Retirement Plan Seminar ..... Advanced
Management Technical Workshop ..... Intermediate
Field Management Training Workshop ..... Basic

in Boston each year to attend a school in one of three areas — basic sales skills; technical skills (e.g., estate planning, business insurance, sophisticated retirement plans); and management skills.

(1) *Basic sales skills:* Agents are not eligible for this school until they have had at least six months of experience in the field. During this period they are being trained by the agency for which they work. Further, they must meet certain production requirements — demonstrate that they are doing "a good job." The opportunity to attend a school at the end of this early period develops the desire to meet the qualifications and thus is an incentive to new sales personnel. No less important, the company's experience has been that salespeople whose performance does not qualify them to attend this school are not likely to benefit sufficiently from the school to warrant their attendance.

(2) *Technical skills:* The Institute catalog shows courses for agents in the "intermediate estate-business planning" area (calling for at least two years' experience, certain production levels in the previous fiscal year, and completion of other courses); an intermediate retirement planning course (with similar requirements); advanced financial planning (with more extensive experience necessary); and advanced retirement planning (also with more extensive experience).

(3) *Management schools:* These are designed to support the development of "the man who is promoted from agents' ranks to supervision." The first stage of this training in supervisory skills, related to "the most immediate and basic needs of the situation" is accomplished in the field — by local agency management that has been trained in training, and/or by the Home Office field training force (described later).

Learners are then brought to the Institute for a Supervisor's Conference, designed specifically for newly appointed supervisors having less than 12 months' experience. Some time later, after having gained sophistication and encountered problems, the supervisor is brought in for an Advanced Supervisor's Seminar, described by Mr. Kiel as "highly participative." The same supervisors can come to the advanced seminar more than once.

If they move up to top agency management their skills need do not change radically, says Mr. Kiel, but they do have needs in one further area — financial management. "So after a time they are brought in for an Agency Management Workshop, which is oriented toward the top management job and emphasizes financial management." Subsequently agency managers may attend an Intermediate and then an Advanced Management Workshop.

Course development is the responsibility of the Director of Schools, who maintains close liaison with the marketing department and the line sales departments. Courses are continually changing — partly in adaptation to new needs and partly in response to suggestions from students. Student critiques, tests and role playing to measure skill transfer are used to evaluate the effectiveness of the training.

Field

Field training is the responsibility of a team of eight who also operate out of Boston. They visit agencies on an "as-needed-and-called" basis for two purposes. One is to conduct formal course instruction in new subject areas: Provisions and implications of new retirement plans would be an example. The second is to coach individual agents in selling techniques. Trainers and field sales personnel together make calls on prospects. The training people may take charge in the first call or two, then observe and critique the field people in subsequent calls.

Group Operations

The executive area known as Group Operations, comprising approximately 2,000 employees, markets and services *Group Insurance* and *Pension* products. These two product lines have separate Home Office and Field Sales and support organizations. Pension operations markets its products through a small, highly trained sales force located in field offices, but all of its support personnel are located in Boston. Insurance operations markets its products through over 100 salespeople located in field offices within six regions, each having underwriting and claim offices to support its sales efforts.

Education program have been developed for both insurance and pension operations. These programs are administered and conducted by a staff of two, which includes the training director of Group Operations, Mr. Trygve Christiansen.

Group Insurance Sales

New hires into the Group Insurance sales force are likely to be in their mid-twenties — "generally with some work experience and at a stage in life where they are ready to settle into a career pattern." They begin their education with a nine-assignment correspondence course introducing them to group insurance concepts

in general and to specific John Hancock practices. During the several months of this initial phase they are working in the field and being initiated into their new jobs. They are then sent to a "Basic Group School" at the John Hancock Institute in Boston for four weeks of instruction dealing with the insurance product and sales skills. The course is given once a year in the fall, and usually includes approximately 15 students. The four weeks of training are structured into two-week segments, separated by about a month.

Group Insurance sales employees have several other formal training opportunities. One of these is an "Advanced Training School," currently held twice a year with 10 to 15 attendees. Its curriculum tends to be specialized, with a strong emphasis on advanced product knowledge. Participants may include relatively new employees who have had enough previous experience to be exempted from the Basic Group School.

Another program for experienced employees is a one-week course designed to provide existing managers with training in management per se. All large-office managers have received such training, and the program was extended in 1976 to assistant managers and to those who are responsible for smaller offices. Mr. Christiansen, who is the principal discussion leader in these sessions held at the Home Office, hopes to provide this training to potential field management personnel in the future.

Finally — and moving closer to the line at which training and problem solving begin to blur — sales personnel join with their colleagues in the claims and underwriting disciplines in an annual workshop, usually conducted on a regional basis with Home Office management in attendance. While one of the workshop's aims is "a cross-fertilization of ideas," an equally important objective is to introduce new marketing strategy, products and systems.

In addition, during the year it is common to see smaller regional meetings taking place to evaluate progress.

Group Insurance Claims

Claim management personnel participate in the regional workshops and, in addition, in the following:

(1) An "Advanced Training School." This is an annual one-week course attended by management-level personnel. Its focus, of course, is on claims policies, procedures and sales considerations. An example: New Hancock equipment and procedures for processing group accident and health claims, a system called Hanstar.

(2) Supervisor's Seminars, roughly analogous to courses available for Home Office personnel in the Career Education Program and lasting two and one-half days. These sessions, created specifically for the newly named claim supervisor, are given at two locations — Chicago, for offices in the western, midwestern and central regions; and the John Hancock Institute for northeast, mid-Atlantic and southern areas.

(3) A series of "claims management" seminars. Included are managers, assistant managers, and claims representatives. Subject matter is tailored to the specific claim office-management responsibilities. Follow-up management training has been conducted for managers of the largest offices.

(4) A correspondence course that is mandated for those who are claims approvers. It is administered out of the Home Office but monitored in the field, where progress is evaluated and examinations corrected. The field reports to Boston every quarter on status and completions so that field claim management can monitor the program and awards can be distributed to the completors.

Group Insurance Underwriting

In addition to participation by managers in the regional workshops, there is a three-week course in Boston dealing with basic policy for line underwriters of the six regions. Regional contract personnel also come to Boston annually for training in their area of responsibility. Furthermore, management training is offered to underwriting management personnel in a field setting.

Pension Sales

This operation includes several traditional training activities. One of these is the "Technical Seminar." Because of the relatively small size of its field force, Pension Sales personnel come to Boston to attend these occasional, product-oriented training sessions. In 1976, there were three meetings designed to train the field to sell an investment product being introduced as part of a changing marketing strategy. "An intermediate or advanced training school" — analogous to Insurance's "Advanced Training School" — is also held once a year in Boston. Attendees, usually fewer than ten, focus on technical and sales training in pension planning.

In 1976, all pension representatives participated in training programs focusing specifically on selling skills. The sessions were conducted in small group settings in regional locations.

Prep

In Boston, as in other communities, there is a need to provide help for the many people handicapped by background or lack of opportunity – the individual interested in obtaining a high school equivalency certificate, the person anxious to acquire a marketable job skill, or the individual who lacks fluency in the English language. John Hancock is helping to meet this need through its Prep Program, which was established in 1968.

The program receives no funds from government or private agencies and makes no charge to students. It is financed in its entirety by John Hancock as a special commitment to the underemployed and the unemployed in the Boston community. Some John Hancock employees are enrolled in the program; however, most of the students are employed by other organizations.

Classes meet at John Hancock two evenings a week for three hours each evening. There are two programs per year: September through December and January through May. Courses are taught by certified teachers from school systems in the metropolitan Boston area.

To date, about 3,500 students have been enrolled in the Prep Program, with many of the students participating in more than one program. The Massachusetts State Department of Education has awarded 152 high school equivalency certificates to its graduates.

Finally, there is the "Pension Workshop." Each year in June all pension representatives meet near Boston for one week. At that time, field and Home Office pension people deal with common concerns in what one executive describes as "a give-and-take atmosphere."

In 1974 to 1975 the pension force was increased by the hiring of eight individuals who had MBA's or equivalent business experience. Their training consisted of three months of classroom study at the Institute, two months on field assignments, and a final two months of Home Office training.

Evaluation and Planning

Evaluation of Group Operation's courses and programs takes several forms. At the end of programs trainees are asked to criticize and give constructive suggestions in writing. Testing is used in basic insurance and pension courses; in addition, videotape role playing is employed to measure skill transfer.

In the claim supervisory training, pre- and post-tests were administered for each of the first ten or so sessions. Since the post-test results were uniformly higher, such testing was stopped on this program.

Another form of evaluation was a follow-up seminar directed to large-office claim managers who had completed initial claims management training two years earlier. Their judgment, as summarized by the training unit, was that the course had measurably improved "operating efficiency and teamwork."

"We've made continuing stabs at trying to measure effectiveness on a more scientific basis," says Mr. Christiansen, "but there are so many variables that we haven't yet found a means we consider to be reliable. I can't always point to hard evidence, but I am confident we're making good use of the company's time and money. However, I do consider developing more sophisticated evaluation techniques to be one of my prime objectives."

In addition to the training efforts cited above, the Group Training Unit conducts a one-half day Orientation Program each quarter for all newly hired Home Office personnel in Group Insurance and Pension Operations. Many operating departments within Group have developed formalized internal training programs.

A recent training development for both the insurance and pension field sales force is the production of audio cassettes in Boston for distribution to Group Field sales offices.

Other Education and Training

The education and training divisions of the Corporate Secretary and the two major marketing areas are not considered to be the most suitable resources for meeting a variety of specialized instructional needs at John Hancock. In a few instances, these are served by training divisions within individual departments.

Computer Training

The most notable of these instances is data processing. Within Insurance Operations, John Hancock employs a data processing staff of 600 that includes about 275 computer programmers. As Nancy Bern, Director of EDP Education, describes it: "In 1968, computer manufacturers started to charge customers for education, and it became more economical to do it ourselves."

Ms. Bern's staff of six – "all professionals in computer and communication techniques" – conducts about

5,000 employee-days of formal education a year. She notes that at the price John Hancock would pay for this training on the outside — $100 to $150 a day — the value of the program she directs is in excess of $500,000.

Well over half of this programming training is for new hires — typically people with no background in the work. It consists, initially, of a nine-week, full-time course that includes basic programming, basic computer logic, and job control language. During the first year new programmers are given at least two additional courses of one week each — one in advanced COBAL, the second in diagnosing computer problems. Changing technology — both in programming and equipment — accounts for the remainder of the program.

The mix of basic versus advanced training depends heavily on economic conditions. "Financial companies," explains Ms. Bern, "are particularly subject to 'raiding,' and in good times turnover can be as high as 30 percent. During expansion periods the training effort concentrates at the basic level. During slower periods we bring our experienced people up-to-date in more sophisticated areas. But even then there's little time for theoretical education. People are usually in a class because they need to learn something for next week."

Would the work of the division benefit from more theoretical education? Yes, Ms. Bern thinks, but not necessarily without cost to the company. Users of EDP services within the firm are charged for those services. Increased department overhead would raise the necessary charges and discourage use. "The reality," says Ms. Bern, "is that trade-offs have to be made."

Technical and Training Supervisors

Data processing is not the only department that has its own training organization. On a much smaller scale, for example, Group Systems has a training director who plans and conducts a tailor-made program for its 20-25 systems analysts. But all other divisions of the John Hancock Company — and they are numerous, a "division" being a unit within a department — designate one of their employees as "technical and training supervisor," with responsibility for keeping abreast of relevant technology, conducting whatever training is required in applications to the work of the division, and more generally training any new division employees. This is most often a part-time responsibility, but in many divisions it is full time. Training may be on the job, integrated into orientation programs for new employees, or an independent classroom or otherwise formally structured activity. There is no way, short of a comprehensive intracompany study, to discover the dimensions of this aspect of the company's training activity.

Individuals who have extensive responsibility for training others within their own departments are themselves trained in a so-called Trainers' Institute that is closely allied with the Career Education Programs. In the first of two three-day sessions the students are given basic instruction in on-the-job training methods. In the second, videotaped exercises in plans development and classroom teaching are used. Participants may elect one or both of the two-day sessions, depending on individual needs.

Other

One final program that belongs most appropriately in this group of specialized educational activities is an "Advanced Seminar in Management," which occupies a full workweek. It is built around case studies, in-basket exercises, and other participative techniques. Taught mainly by senior officers of the company, it is designed for personnel in "upper junior executive, but not top level" management.

Appendix A
Educating Nonemployees

A GOODLY NUMBER OF companies are engaged in educating and training people who are not their own employees, but who work for other private or public employers, or are themselves entrepreneurs. They do so most commonly to teach skills and knowledge that are vital to the sale, maintenance or use of their products but, in some instances, because education is their line of business.

Adjunct Personnel and Associated Skills

Forty-four percent of companies in the Board's survey reported that they provide courses to clients or customers. (Detailed information from a number of them makes clear that the term "course" was sometimes construed loosely, and may refer to more informal modes of instruction as well.)

Those who participate in these courses are sometimes the ultimate users of the instructing companies' products or services. A manufacturer of sophisticated medical equipment, for example, trains hospital and clinic personnel in its use; a cement producer gives a course for customers on aspects of advanced concrete technology; another company conducts a five-week training course for the technicians of firms that use its automatic welding equipment in pipeline construction; a machine tool manufacturer instructs customers about the installation, maintenance and operation of its products.

At least as often, however, participants in these courses are firms — often quite small ones — that perform essential roles for the provider's firm in connection with the manufacture, distribution or servicing of its products. Automobile manufacturers train their dealers in appropriate skills — as do soft drink companies their bottlers; food chains their franchisees; insurance companies their agents. A camera company provides courses to service groups in the operation and repair of its products; a tire company conducts seminars on its new product line each year for the sales personnel of its distributors; and so on. Instruction is also provided to such entrepreneurial intermediaries as travel agents, architects and decorators.

If the technical and marketing competence of these agents is no less vital to the supplying firm than that of the people on its own payroll, it is equally in its interest that the businesses be profitable and well run. The courses that are provided for them, therefore, are by no means confined to the kinds of technical information that may be needed to sell, use or maintain products and equipment, but include managerial skills as well.

A System for The Coca-Cola Company's "Customers"

The stake companies often have in the skills of people who are not in their employ may be seen in bold relief in the case of the soft drink industry. The programs developed by The Coca-Cola Company for its national network of more than 600 franchise Bottlers illustrate the type of response that many such business interdependencies require. Almost all of the Bottlers of Coca-Cola are independent businesses that buy soft drink syrup from The Coca-Cola Company and then bottle and distribute the finished product. They are, thus, both the Company's prime customers and its chief avenue to the consuming public. The Company has long conducted schools, workshops and seminars with its Bottlers and its own personnel as well. But to

the Company's board chairman and CEO, J. Paul Austin, the Company and its Bottlers are now confronting the "true paradox" that "even as our business is becoming more and more complex, requiring an ever increasing amount of talent, our more experienced employees, faced with the growing demand of the business, are finding less time to improve their skills."

One answer that the Company has recently developed and made available to its Bottlers is a "multimedia learning system" for the sales and production personnel, including hard and software items in a complete package.

The system's hardware has three components — a color TV monitor, a video cassette player, and an audio cartridge player. Its software includes 26 different modules (more are in preparation), designed specifically for Bottlers of Coca-Cola. Each module contains a video cassette, an audio cassette and workbooks.

One series of these modules has been designed for the training of sales and marketing personnel, another for production and technical employees. The Company has also included in the package instructions and suggestions for administering the modules — either on a "one-on-one" basis or in group sessions.

Entrepreneurship

Coca-Cola is not, of course, the only company that seeks to offset the development and maintenance costs of such courses by charging for them. IBM, whose courses for customers — listed in a 400-page catalog — are devoted to data processing and programming skills, and countless others, feel pistified and able to do so as well.

Some firms, in distinction to these, have developed courses or other educational services that they sell to firms with which they have no other relationship — unless it is as competitors. Often any expectation of gain is quite modest. These may be larger or more venturesome firms that have developed courses for their own employees — an airlines course for training reservation clerks, for example, has found a small market in companies with similar needs. On the other hand, some companies have utilized their resources actively to market extensive curricula in managerial, supervisory and technical subjects.[1]

Finally, a few firms, with some outside encouragement, have sought a direct entrepreneurial role in the nation's schools. The ebbing of interest in voucher systems and "performance contracting" after some experimentation six or seven years ago has disappointed some and quieted the fears of others. Business opportunity in adult, as well as earlier, education has also fallen well below the expectations some firms held a decade ago. But speculation about, and interest in, the application of industry's resources, experience and expertise to the education of nonemployee populations understandably persists. The roles that are played respectively by business, the universities, and other interests in the future development of cost-effective educational technology — particularly computer-managed and computer-assisted instruction — is likely to affect the shape of the educational system and the content of education in still unpredictable ways.

[1] Many companies, of course, also sell supplies and equipment to educational institutions, ranging from notebooks to audiovisual equipment, and perform services as diverse as custodial and consulting.

Appendix B

Company Courses: An Illustrative "Curriculum"

TO FURTHER ELUCIDATE the subject matter of company course programs, reflect the breadth and intensity of individual treatments, and convey the variety of descriptive styles, a sampler "curriculum" is shown below in which course descriptions are taken verbatim from the catalogs or listings of many companies. Course lengths (not always listed) generally represent hours of classwork.

In many cases, however, assignments are required as preparation for classwork and subsequent to its completion. A public utilities course, for example, titled "Analyzing Performance Problems," specifies that each participant submit, in advance, a short description of a performance problem he or she has identified, and read a (designated) book on the subject prior to the session.

Management Development and Supervisory Courses

Management of People

The Individual's Responsibility in Career Planning. One day. *Objectives:* to present and discuss concepts for career planning and provide opportunities for participants to acquire skill and know-how in designing their own individual development plans. *Description:* The topics covered will include: the nature and scope of planning an individual's development; sources of information and guidance for planning; and problems in integrating individual and company needs and goals.

A glass manufacturer

* * *

Leadership Action Seminar. Five days, including evening sessions and evening readings. *Objectives:* Orientation to "production and people management" concepts and practices provides understanding of various styles of leadership; gives deeper insight into individual and group dynamics; and stimulates awareness of personal strengths and development needs. *Description:* The leadership action seminar concentrates primarily on individual versus team effort, styles of management, techniques of motivation, managing group competition, and personal feedback for individual growth. Participants complete an action plan for improved management productivity.

A photocopy equipment manufacturer

* * *

Performance Appraisal Workshop. Four half days. The performance appraisal workshop is designed for management people whose responsibilities require them to evaluate the job performance of salaried employees and to conduct performance appraisal interviews. The objectives of the workshop are to help participants to gain a better understanding and appreciation of the purpose of the performance appraisal program and its implementation; learn how to establish standards of performance; understand the appraisal process and to avoid judgmental errors; improve their ability to prepare well-written, accurate, substantive performance appraisals; and to improve their skill in preparing for and conducting productive performance appraisal interviews.

A [illegible] corporation

Funcational Skills of Management

Management by Objectives. The fundamentals of an effective MBO system are presented. A heavy emphasis is placed on the steps prior to writing objectives. For example: key results areas, environmental factors [illegible]

assumptions; analysis of strengths, weaknesses, opportunities and threats. The issue of "top-down" or "bottom-up" objective setting is addressed as well. Participants should be able to explain the key attributes (and environmental factors) of an effective MBO system. However, a complete ability to implement such a system is not anticipated.

A pharmaceutical firm

* * *

Management Sciences Program. Two half days. *Description:* This program is designed to present and explain management sciences concepts, equipment, economics and applications. *Objectives:* The program is designed to: familarize the participants with the concepts, equipment, techniques and applications of management sciences; expose participants to practical and scientific management science techniques applied to functional areas. It will function on these questions: What is management science? What does it do in the company? How can it be used effectively?

An oil company

* * *

Marketing Concepts for Nonmarketing Managers. One day. Designed to acquaint managers with the main concepts involved in marketing. Covers marketing, its functions, its idiosyncrasies, and its effects. Includes practical implementation methods and a discussion with company's marketing manager.

A household products manufacturer

* * *

Using the Computer as a Management Tool. Three-and-a-half days. This is a course designed for people who have need for computerized information. Its purpose is to help them understand how computer services work, and thus to obtain more effectively from them the kind of information they want, in the form in which they want it, and at the least possible cost.

An industrial apparatus manufacturer

* * *

Management Skills Review. A review of the management skills, i.e., planning, organizing and controlling. This training stresses the nature of management responsibilities. It is an in-depth review of some of the topics topics covered in supervisory management training.

An industrial chemicals manufacturer

* * *

Work Simplification. Twenty hours. *Objectives:* to improve profits by reducing costs through the elimination of waste; to establish a procedure for continuing the development of better methods. *Benefits:* Actual dollar savings through waste reductions are accomplished while the new program is being conducted. Supervisors receive a new outlook on problem solving. A mutual understanding among supervisors of each others' jobs and problems is provided as well as all-out cooperation and teamwork being promoted. The philosophy of "finding easier and better ways of doing work" is accepted and becomes a way of life. *Program:* Ten, two-hour sessions (about one-half of the program) are spent working actual on-the-job improvement projects. A method of fact gathering and analyzing information is learned. Methods of eliminating waste, combining operations, changing sequences, and improving work are developed. A method of communicating ideas for improvements is provided through the use of revised flow processes, work place, and multiple activity, charts.

An industrial machinery and equipment manufacturer

* * *

Train the Trainer. Four half days. A course designed for any person who does training, whether in the classroom or on the job. It includes basic principles of how to train and in-class practice in putting these principles to work.

A bank

* * *

Management Consulting Seminar. This three-day seminar is conducted for partners, managers and seniors. Designed to enable experienced personnel to apply effective consulting concepts, this program emphasizes managing a consulting engagement, budgeting and cash forecasting, managerial accounting, other firmwide consulting capabilities and effective uses of time-sharing in each area. The seminar utilizes a combination of lectures, demonstrations, small group problem solving, case studies, and practice with time-sharing terminals to cover the subjects.

An accounting firm

* * *

Business-Government Workshop. Five days. *Objective:* to help our managers gain increased knowledge of the dynamic interrelationship between business and government and what this means to the business; better understand the political process and its significance on the strategies of their business; know when and how to use company experts in activities involving government.

An electrical products manufacturer

Personal Skills

Delegation and Time Management. One day. Designed to provide managers and supervisors with workable "know-how" answers to questions such as: Why don't managers delegate as much as they should? When should I delegate? What should I delegate? To whom should I delegate? How can I build managerial leverage more fundamentally? What can I do to get all the time I need? Do I work longer and harder than my people do? Why? How can I control my expenditure of time to fit my needs? How do I get out from under the day-to-day burdens? How can I break loose from the "time" and "activity" traps? Am I doing more than I should? Less than I should?

An electronics and systems firm

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Kepner-Tregoe Problem-solving and Decision-making Workshop (GENCO 11). One week. *Description:* The workshop is designed to study, review and improve results in three critical areas: finding the true cause of a problem; making the most appropriate decisions; efficiently implementing a decision. The emphasis is on efficient use of necessary information and resolving problem situations. Ideas and concepts are studied and discussed for understanding, after which case studies are used to illustrate the implementation of these ideas. The participants then put the concepts to work on their own problem situations with critique and feedback following.

The program deals with problem solving and decision making both from the individual and group standpoint. *Objectives:* As a result of this program the participants will: assess the process by which they analyze problems, make decisions, and handle potential problems; develop an understanding of a systematic approach to handling problem situations; develop techniques for asking better questions; plan for continued application and improved results on the job.

A chemicals manufacturer

* * *

Creativity in Problem Solving. Seven half days. Participants will: identify attitudes and behavior that inhibit creativity; identify their own behavioral blocks to creativity; work in block areas (one, two, four or five person exercises); use a work-related problem to explore how their individual blocks to creativity affect solving the problem; use a technique for pinpointing a problem; use at least two organized strategies for eliciting large numbers of ideas (brainstorming, forced relationships); use at least one method to evaluate useful and meaningful ideas; identify obstacles to implementation and ways to reduce resistance; apply the creative problem-solving process to a work-related problem and evaluate results.

A photographic equipment and supplies manufacturer

* * *

Communications Skills Development. Implements techniques to improve interpersonal communication (written and spoken), such as listening, questioning, presentations, nonverbals, letterwriting, et cetera. Participants will individually simulate common situations and evaluate their own interpersonal communication characteristics via videotape and feedback from others in the group.

A chemical and metallurgy firm

* * *

Self-assessment for Managers. Five days. The overall objective of this program is to study and analyze the participants' own management practices through a series of confidential self-assessment exercises. Remedial steps for improvement are developed and at the completion of the program participants will have learned: to develop detailed approaches for altering their planning, analytical and organizational skills; time management and how to set up priorities and develop strategies in relation to responsibilities; to identify and overcome performance obstacles; methods to identify improvement needs, implement strategies, and establish performance objectives; how to obtain and improve teamwork; what factors influence the organization through lateral management; how self-motivation affects self-improvement.

A paper manufacturer

Functional and Technical Courses

Production and Maintenance

Welding Engineering. Five days. *Objective:* to help individuals who have metal-joining responsibilities in a managing or engineering function. *Method:* Course will cover the fundamentals of welding engineering; welding processes; design for welding; welding metallurgy, standards, codes; cost calculating; and welding applications.

An electrical equipment manufacturer

* * *

Instrumentation and Process Control for Engineers. Thirty hours. *Description:* This is a practical program to introduce new engineers to process control instrumentation by combining control theory with problems taken from actual plant experience. It includes a

review of process control hardware, a workshop on control problems, an introduction to control theory, a survey of methods for testing and setting controllers, and a brief look at direct digital control.

A plastics manufacturer

* * *

Introduction to Colloid Chemistry. Twelve hours. This seminar will provide a basic understanding of the general field of colloid chemistry. It is designed to be a practical, industry-oriented course with specific information dealing with the measurement of various physical properties and applications of the basic principles of colloid chemistry. Topics will include sedimentation, dispersion forces, electrical charge effects, zeta potential measurements, surface tension, wetting, foaming, surface active agents, light scattering, rheology and preparation for colloids.

A photographic equipment manufacturer

* * *

Splicer (Transmission). Ten days as required. *Objective:* to enable the experienced distribution splicer to make low-, and high-pressure oil-filled cable splices in 69, 138, and 345 k.v. ranges.

A utility

* * *

Applied Statistics for Engineers. Taught one evening per week, this course will stress the uses of statistical analysis methods applied in biological, physical and engineering sciences. Topics will include univariate and multivariate analysis methods in linear and nonlinear models framework, sampling and experimental designs considerations and parameter estimation, time series analysis, and other methods presented to establish the effectiveness of statistics as a tool for applied scientific and engineering employees. Students should have good working knowledge of matrix algebra, some appreciation for probability distribution theory, and ability to work in differential and integral calculus. If sufficient interest is expressed the course will span two semesters. Further details will be announced when that interest is received.

A research and development firm

* * *

New Engineering Concepts. Ten days. *Objectives:* to expose participants to new technology and science important to the company and to acquaint participants with the corporate personnel working with this science and technology; to stimulate the participant's thinking of the effect of the energy crisis and changes in the socioeconomic environment (e.g., ecology and consumerism) on engineering designs; to develop insights into tools and techniques affecting engineering design; to inspire each participant to want to read and learn more and thus continue his or her own professional development.

An electrical equipment manufacturer

Marketing and Sales

Advanced Sales Technology. Five days. *Objectives:* This program is particularly recommended for sales representatives who desire an expansion of knowledge in customer management and selling strategies. Assists participants in recognizing and responding to a variety of customer needs and thus increasing their resourcefulness in a sales situation. *Emphasizes:* financial orientation — return on investment, share of market, profit center; how to sell by objective and build a supportive strategy to meet account objectives; method of analyzing accounts for profitability, potential and product mix; how to develop an approach to preidentify customer problems and keep the account sold; strategies for sales follow-up and future growth.

A paper manufacturer

* * *

Selling Skills for Retail Hospital Salesmen. Five days. *Objectives:* Upon completion of this program the participant will be able to: make effective presentations using the "benefit" techniques in a natural way; handle objectives skillfully; close a higher percentage of calls; manage time and territory more effectively; work within the distribution system to solve customer problems; use various company systems to better service customers; better handle returns or credit; train store managers and staff on merchandising techniques; advise store managers on layout and modernization.

A pharmaceutical firm

* * *

Customer Courtesy Program. Twelve hours. To provide customer-contact persons with the basic psychology and techniques of good customer courtesy, along with basic product knowledge, and practice in demonstrating effective selling techniques using videotaped role-playing and critique procedures.

A bank

* * *

Applications in Marketing. Will examine in detail the specifics of a marketer's duties and opportunities in a specific field of endeavor. The characteristics of commodity and specialty product marketing will be scrutinized and the roles of the various elements in the "marketing mix" will be optimized to further the efforts in this area.

A chemical and metallurgy firm

Office, Administrative, Clerical, Financial

Production and Inventory Control. Eighteen hours. This course provides a nontechnical review of generally well-accepted production and inventory control techniques and relates these techniques to actual situations.

An appliance manufacturer

* * *

Economics and Risk Analysis Course. Eighteen hours. *Objective:* to give individuals who recommend or make decisions on capital investment proposals a background in the general concepts, procedures and terminology of economics and risk analysis as practiced within the company.

An oil company

* * *

International Banking. Two days. This seminar presents an overview of the International Banking Department. The seminar concentrates on those services most often discussed and sold by banking-department contact personnel. Topics include foreign exchange, trade financing, documentary services, and international corporate financing techniques.

A bank

* * *

Systems Analyst Training I. One week. *Objective:* to study the following skills of the systems analyst: problem definition, data gathering, information analyses, presentation techniques, implementation planning, controls, documentation, systems reviews.

A glass manufacturer

* * *

Effective Business and Technical Writing. Fifteen hours. Part I of this program emphasizes the elements of effective writing: clarity, conciseness, force, appropriateness and organization. Instruction in formal grammar is included only to the extent that it is necessary. Part II should be taken by employees whose work requires writing reports on scientific and technical subjects. It covers the organization of the formal technical report and provides practice in writing abstracts.

A plastics manufacturer

* * *

Professionalism for Secretaries. Six hours. The focus is on the meaning of "professionalism" as it relates to the special qualities which a secretary needs in addition to superior skills of shorthand and typing. The first session focuses on the boss-secretary relationship. The second session focuses on the co-worker-secretary relationship.

A bank

* * *

Introduction to Ledger Bookkeeping. One-half day. *Objectives:* acquaint individuals with ledger responsibilities, update, maintenance and functions of the company's ledger system.

An insurance company

Other

Statistics: Inference and Analysis. Five half days. Business people often need to make predictions or "guesstimates" and analyze numerical data in order to draw conclusions. The course emphasizes the use of the basic tools available and the guidelines which enable participants to recognize the possible application of advanced statistical methods to their problems.

A marketing organization

* * *

Medical Terminology. Participants will learn the basic structure and definition of medical terms including prefixes, suffixes, roots, combining forms, and plurals. Pronunciation and spelling is stressed. Emphasis is also placed on building a professional vocabulary which will enable the participants to work effectively in the medical field.

A pharmaceutical firm

* * *

EXCEL. Twenty-three hours. *Objective:* to offer information useful to clerical-support employees. Will provide information which should improve effectiveness of support personnel. *Course Description:* Information is provided in the following topic areas: information on company history and how clerical staff contributes to profits; perception how it affects our capacity to operate; communications focus on transactional analysis as a communications tool; authority how developed, why and where used; motivation how to take the initiative in motivation; problem solving; time management how to set priorities; behavior modification including attitude and self-esteem.

A machine tool manufacturer

Appendix C
Sample and Methods

THE SURVEY OF corporate education and training programs was based on a mail questionnaire sent to a sample of 2,798 companies, selected as representative of all U.S. firms having at least 500 employees. There are estimated to have been 7,600 of such firms, employing about 32 million persons, or 52 percent of the 62.5 million who were in private nonagricultural employment, when the survey was conducted in the fall of 1975.

To ensure that companies of various sizes within each of the major industry types (2-digit SIC) were adequately represented in the sample, and yet to avoid excessive sampling, all firms in the target universe were grouped into 30 size-type cells. Randomly selected samples large enough to yield reasonably reliable data at anticipated response rates were taken from each cell – except for numerically smaller cells, in which all companies were included.

Survey Response

Following a May-June pretest, questionnaires were mailed to these companies on August 11, 1975. Six hundred and ten completed and usable questionnaires, or 22 percent of the total number mailed, were returned by mid-December when the survey was closed out. Table C.1 shows numbers of completed questionnaires relative to sample size and to estimates of the universe, by company size and type groupings.

To derive projections to the universe from the sample of 610 firms, completed questionnaires in each of the 30 cells were weighted – that is, multiplied by a factor that enlarged the cell and restored it to its true size in the universe. The 50,000-and-more employee category was combined with the one just below it to provide a more reliable sample base for the largest firms.

Table C.1: Survey Universe, Sample, and Response Rates

Company Size	*All Companies*	*Survey Sample*	*Returns*	
			Number	*% of Sample*
50,000 employees or more	83	83	23	24%
10,000 – 49,999	649	323	106	33
5,000 – 9,999	922	337	93	28
2,500 – 4,999	954	509	130	26
1,000 – 2,499	2,293	713	157	22
500 – 999	3,188	821	101	11
Company Type (and SIC)				
Manufacturing (19-39)	3,928	1,133	257	23%
Transportation, Communications, Utilities (40-49)	747	344	95	28
Wholesale and Retail (50-59)	1,058	522	52	10
Finance and Insurance (60-69)	944	441	160	36
Other	922	358	46	13

Table C.2: Company Size by Industry Type

Company Size	Manufacturing	Transportation-Communications-Utilities	Wholesale and Retail	Financial and Insurance	Other
10,000 employees or more	8%	10%	7%	9%	7%
5,000 – 9,999	7	7	7	8	7
2,500 – 4,999	12	17	13	14	9
1,000 – 2,499	30	32	30	31	30
500 – 999	43	34	43	38	47
Total	100%	100%	100%	100%	100%

In terms of the sizes of its constituent companies, each of the industry type categories is remarkably similar in makeup (see Table C.2).

Follow-up Survey

Underlying the weighting procedure used in this study is the assumption that the firms in each cell are typical and representative of all firms having the same size and type characteristics. To test its validity, a brief postcard questionnaire, which contained several questions that appeared in the original, was mailed to a sample of 471 firms that had not completed the original questionnaire. Two hundred and forty-two, just over half, responded. As the following comparisons show, the several kinds of activities that were measured tended to be less prevalent in the followup sample than in the original one. This is in line with expectations in survey research that those involved in activities under study are more likely to participate than those who are not. On the other hand, some or all of the differences between the two groups can probably be explained by differences in the incentives that very long and very short questionnaires provide to respondents to be attentive and thorough, as well as by sampling error (see Table C.3).

Data on Employee Participation

Most of the companies participating provided figures that they characterized (by checking a box) as "estimated" numbers of employees participating in various education and training activities. Some gave "actual" numbers; a small group reported that they could make no determination. Larger companies were somewhat more likely than smaller ones to give estimates rather than actual numbers. They were also less likely to give any figure: 90 percent of the smaller companies, for

Table C.3: Prevalence of Programs Reported in Original and Follow-up Sample Groups

Company Size	Outside Programs: After-hours (Tuition-aid) Original	Outside Programs: After-hours (Tuition-aid) Follow-up	Outside Programs: During Hours Original	Outside Programs: During Hours Follow-up
10,000 employees or more	96%	89%	90%	74%
5,000 – 9,999	97	87	82	69
2,500 – 4,999	92	89	81	63
1,000 – 2,499	94	71	80	62
500 – 999	86	75	67	56
Total	93%	82%	80%	66%
	In-House Programs			
10,000 employees or more	60%	63%	94%	83%
5,000 – 9,999	54	60	91	82
2,500 – 4,999	52	31	86	83
1,000 – 2,499	49	52	78	76
500 – 999	35	28	65	60
Total	51%	46%	85%	83%

Table C.4: Company Reports About Employee Participation in Major Course Programs

	After-hours Courses	During-hours Courses	
		Management-Supervisory	Functional-Technical
Reported Numbers of Employees Participating	88%	93%	85%
Actual	20	20	14
Estimated	68	73	71
Did Not Report Numbers of Employees Participating	12	7	15
Total	100%	100%	100%

example, and 60 percent of the largest provided figures for numbers of employees participating in functional course programs (see Table C.4).

Projections were made individually for each company-size category, then added. Assumptions were . . .

(1) That within each size category the number of employees in companies having a program of the type measured was, in the same proportion to the total number of employees as the number of the companies was to the total — that is, that companies with and without such programs had, on average, the same number of employees.

(2) That the percent of participating employees in those companies giving no number was the same as in companies giving estimates.

Appendix D

Additional Data on Company Expenditures

THE TABLES THAT follow, supplementing the analyses of reported company expenditures for education and training in Chapter 2, show dollars spent per employee within each of the sample cells (i.e., company size and type) for each of the program categories (tuition aid, other outside, internal), and in total.

Table D.1: Company Expenditures per Employee, Tuition Aid

Company Type (and SIC)	*Number of Companies*	*Average Expenditures*		*Highest Company Expenditures*
		Mean	*Median*	
		10,000 or more employees		
Manufacturing (19-39)	40	$ 4.96	$ 2.18	$50.00
Transportation, Communications, Utilities (40-49)	13	4.12	2.60	11.38
Wholesale and Retail (50-59)	6	4.31	.96	2.75
Finance and Insurance (60-69)	6	18.30	16.10	40.00
Other	7	2.40	1.59	7.51
		5,000-9,999 employees		
Manufacturing (19-39)	23	6.55	3.84	25.00
Transportation, Communications, Utilities (40-49)	10	9.34	8.79	18.52
Wholesale and Retail (50-59)	3	2.65	2.63	5.00
Finance and Insurance (60-69)	18	14.64	14.67	40.00
Other	2	11.60	11.60	22.50
		2,500-4,999 employees		
Manufacturing (19-39)	33	6.32	3.70	29.85
Transportation, Communications, Utilities (40-49)	13	9.13	5.21	46.15
Wholesale and Retail (50-59)	4	2.24	1.78	5.10
Finance and Insurance (60-69)	16	19.41	16.11	60.33
Other	4	9.74	6.81	25.23
		1,000-2,499 employees		
Manufacturing (19-39)	42	10.99	5.30	163.64
Transportation, Communications, Utilities (40-49)	26	5.63	2.25	57.14
Wholesale and Retail (50-59)	13	2.77	2.23	10.27
Finance and Insurance (60-69)	66	18.20	9.23	113.27
Other	13	7.22	3.33	22.15

Table D.1: Company Expenditures per Employee, Tuition Aid (continued)

Company Type (and SIC)	Number of Companies	Average Expenditures		Highest Company Expenditures
		Mean	Median	
		500-999 employees		
Manufacturing (19-39)	15	6.80	3.90	25.21
Transportation, Communications, Utilities (40-49)	12	7.13	2.25	57.14
Wholesale and Retail (50-59)	6	4.43	4.27	10.27
Finance and Insurance (60-69)	31	15.21	8.93	73.62
Other	4	3.33	3.67	4.86

Table D.2: Company Expenditures per Employee, Other Outside

Company Type (and SIC)	Number of Companies	Average Expenditures		Highest Company Expenditures
		Mean	Median	
		10,000 or more employees		
Manufacturing (19-39)	36	$ 3.50	$ 1.76	$25.00
Transportation, Communications, Utilities (40-49)	12	2.23	2.20	28.47
Wholesale and Retail (50-59)	4	.92	.36	2.75
Finance and Insurance (60-69)	4	5.60	6.33	12.50
Other	6	3.21	.98	9.08
		5,000-9,999 employees		
Manufacturing (19-39)	22	4.48	2.05	21.31
Transportation, Communications, Utilities (40-49)	10	4.67	1.19	18.52
Wholesale and Retail (50-59)	3	1.55	05	4.60
Finance and Insurance (60-69)	16	17.40	9.42	139.22
Other	2	3.80	3.80	6.43
		2,500-4,999 employees		
Manufacturing (19-39)	32	6.00	2.39	29.85
Transportation, Communications, Utilities (40-49)	12	2.83	.89	9.80
Wholesale and Retail (50-59)	4	2.09	1.37	5.10
Finance and Insurance (60-69)	14	11.55	8.99	31.03
Other	4	6.93	.80	26.13
		1,000-2,499 employees		
Manufacturing (19-39)	37	6.65	3.38	53.47
Transportation, Communications, Utilities (40-49)	23	8.41	3.93	60.05
Wholesale and Retail (50-59)	12	5.20	1.43	26.32
Finance and Insurance (60-69)	62	14.65	7.23	151.71
Other	12	15.88	2.54	63.50
		500-999 employees		
Manufacturing (19-39)	12	4.21	2.52	22.22
Transportation, Communications, Utilities (40-49)	10	13.33	6.82	60.05
Wholesale and Retail (50-59)	5	10.05	1.51	26.32
Finance and Insurance (60-69)	29	18.22	5.99	151.71
Other	4	14.23	7.47	41.95

Table D.3: Company Expenditures per Employee, Company (Internal)

Company Type (and SIC)	Number of Companies	Average Expenditures		Highest Company Expenditures
		Mean	Median	
		10,000 or more employees		
Manufacturing (19-39)	36	$47.00	$12.22	$750.00
Transportation, Communications, Utilities (40-49)	11	101.95	60.12	302.50
Wholesale and Retail (50-59)	5	18.84	19.00	27.47
Finance and Insurance (60-69)	4	75.24	70.50	106.71
Other	6	23.13	11.25	69.84
		5,000-9,999 employees		
Manufacturing (19-39)	20	35.50	11.47	264.90
Transportation, Communications, Utilities (40-49)	8	43.71	25.66	148.15
Wholesale and Retail (50-59)	3	5.66	1.20	15.79
Finance and Insurance (60-69)	16	89.25	45.22	431.37
Other	2	14.45	14.45	17.65
		2,500-4,999 employees		
Manufacturing (19-39)	28	9.06	5.92	54.40
Transportation, Communications, Utilities (40-49)	12	42.94	39.70	104.07
Wholesale and Retail (50-59)	3	7.19	6.25	10.20
Finance and Insurance (60-69)	17	28.13	27.27	65.21
Other	4	4.57	3.00	12.31
		1,000-2,499 employees		
Manufacturing (19-39)	35	9.67	1.57	113.70
Transportation, Communications, Utilities (40-49)	22	30.13	22.41	113.63
Wholesale and Retail (50-59)	12	14.69	3.28	62.89
Finance and Insurance (60-69)	58	24.10	12.61	119.59
Other	12	17.57	6.97	51.15
		500-999 employees		
Manufacturing (19-39)	13	2.80	.60	16.80
Transportation, Communications, Utilities (40-49)	9	25.74	23.45	71.42
Wholesale and Retail (50-59)	5	22.26	20.00	62.89
Finance and Insurance (60-69)	29	19.44	6.67	119.59
Other	4	14.93	6.97	45.78

Table D.4: Company Expenditures per Employee, Total

Company Type (and SIC)	Number of Companies	Average Expenditures		Highest Company Expenditures
		Mean	Median	
		10,000 or more employees		
Manufacturing (19-39)	30	$64.60	$19.30	$804.17
Transportation, Communications, Utilities (40-49)	10	89.20	64.32	288.93
Wholesale and Retail (50-59)	4	19.23	18.22	32.97
Finance and Insurance (60-69)	4	98.75	98.30	129.57
Other	6	27.89	16.57	79.36

Table D.4: Company Expenditures per Employee, Total (continued)

Company Type (and SIC)	Number of Companies	Average Expenditures		Highest Company Expenditures
		Mean	Median	
		5,000-9,999 employees		
Manufacturing (19-39)	20	44.89	24.00	268.38
Transportation, Communications, Utilities (40-49)	8	55.29	33.82	185.18
Wholesale and Retail (50-59)	3	9.87	10.80	16.42
Finance and Insurance (60-69)	15	102.14	68.52	588.23
Other	2	29.85	29.85	40.18
		2,500-4,999 employees		
Manufacturing (19-39)	27	19.91	13.10	67.16
Transportation, Communications, Utilities (40-49)	12	55.34	53.55	130.72
Wholesale and Retail (50-59)	4	9.67	7.47	20.41
Finance and Insurance (60-69)	14	56.16	65.87	100.80
Other	4	21.25	13.97	55.99
		1,000-2,499 employees		
Manufacturing (19-39)	34	22.97	11.08	173.00
Transportation, Communications, Utilities (40-49)	21	44.56	32.00	135.71
Wholesale and Retail (50-59)	12	22.30	15.71	65.03
Finance and Insurance (60-69)	58	59.91	46.38	222.83
Other	12	41.16	31.67	93.69
		500-999 employees		
Manufacturing (19-39)	11	10.23	9.09	25.33
Transportation, Communications, Utilities (40-49)	9	49.36	25.91	135.71
Wholesale and Retail (50-59)	5	36.20	31.64	65.03
Finance and Insurance (60-69)	29	57.96	31.69	222.83
Other	4	32.49	16.67	91.74

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