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This document presents self-perceived needs of managers and first line supervisors in the following Pennsylvania industries: chemical, rubber, and plastic products; banking; apparel, textile, and leather; construction; department stores; electrical machinery; fabricated metal products; insurance; machinery (except electrical); transportation equipment; gas and electrical utilities; petroleum refining; primary metals; professional, scientific, and controlling instruments; railroads; stone, clay, and glass products; telephone and telegraph; and transportation. Recommendations based on the information obtained through questionnaires are offered to the university, business and industry, individual managers and supervisors, and professional associations. (nl)

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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
BANKING INDUSTRY  
IN PENNSYLVANIA

M-63

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE BANKING INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 259 managers and supervisors from 24 Banks in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, seven were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 13 courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six of 54 listed courses in the area of general management and communication. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need five of the listed courses. (Page 8)

The educational level was good with 29 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

### First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for one out of 15 courses. (Page 20)

Twenty-four percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

### TOP MANAGEMENT

In the industrial category of Banks, 58 top managers from 24 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

### Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the area of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses with a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Long-range Planning and Forecasting for Corporate Growth. . .	72
Overall Strategy and Goals. . . . .	67
Communication in the Organization . . . . .	64
Management Development. . . . .	61
Impact of Computer Technology . . . . .	58
Effective Speaking. . . . .	58
Policy Formation. . . . .	52

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications. . . . .	94
Effective Speaking. . . . .	85
Effective Reading Skills. . . . .	82
Improving Decision Making of Managers . . . . .	78
Communication in the Organization . . . . .	73
Listening Skills. . . . .	70
Performance Appraisal and Counseling Techniques . . . . .	69
Working Effectively with Individuals and Groups . . . . .	66
Impact of Computer Technology . . . . .	63
Human Aspect of Management. . . . .	60
Fundamentals of Financial Reporting and Statement Analysis. . . . .	60
Management Development. . . . .	59
Management Reporting Systems. . . . .	55

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1  
GENERAL MANAGEMENT  
(N=57)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Long-range Planning and Forecasting for Corporate Growth . . . . .	72	95	28
Overall Strategy and Goals . . . . .	67	92	35
Impact of Computer Technology. . . . .	58	86	63
Policy Formation . . . . .	52	88	39
Management Reporting Systems . . . . .	38	78	55
Industrial Organization and Administration . . . . .	37	72	33
Effective Utilization of Manpower Resources and Allocation . . . . .	36	68	34
Improving Decision Making of Managers . . . . .	35	83	78
Managing Major Change in Organizations. . . . .	26	64	19
Management of Research and Development. . . . .	23	56	31
Impact of Science and Technology on Business Management . . . . .	23	55	30
Impact of Government Legislation and Controls on Business . . . . .	22	55	15
Ethical Considerations in Business . . . . .	21	59	35
Impact of Multinational Aspects of Planning and Control. . . . .	2	10	6



TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=55)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Communication in the Organization . . . . .	64	97	73
Working Effectively with Individuals and Groups . . . . .	49	85	66
Managerial Motivation . . . . .	44	83	48
Human Aspect of Management . . . . .	38	78	60
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	24	71	37
Creativity and Innovation . . . . .	23	52	33

TABLE 3

COMMUNICATIONS TECHNIQUES  
(N=55)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Speaking . . . . .	58	78	85
Effective Written Communications	46	84	94
Listening Skills . . . . .	42	78	70
Effective Reading Skills . . . . .	34	74	82

TABLE 4

ECONOMICS  
(N=53)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economic Trends . . . . .	45	71	30
Comparative Economic Systems . . . . .	15	47	19

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=47)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Statistical Decision Theory . . . . .	28	54	34
Survey Course on Quantitative Methods . . . . .	18	56	24

TABLE 6  
INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=52)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	61	81	59
Performance Appraisal and Counseling Techniques . . . . .	47	74	69
Incentives . . . . .	38	65	40
Criteria and Selection of Personnel . . . . .	33	68	49
Personnel Policy Affecting Wage and Salary Structure . . . . .	25	58	31
Personnel Policy Affecting Labor-Management Relations . . . . .	19	42	23
Personnel Policy Affecting Employment Practices . . . . .	19	40	21

TABLE 7  
FINANCIAL MANAGEMENT  
(N=53)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Fundamentals of Financial Reporting and Statement Analysis . . . . .	43	69	60
Financial Planning and Fore- casting . . . . .	41	63	27
Capital Budgeting . . . . .	33	56	27
Managerial Accounting and Budgeting . . . . .	31	72	39

TABLE 8  
MANUFACTURING AND PRODUCTION  
(N=46)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	9	24	13
Operations Planning and Control . . . . .	7	27	16
Operations Research Applied to Production . . . . .	0	16	14



TABLE 9

MARKETING  
(=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Marketing Research . . . . .	43	70	33
Production Planning. . . . .	18	36	27
Pricing. . . . .	14	41	11
Logistics Planning . . . . .	2	16	7

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=46)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . .	11	44	15
International Economic Analysis.	9	32	11

MIDDLE MANAGERS

In the industrial category of Banks, 89 middle managers from 24 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communications (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use, or Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development. . . . .	64
Working Efficiently with Individuals. . . . .	63
Supervisory Training and Employee Development . . . . .	59
Effective Communication in the Organization . . . . .	59
Performance Appraisal and Counseling Techniques . . . . .	51
Business Letter Writing . . . . .	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Business Letter Writing . . . . .	59
Working Efficiently with Individuals. . . . .	56
Supervisory Training and Employee Development . . . . .	54
Oral Presentation of Reports. . . . .	51
Listening Skills. . . . .	50

The tables following, 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Banking category.

TABLE 11

GENERAL MANAGEMENT  
(N=89)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Management Development . . . . .	64	93	37
Working Efficiently with Individuals. . . . .	63	93	56
Supervisory Training and Employee Development . . . . .	59	89	54
Performance Appraisal and Counseling Techniques. . . . .	51	84	41
Criteria and Selection of Personnel for Promotion. . . . .	45	81	32
Principles and Analysis of Office Systems . . . . .	33	69	25
Analyzing Organizational Behavior . . . . .	32	72	24
Impact of Computer Technology. . . . .	20	62	23
Long-range Planning and Fore- casting for Corporate Growth . . . . .	29	73	13
Impact of Government Legislation and Controls on Business . . . . .	21	69	17
The Application of Information Technology on Decision Making. . . . .	21	51	15
Effective Utilization of Man- power Resources and Allocation . . . . .	15	53	15
Impact of Science and Technology on Business Management . . . . .	8	33	11

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=83)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Human Aspect of Management . . . . .	34	76	27
Understanding Group Interaction and Behavior . . . . .	32	60	28
Management Psychology. . . . .	30	78	22
Creativity and Innovation. . . . .	19	49	18
Impact of Consumer Behavior on Management . . . . .	17	50	14
Industrial Sociology . . . . .	10	49	6
Social and Cultural Trends and Their Impact on Business Management . . . . .	10	46	11

TABLE 13

COMMUNICATION  
(N=83)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	59	87	48
Business Letter Writing . . . . .	50	89	59
Effective Reading Skills . . . . .	49	78	49
Effective Report Writing . . . . .	48	79	41
Oral Presentation of Reports . . . . .	46	87	51
Listening Skills . . . . .	37	77	50
Conference Leadership . . . . .	25	59	27

TABLE 14

ECONOMICS  
(N=81)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	36	74	17
Fundamentals of Economics . . . . .	33	64	26
The Economic Systems of the United States . . . . .	20	61	19
Economics of Production and Cost	9	36	11
Comparative Economic Systems . . . . .	8	43	14
The Price Mechanism . . . . .	8	42	9
International Economics . . . . .	4	31	11
Economics of Technology and Innovation . . . . .	1	31	6

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=82)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	27	75	21
Review of Basic Mathematics . . .	23	54	36
Statistical Decision Theory . . .	16	50	15
Replacement Management . . . . .	16	48	11
Statistical Procedures and Methods . . . . .	16	39	14
Applying Program Evaluation and Review Techniques (PERT) . . .	9	40	8
Waiting Lines . . . . .	8	18	3
Probability Theory . . . . .	4	20	6
Inventory Management . . . . .	4	16	4
Linear Programming . . . . .	3	14	5
Analytic Geometry . . . . .	3	14	3
Matrix Algebra . . . . .	3	7	1
Dynamic Programming . . . . .	1	18	5
Calculus of Infinite Series . . .	0	4	1
Calculus of Finite Differences .	0	3	1

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=79)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Data Systems and Processing . . .	37	79	36
Applying the Computer to Problems of Business and Management . . . . .	33	72	29
Fundamentals of Programming for Computer Operations . . . . .	19	59	29
Mathematics for Digital Computers . . . . .	8	33	13

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Job Analysis and Job Evaluation Methods . . . . .	42	81	13
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . . . .	40	68	13
In-plant Training . . . . .	37	68	20
Maintaining Efficient and Up-To- Date Personnel Records . . . . .	28	50	14
Salary and Wage Administration .	25	61	14
Employee Benefit Plans . . . . .	24	53	12
Management and Labor Relations .	9	23	3
Industrial Safety and Medical Services . . . . .	3	17	9

TABLE 18

FINANCIAL MANAGEMENT  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Financial Reporting and Statement Analysis . . . . .	53	94	31
Financial Planning and Fore- casting . . . . .	53	83	23
Taxes . . . . .	43	78	15
Budgets . . . . .	41	75	32
Managerial Accounting . . . . .	39	73	20
New Developments in Equipment Replacement Policy . . . . .	19	55	10

TABLE 19

**MANUFACTURING AND PRODUCTION  
(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Automation . . . . .	22	44	6
Methods Analysis and Work Simplification . . . . .	16	48	11
Value Analysis . . . . .	11	22	0
Quality Control . . . . .	7	7	7
Organization and Management of Purchasing Operations . . . . .	6	25	0
Materials Handling . . . . .	6	12	0
Production Planning and Control Management . . . . .	0	24	0
Engineering Economy . . . . .	0	18	0
Maintenance Planning and Control	0	7	0
Inventory Management . . . . .	0	6	0

TABLE 20

**MARKETING  
(N=21)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Marketing Research . . . . .	33	47	14
Fundamentals of Marketing . . . . .	15	45	15
Marketing Management . . . . .	11	50	17
Product Planning . . . . .	11	22	17
Fundamentals of Pricing . . . . .	11	17	11
Application of Management Science and Computers to Marketing Problems . . . . .	6	35	18
Physical Distribution Methods . . . . .	6	12	6

No managers reported any degree of need for two other courses for themselves or for those they supervise.



TABLE 21  
SALES MANAGEMENT  
(N=24)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Motivating Salesmen. . . . .	29	58	17
Training of Field Salesmen . . .	13	36	18
Supervision of Field Salesmen. .	14	33	14
Selection and Evaluation of Field Salesmen . . . . .	11	32	5
Compensation of Field Salesmen .	10	25	5

TABLE 22  
INTERNATIONAL MANAGEMENT  
(N=16)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Sources of Funds: Financing of Day-to-Day Transactions . .	13	51	6
Monetary Exchange Problems . . .	7	28	0
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade. . . . .	0	27	0
United States Foreign Economic Policy . . . . .	0	21	0
International Understanding. . .	0	20	0
International Economic Organizations. . . . .	0	13	0
Commercial Policy and Trade Control. . . . .	0	7	0
International Economic Analysis.	0	7	0

None of the managers indicated any degree of need for two other courses for themselves or for those they supervise.

TABLE 23  
RESEARCH AND DEVELOPMENT  
(N=16)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Supervision and Management of Research Services. . . . .	7	20	0
Guidelines for Selecting and Appraising New Projects. . . .	0	25	6
Building Research and Development Teams. . . . .	0	21	0
Evaluation of the Research and Development Programs . . . . .	0	14	14
Planning Budgeting and Control of Projects. . . . .	0	14	7

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-nine percent (N=35) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-seven percent (N=86) had completed high school, 30 percent (N=27) had the bachelor's degree, and two percent (N=2) had the master's degree. No one had the doctorate. Twenty-nine percent (N=26) went to business school and two percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration. . . . .	15	0
Law. . . . .	1	0
Liberal Arts . . . . .	9	1
Other (not specified). . . . .	2	1
Total . . . . .	27	2

The major areas of work for the middle managers in banks are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	35	42
Finance. . . . .	44	51
Marketing and Sales. . . . .	3	3
Purchasing and Procurement . . . . .	1	1
Service (yard and labor personnel, etc.). . . . .	1	1
Other (not specified). . . . .	2	2
Total . . . . .	86	100

## Methods of Updating

Seventy percent (N=60) of the middle managers would take a credit course and 78 percent (N=69) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the bachelor's degree. Ten planned to enroll: three for the associate degree, two for the bachelor's degree and five for the master's. Seven managers planned to study business administration, one law, one liberal arts, and two in other fields which were not specified.

Sixty-one percent had no plans for further degree work and their reasons are given below:

TABLE 26

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	14	26
Job demands no more education . . . . .	6	11
Cannot afford it. . . . .	5	9
Can do better on my own . . . . .	4	7
Not interested. . . . .	4	7
Live too far from educational center. . . . .	1	2
Not a high school graduate. . . . .	1	2
Other (not specified) . . . . .	19	36
Total. . . . .	54	100

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=89)

	<u>Number Managers</u>	<u>Percent Managers</u>
Attendance at regional or national meetings of professional societies . . . . .	49	55
Workshops or seminars on managerial topics. . . . .	46	52
Company in-service training courses . . . . .	33	37
Managerial development within company . . . . .	18	20
Correspondence courses. . . . .	15	17
Short refresher courses at colleges or universities. . . . .	13	15
Workshops or seminars in liberal arts or humanities. . . . .	4	4

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=87)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	59	34	6	1	0
In-plant reports and bulletins . .	51	27	6	6	10
Business reports . . . . .	50	40	7	2	1
Subordinate-superior discussions or meetings . . . . .	42	44	11	2	1
Lectures, conferences, workshops and seminars . . . . .	28	40	17	8	7
Management journals. . . . .	27	48	13	8	4
Professional society meetings. . .	26	29	30	13	2
Company in-service courses . . . .	19	24	13	26	18
Technical books, reports, abstracts and indexes. . . . .	16	33	23	24	4
Scientific and technical journals.	11	29	15	42	3
Manufacturer's literature. . . . .	9	24	37	29	1
Use of consultants . . . . .	6	23	29	37	5
College-university evening courses	3	10	10	67	10
College-university day courses . .	0	3	7	83	7

Middle managers responded to a listing of seven educational media other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=89)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction. . . . .	41	46
Correspondence courses. . . . .	33	37
Educational television. . . . .	26	29
Courses recorded on tapes . . . . .	11	12
Courses recorded on records . . . . .	10	11
Two-way telephone courses . . . . .	5	6
Two-way radio courses . . . . .	2	2
Other (not specified) . . . . .	4	4

Company Attitudes Toward Education

Of the 83 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 61 percent (N=51) said the superior encouraged them and 37 percent (N=31) said the superior was noncommittal. One person said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=34)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend professional meetings . . . . .	92	7	0	1
Hold office in professional societies. . . . .	87	12	0	1
Attend company training courses. . . . .	87	4	0	9
Attend workshops or seminars away from the company. . .	86	10	0	4
Enroll for advanced work . .	77	16	0	7
Write technical and professional papers. . . .	41	29	0	30
Educational leave of absence	16	23	8	53

Sixty-one percent of the middle managers were employed by companies which provided in-service training; 34 percent were not, and five percent did not know. Forty-one percent said the training was entirely on company time, 31 percent said it was partly on company time, 15 percent said it was not on company time, and 13 percent did not know.

Eighty-four percent reported that their company had an educational assistance plan. Fifteen percent said it did not and one percent did not know. Fifty-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	56
About 3/4 . . . . .	2
About 2/3 . . . . .	0
About 1/2 . . . . .	1
About 1/3 . . . . .	1
Less than 1/3 . . . . .	2
Don't know. . . . .	4
 Total. . . . .	 66

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	21
251 - 300 . . . . .	2
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	1
51 - 100 . . . . .	3
50 or less . . . . .	8
Don't know. . . . .	31
 Total . . . . .	 66



When asked about the effect of available company educational assistance in motivating them to undertake further education, 52 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 22 percent said it had no effect. There is an inconsistency here: while 77 percent said the availability of aid motivated them to some extent, only one person was actually enrolled and ten were planning to enroll.

#### FIRST-LINE SUPERVISION

In the industrial category of Banks, 112 first-line supervisors from 24 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

#### Educational Needs

The 112 first-line supervisors in the category of Banks were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The one course rated "Should Have" by 50 percent or more of the supervisors was Fundamentals of the Supervisor's Job, 58 percent.

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=110)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . .	64	58	99	90
Decision Making. . . . .	51	48	88	83
The Tools and Techniques of Effective Supervision. . . . .	51	47	84	78
Supervisor's Role in Employee Discipline .	44	42	85	81
Inter-Departmental Cooperation . . . . .	36	34	82	78
Supervisor's Role in Company Economics . .	30	29	78	75
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . .	45	42	87	81
Employee Training. . . . .	41	39	73	69
Safety . . . . .	7	7	29	29
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . .	10	10	41	40
Labor Relations Legislation. . . . .	2	2	13	13
Labor Relations. . . . .	1	1	11	11
<u>Developing Those We Supervise</u>				
Human Aspect of Management . . . . .	50	47	90	84
Leadership . . . . .	49	45	88	81
Communications . . . . .	39	38	77	75
Developing the Work Team . . . . .	38	36	73	69

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Sixty-two percent (N=69) of the first-line supervisors were 40 years of age or younger. Ninety-six percent (N=107) were high school graduates, and 24 percent (N=27) had the bachelor's degree. One person had the master's degree and one had the doctorate. Twenty percent (N=22) had gone to business school and four percent (N=4) to trade school. The major fields of study are indicated in the following table.

TABLE 34  
MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>	<u>Number Doctor's</u>
Agriculture . . . . .	1	0	0
Business Administration . .	16	0	0
Education . . . . .	1	0	0
Liberal Arts . . . . .	6	1	1
Other (not specified) . . . .	3	0	0
 Total . . . . .	 27	 1	 1

The major areas of work for the first-line supervisors in Banks are shown in the following table:

TABLE 35  
MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	33	31
Finance . . . . .	59	56
Maintenance . . . . .	1	1
Marketing and Sales . . . . .	1	1
Production Control --		
Records . . . . .	3	3
Purchasing and Procurement.	2	2
Other (not specified) . . . .	6	6
 Total . . . . .	 105	 100

Methods of Updating

Sixty-six percent (N=71) of the first-line supervisors would take a credit course and 73 percent (N=81) would take a non-credit course if they were offered locally.

Six of the supervisors were currently enrolled in a degree program, five for the bachelor's degree and one for the doctorate. Seven planned to enroll, two for the associate degree, four for the bachelor's and one for the master's. The major fields of study preferred were: 11 in business administration and one in liberal arts.

For the 80 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

## REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	26	33
Cannot afford it. . . . .	17	21
Job demands no more education . . . . .	11	14
Not interested. . . . .	5	6
Not a high school graduate. . . . .	4	5
Live too far from educational center. . . . .	4	5
Can do better on my own . . . . .	1	1
Other (not specified) . . . . .	12	15
Total. . . . .	80	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=111)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Attendance at regional or national meetings of professional societies. . . . .	42	38
Company in-service training courses . . . . .	40	36
Workshops or seminars on managerial topics. . . . .	40	36
Correspondence courses. . . . .	22	20
Short refresher courses at colleges or universities. . . . .	15	14
Managerial development within company . . . . .	13	12
Workshops or seminars in liberal arts or humanities. . . . .	6	5
High school courses to improve job performance . . . . .	5	5

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING  
(N=104)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussions with company personnel (informal or formal) . . . . .	53	37	5	2	3
In-plant reports and bulletins . . . . .	42	30	10	10	8
Subordinate-superior discussions or meetings . . . . .	34	42	18	3	3
Lectures, conferences, workshops, and seminars . . . . .	27	37	17	11	8
Business reports . . . . .	24	52	10	11	3
Management journals . . . . .	23	37	19	13	8
Company in-service courses . . . . .	17	29	15	19	20
Professional society meetings . . . . .	13	38	9	35	5
Manufacturer's literature . . . . .	13	14	24	46	3
College-university evening courses . . . . .	13	8	7	59	12
Use of consultants . . . . .	10	18	23	42	7
Technical books, reports, abstracts, and indexes . . . . .	9	26	30	33	2
Scientific and technical journals . . . . .	7	16	24	51	2
College-university day courses . . . . .	1	2	2	89	6

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=111)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Programmed instruction . . . . .	61	55
Correspondence courses . . . . .	60	54
Educational television . . . . .	32	29
Courses recorded on records . . . . .	26	23
Courses recorded on tapes . . . . .	20	18
Two-way telephone courses . . . . .	11	10
Two-way radio courses . . . . .	6	5
Other (not specified) . . . . .	6	5

## Company Attitudes Toward Education

A total of 104 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Sixty-seven percent (N=70) said the superior encouraged them; 32 percent said he was noncommittal; and one individual said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

### SUPERVISORS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT (N=105)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses . . . . .	94	3	0	3
Attend professional meetings . . . . .	87	4	0	9
Hold office in professional societies . . . . .	87	5	0	8
Attend seminars or workshops away from the company . . . . .	83	5	2	10
Enroll for advanced work	68	12	3	17
Write technical and professional papers . . . . .	39	15	2	44
Educational leave of absence	19	11	10	60

Sixty-four percent of the supervisors were employed by companies which provided in-service training; 30 percent said their company did not provide it and six percent did not know. Twenty-nine percent said the training was completely on company time, 23 percent said it was partly on company time, 33 percent said it was entirely on the men's own time, and 15 percent did not know.

Seventy-five percent reported that their company had an educational assistance plan; 18 percent said it did not, and six percent did not know. Fifty-five percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	63
About 3/4. . . . .	8
About 2/3. . . . .	0
About 1/2. . . . .	0
About 1/3. . . . .	1
Less than 1/3. . . . .	1
Don't know . . . . .	2
 Total . . . . .	 75

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	18
251 - 300. . . . .	1
201 - 250. . . . .	0
151 - 200. . . . .	1
101 - 150. . . . .	0
51 - 100. . . . .	7
50 or less. . . . .	6
Don't know . . . . .	40
 Total . . . . .	 73



When asked what the effect of available financial assistance was on their motivation to undertake further education, 53 percent of the supervisors said it strongly encouraged them, 30 percent said it partially influenced them, and 17 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 83 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only six of the 111 respondents were actually enrolled and seven were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN BANKS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Banks as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Banks</u> N=58	<u>Total</u> <u>Report</u> N=705
Long-range Planning and Forecasting for		
Corporate Growth . . . . .	72	50
Overall Strategy and Goals . . . . .	67	50
Communication in the Organization. . . . .	64	59
Management Development . . . . .	61	53
Effective Speaking . . . . .	58	50
Impact of Computer Technology. . . . .	58	*
Policy Formation . . . . .	52	*
Effective Written Communications . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Banks</u> N=58	<u>Total Report</u> N=705
Effective Written Communications . . . . .	94	74
Effective Speaking . . . . .	85	67
Effective Reading Skills . . . . .	82	62
Improving Decision Making of Managers. . . . .	78	54
Communication in the Organization. . . . .	73	65
Listening Skills . . . . .	70	62
Performance Appraisal and Counseling Techniques. . . . .	69	57
Working Effectively with Individuals and Groups. . . . .	66	66
Impact of Computer Technology. . . . .	63	*
Human Aspect of Management . . . . .	60	54
Fundamentals of Financial Reporting and Statement Analysis . . . . .	60	*
Management Development . . . . .	59	56
Management Reporting Systems . . . . .	55	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, fifty percent or more of the middle managers in Banks and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	Percent	
	<u>Banks</u> N=89	<u>Total Report</u> N=1,202
Management Development . . . . .	64	66
Working Efficiently with Individuals . . . . .	63	65
Effective Communication in the Organization. . . . .	59	64
Supervisory Training and Employee Development. . . . .	59	53
Performance Appraisal and Counseling Techniques. . . . .	51	*
Business Letter Writing. . . . .	50	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Banks</u> N=89	<u>Total Report</u> N=1,202
Business Letter Writing. . . . .	59	*
Working Efficiently with Individuals . . . . .	56	62
Supervisory Training and Employee Development. . . . .	54	61
Oral Presentation of Reports . . . . .	51	*
Listening Skills . . . . .	50	50
Effective Communication in the Organization. . . . .	*	56

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u>	
	Percent	
	<u>Banks</u> N=112	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	58	64
Leadership . . . . .	*	57
The Tools and Techniques of Effective Supervision. . . . .	*	55
Decision Making. . . . .	*	54
Human Aspect of Management . . . . .	*	53
Communications . . . . .	*	51

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership - was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent methods of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining



**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE CHEMICAL,  
RUBBER, AND PLASTIC PRODUCTS INDUSTRY  
IN PENNSYLVANIA

UNIVERSITY MICROFILMS  
SERIALS ACQUISITION  
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ANN ARBOR MI 48106

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE CHEMICAL,  
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IN PENNSYLVANIA

M-64

Samuel S. Dubin, Ph.D.

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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE CHEMICAL, RUBBER, AND PLASTIC PRODUCTS INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 216 managers and supervisors from 13 companies in the Chemical, Rubber, and Plastic Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

## SUMMARY

### Top Management

Of 48 courses listed, only one was checked by 50 percent or more of top managers as "Should Have". (Page 3) However, nine other courses were said to be needed by between 40 and 50 percent. (Page 4-6)

For those they supervise, 50 percent or more of top managers said ten courses were needed. (Page 3)

### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need in areas of general management, behavioral science and management, and communication for six of 54 listed courses. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need five of the listed courses. (Page 8)

The educational level was high, with 66 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-19)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for eight of 16 courses. (Page 21)

Eighteen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the industrial category of Chemical, Rubber, and Plastic Products, 30 top managers from 13 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The only course for which top management indicated a "Should Have" need of 50 percent or more was Management of Research and Development, at 54 percent.

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications . . . . .	73
Communication in the Organization. . . . .	70
Performance Appraisal and Counseling Techniques. . . . .	69
Management Development . . . . .	62
Creativity and Innovation. . . . .	60
Effective Speaking . . . . .	59
Improving Decision Making of Managers. . . . .	58
Working Effectively with Individuals and Groups. . . . .	58
Listening Skills . . . . .	52
Human Aspect of Management . . . . .	50



Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management of Research and Development . . . . .	54	69	35
Industrial Organization and Administration . . . . .	48	92	37
Improving Decision Making of Managers . . . . .	46	85	58
Impact of Computer Technology . . . . .	46	67	29
Overall Strategy and Goals . . . . .	44	74	15
Long-range Planning and Forecasting for Corporate Growth . . . . .	38	86	10
Policy Formation . . . . .	38	80	23
Management Reporting Systems . . . . .	35	77	46
Effective Utilization of Manpower Resources and Allocation . . . . .	35	66	38
Managing Major Change in Organizations . . . . .	27	65	19
Impact of Science and Technology on Business Management . . . . .	19	73	12
Impact of Government Legislation and Controls on Business . . . . .	17	59	4
Ethical Considerations in Business . . . . .	15	42	15
Impact of Multinational Aspects of Planning and Control . . . . .	15	27	8

TABLE 2  
BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	44	81	70
Managerial Motivation . . . . .	42	80	27
Creativity and Innovation . . . . .	32	72	60
Working Effectively with Individuals and Groups . . . . .	31	69	58
Human Aspect of Management . . . . .	14	78	50
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	12	28	8

TABLE 3  
COMMUNICATIONS TECHNIQUES  
(N=27)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Speaking . . . . .	41	78	59
Listening Skills . . . . .	41	74	52
Effective Reading Skills . . . . .	38	69	46
Effective Written Communications . . . . .	35	73	73

TABLE 4  
ECONOMICS  
(N=25)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economic Trends . . . . .	12	40	8
Comparative Economic Systems . . . . .		21	0

TABLE 5  
 QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
 (N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	19	57	8
Statistical Decision Theory. . . . .	12	44	20

TABLE 6  
 INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
 (N=27)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	42	80	62
Incentives . . . . .	37	81	22
Criteria and Selection of Personnel. . . . .	32	60	36
Performance Appraisal and Counseling Techniques. . . . .	31	85	69
Personnel Policy Affecting Labor-Management Relations . . . . .	22	57	39
Personnel Policy Affecting Wage and Salary Structure. . . . .	21	75	42
Personnel Policy Affecting Employment Practices . . . . .	17	55	46

TABLE 7  
 FINANCIAL MANAGEMENT  
 (N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Capital Budgeting. . . . .	36	60	20
Managerial Accounting and Budgeting. . . . .	35	70	31
Fundamentals of Financial Reporting and Statement Analysis . . . . .	31	73	23
Financial Planning and Forecasting. . . . .	27	54	15



TABLE 8

MANUFACTURING AND PRODUCTION  
(N=25)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Operations Research Applied to Production. . . . .	22	52	22
Operations Planning and Control. . . . .	21	67	33
Planning and Utilization of Physical Facilities. . . . .	20	68	32

TABLE 9

MARKETING  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Logistics Planning . . . . .	30	56	26
Product Planning . . . . .	28	68	16
Pricing. . . . .	27	62	23
Marketing Research . . . . .	13	42	13

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
International Understanding. . . . .	12	20	8
International Economic Analysis . . . . .	8	16	4

## MIDDLE MANAGEMENT

In the industrial category of Chemical, Rubber, and Plastic Products, 61 middle managers from 13 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

## Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Working Efficiently with Individuals. . . . .	64
Management Development. . . . .	63
Effective Communication in the Organization . . . . .	58
Performance Appraisal and Counseling Techniques . . . . .	53
Creativity and Innovation . . . . .	52
Criteria and Selection of Personnel for Promotion . . . . .	51

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Working Efficiently with Individuals. . . . .	78
Effective Communication in the Organization . . . . .	64
Supervisory Training and Employee Development . . . . .	64
Listening Skills. . . . .	56
Performance Appraisal and Counseling Techniques . . . . .	52

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Chemical, Rubber, and Plastic Products category.

TABLE 11

GENERAL MANAGEMENT  
(N=59)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Working Efficiently with Individuals . . . . .	64	98	78
Management Development . . . . .	63	98	49
Performance Appraisal and Counseling Techniques . . . . .	53	96	52
Criteria and Selection of Personnel for Promotion . . . . .	51	90	49
Supervisory Training and Employee Development . . . . .	49	88	64
Analyzing Organizational Behavior . . . . .	22	76	25
Effective Utilization of Man- power Resources and Allocation . . . . .	22	64	31
Principles and Analysis of Office Systems . . . . .	19	59	23
Impact of Science and Techno- logy on Business Management . . . . .	16	69	12
Long-range Planning and Fore- casting for Corporate Growth . . . . .	14	40	10
Impact of Government Legis- lation and Controls on Business . . . . .	11	41	14
The Application of Infor- mation Technology on Decision Making . . . . .	9	54	16
Impact of Computer Technology . . . . .	3	48	9

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=58)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Creativity and Innovation . . . . .	52	95	43
Understanding Group Inter- action and Behavior . . . . .	38	86	43
Human Aspect of Management . . . . .	37	81	47
Management Psychology . . . . .	23	81	28
Industrial Sociology . . . . .	11	60	12
Impact of Consumer Behavior on Management . . . . .	7	32	4
Social and Cultural Trends and Their Impact on Business Management . . . . .	5	33	12

TABLE 13

COMMUNICATION  
(N=59)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	58	92	64
Oral Presentation of Reports . . . . .	43	90	48
Effective Report Writing . . . . .	41	75	41
Listening Skills . . . . .	40	91	56
Effective Reading Skills . . . . .	39	83	39
Conference Leadership. . . . .	37	77	35
Business Letter Writing. . . . .	33	69	28

TABLE 14

ECONOMICS  
(N=56)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	22	67	20
The Price Mechanism. . . . .	9	49	5
Fundamentals of Economics. . . . .	7	48	21
Economics of Technology and Innovation . . . . .	4	39	11
Economic Trends. . . . .	4	37	7
The Economic Systems of the United States. . . . .	4	26	4
Comparative Economic Systems . . . . .	2	18	5
International Economics. . . . .	0	13	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=56)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Replacement Management . . . . .	18	62	7
Improving Decision Making of Managers . . . . .	16	71	13
Review of Basic Mathematics. . . . .	16	39	34
Statistical Procedures and Methods. . . . .	15	46	9
Inventory Management . . . . .	14	55	13
Statistical Decision Theory. . . . .	7	51	4
Applying Program Evaluation and Review Techniques (PERT)	7	38	7
Analytic Geometry. . . . .	5	14	5
Calculus of Infinite Series. . . . .	5	9	2
Linear Programming . . . . .	4	28	5
Probability Theory . . . . .	2	27	7
Waiting Lines. . . . .	2	20	4
Dynamic Programming. . . . .	2	17	5
Calculus of Finite Differences	2	9	2
Matrix Algebra . . . . .	2	6	2

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=54)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Data Systems and Processing. . . . .	11	44	11
Applying the Computer to Problems of Business and Management . . . . .	9	42	11
Fundamentals of Programming for Computer Operations. . . . .	6	36	7
Mathematics for Digital Computers. . . . .	6	23	6

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Management and Labor			
Relations . . . . .	41	68	18
In-plant Training . . . . .	37	69	37
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . . .	35	70	19
Job Analysis and Job Evaluation Methods . . . . .	33	71	29
Salary and Wage Administration	29	58	10
Industrial Safety and Medical Services . . . . .	27	68	14
Maintaining Efficient and Up- To-Date Personnel Records . .	27	50	23
Employee Benefit Plans . . . .	17	50	17

TABLE 18

FINANCIAL MANAGEMENT  
(N=16)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Financial Planning and			
Forecasting . . . . .	19	50	6
Budgets . . . . .	14	50	21
Taxes . . . . .	13	40	0
Managerial Accounting . . . . .	13	33	7
New Developments in Equipment Replacement Policy . . . . .	7	43	7
Fundamentals of Financial Reporting and Statement Analysis . . . . .	7	20	0



TABLE 19

MANUFACTURING AND PRODUCTION  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Maintenance Planning and Control . . . . .	37	72	47
Automation . . . . .	36	76	26
Value Analysis . . . . .	33	82	26
Methods Analysis and Work Simplification . . . . .	29	90	49
Materials Handling . . . . .	26	77	40
Production Planning and Control Management . . . . .	23	78	23
Quality Control . . . . .	22	68	32
Engineering Economy . . . . .	17	66	12
Organization and Management of Purchasing Operations . . . . .	13	46	10
Inventory Management . . . . .	10	63	20

TABLE 20

MARKETING  
(N=10)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Packaging Design and Development . . . . .	20	40	20
Fundamentals of Pricing . . . . .	11	44	11
Product Planning . . . . .	10	40	0
Physical Distribution Methods . . . . .	10	30	10
Marketing Management . . . . .	0	44	0
Fundamentals of Marketing . . . . .	0	33	0
Marketing Research . . . . .	0	33	0
Application of Management Science and Computers to Marketing Problems . . . . .	0	25	0
Brand Marketing . . . . .	0	11	0

TABLE 21

SALES MANAGEMENT  
(N=9)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Training of Field Salesmen . . .	0	25	0
Motivating Salesmen. . . . .	0	22	0
Compensation of Field Salesmen . . . . .	0	22	0
Selection and Evaluation of Field Salesmen . . . . .	0	22	0
Supervision of Field Salesmen. .	0	13	0

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=9)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Commercial Policy and Trade Control. . . . .	22	33	11
Sources of Funds: Financing of Day-To-Day Transactions. . .	22	33	11
International Understanding. . .	11	33	0
Monetary Exchange Problems . .	11	22	0
United States Foreign Economic Policy. . . . .	11	22	0
International Economic Analysis . . . . .	11	22	0
International Law. . . . .	0	25	0
International Economic Organizations. . . . .	0	25	0
Appraising and Developing Foreign Markets. . . . .	0	25	0
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade . . . . .	0	13	0

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Evaluation of the Research and Development Programs . . .	43	72	21
Supervision and Management of Research Services . . . . .	38	61	8
Guidelines for Selecting and Appraising New Projects. . . . .	29	72	21
Building Research and Development Teams. . . . .	27	67	0
Planning Budgeting and Control of Projects. . . . .	21	64	7

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=25) of the 61 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-three percent (N=56) had completed high school, 66 percent (N=40) had the bachelor's degree, and 13 percent (N=8) had the master's degree. One person had the doctorate. Eleven percent (N=7) went to business school and seven percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number</u> <u>Bachelor's</u>	<u>Number</u> <u>Master's</u>	<u>Number</u> <u>Doctor's</u>
Agriculture . . . . .	1	0	0
Business Administration . . . . .	5	2	0
Education . . . . .	1	1	0
Engineering . . . . .	24	1	0
Liberal Arts. . . . .	1	0	0
Mineral Industries. . . . .	1	1	0
Psychology. . . . .	7	3	1
Total. . . . .	40	8	1

The major areas of work for the middle managers in the Chemical, Rubber, and Plastic Products industry are shown below:

TABLE 25  
MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration. . . . .	9	15
Engineering . . . . .	6	10
Finance . . . . .	2	3
Industrial Relations. . . . .	3	5
Maintenance . . . . .	3	5
Manufacturing . . . . .	25	40
Production Control — Records . . . . .	2	3
Purchasing and Procurement. . . . .	1	2
Research and Development. . . . .	6	10
Service (yard and labor personnel, etc.) . . . . .	1	2
Traffic and Transportation. . . . .	1	2
Other (not specified) . . . . .	2	3
<b>Total. . . . .</b>	<b>61</b>	<b>100</b>

**Methods of Updating**

Sixty-six percent (N=40) of the middle managers would take a credit course and 82 percent (N=50) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the associate degree, and one for the master's. One was studying business administration. No one was planning to enroll.

Eighty-nine percent had no plans for further degree work and their reasons follow:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	18	33
Live too far from educational center. . . . .	10	19
Job demands no more education . . . . .	7	13
Not interested. . . . .	5	9
Cannot afford it. . . . .	4	7
Can do better on my own . . . . .	3	6
Not a high school graduate. . . . .	2	4
Other (not specified) . . . . .	5	9
 Total. . . . .	 54	 100

The variety of educational methods used by middle managers for updating within the past four years is shown below:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=61)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics. . . . .	30	49
Attendance at regional or national meetings of professional societies. . . . .	28	46
Company in-service training courses . . . . .	13	21
Managerial development within company . . . . .	10	16
Short refresher courses at colleges or universities . . . . .	9	15
Correspondence courses. . . . .	7	11
Television courses. . . . .	2	3
Workshops or seminars in liberal arts or humanities . . . . .	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=60)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	70	27	3	0	0
In-plant reports and bulletins . . .	64	29	3	2	2
Subordinate-superior discussions or meetings . . . . .	54	36	10	0	0
Manufacturer's literature . . . . .	28	35	30	5	2
Scientific and technical journals . .	21	32	28	16	3
Management journals . . . . .	19	51	20	5	5
Business reports . . . . .	17	34	33	13	3
Technical books, reports, abstracts, and indexes . . . . .	17	34	34	12	3
Lectures, conferences, workshops, and seminars . . . . .	17	30	29	14	10
Professional society meetings . . . .	10	24	28	35	3
Company in-service courses . . . . .	4	25	25	23	23
College and university evening courses . . . . .	3	14	17	56	10
Use of consultants . . . . .	2	14	25	57	2
College and university day courses . . . . .	0	5	3	90	2

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:



TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=61)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction. . . . .	30	49
Educational television. . . . .	24	39
Correspondence courses. . . . .	23	38
Courses recorded on tapes . . . . .	7	11
Two-way telephone courses . . . . .	7	11
Courses recorded on records . . . . .	6	10
Two-way radio courses . . . . .	5	8
Other (not specified) . . . . .	3	5

Company Attitudes Toward Education

Of the 59 managers responding to a question on the attitude of their immediate superior toward continuing their education, 39 percent (N=23) said the superior encouraged them and 61 percent (N=36) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities. (Table 30)

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=60)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	77	4	2	17
Attend professional meetings . . . . .	65	28	2	5
Enroll for advanced work . . . . .	61	28	0	11
Hold office in professional societies. . . . .	57	29	0	14
Attend seminars or workshops away from the company. . . . .	55	23	4	18
Write technical and professional papers. . . . .	54	16	2	28
Educational leave of absence. . . . .	7	18	17	58

Forty-three percent of the middle managers indicated that they were employed by companies which provided in-service training; 52 percent were not, and five percent did not know. Twenty-nine percent said the training was entirely on company time, 42 percent said it was partly on company time, nine percent said it was not on company time, and 20 percent did not know.

Seventy-four percent reported that their company had an educational assistance plan. Twenty-three percent said it did not and three percent did not know. Fifty-eight percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 45 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	13
About 3/4 . . . . .	5
About 2/3 . . . . .	10
About 1/2 . . . . .	13
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	4
 Total. . . . .	 45

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	13
251 - 300 . . . . .	0
201 - 250 . . . . .	0
151 - 200 . . . . .	7
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	25
 Total. . . . .	 45

When asked about the effect of available company educational assistance in motivating them to undertake further education, 11 percent of the middle managers said it had strongly encouraged them, 41 percent said it had partially influenced them, and 48 percent said it had no effect. There is an inconsistency here: while 52 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and no one was planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

#### FIRST-LINE SUPERVISION

In the industrial category of Chemical, Rubber, and Plastic Products, 125 first-line supervisors from 13 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

#### Educational Needs

The 125 first-line supervisors in the category of Chemical, Rubber, and Plastic Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Leadership. . . . .	66
Fundamentals of the Supervisor's Job. . . . .	64
Safety. . . . .	61
Decision Making . . . . .	56
The Tools and Techniques of Effective Supervision . . . . .	56
Human Aspect of Management. . . . .	55
Communications. . . . .	50
Supervisor's Role in Employee Discipline. . . . .	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=125)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisors Job . . .	80	64	116	93
The Tools and Techniques of Effective Supervision . . . . .	68	56	108	89
Decision Making . . . . .	67	56	102	85
Supervisor's Role in Employee Discipline.	60	50	103	86
Supervisor's Role in Company Economics. .	55	46	101	84
Inter-Departmental Cooperation. . . . .	52	44	101	86
<u>Employee Training and Evaluation</u>				
Safety. . . . .	70	61	102	89
Evaluation of Employee Performance. . . .	50	42	98	82
Employee Training . . . . .	48	40	94	78
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration . . .	53	44	94	78
Labor Relations . . . . .	48	41	79	67
Labor Relations Legislation . . . . .	26	22	58	50
<u>Developing Those We Supervise</u>				
Leadership. . . . .	80	66	108	89
Human Aspect of Management. . . . .	67	55	108	89
Communications. . . . .	59	50	104	88
Developing the Work Team. . . . .	45	39	89	77

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Thirty-seven percent (N=46) of the first-line supervisors were 40 years of age or younger. Seventy-five percent (N=92) were high school graduates, 18 percent (N=22) had the bachelor's degree, and three percent (N=4) had the master's degree; no one had the doctorate. Two percent (N=2) had gone to business school and 14 percent (N=18) to trade school. The major fields of study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Agriculture . . . . .	1	0
Architecture . . . . .	1	0
Business Administration . . . . .	3	0
Education . . . . .	2	1
Engineering . . . . .	11	0
Law . . . . .	0	1
Liberal Arts . . . . .	1	0
Psychology . . . . .	3	1
Other (not specified) . . . . .	0	1
<b>Total . . . . .</b>	<b>22</b>	<b>4</b>

Below is a listing of the major areas of work for the first-line supervisors in the Chemical, Rubber, and Plastic Products industry:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	3	2
Engineering . . . . .	5	4
Industrial Relations . . . . .	1	1
Maintenance . . . . .	17	14
Manufacturing . . . . .	69	57
Production Control -- Records . . . . .	10	8
Purchasing and Procurement . . . . .	1	1
Research and Development . . . . .	4	3
Service (yard and labor personnel, etc.) . . . . .	3	2
Traffic and Transportation . . . . .	5	4
Other (not specified) . . . . .	5	4
<b>Total . . . . .</b>	<b>123</b>	<b>100</b>



Methods of Updating

Forty-four percent (N=53) of the first-line supervisors would take a credit course and 68 percent (N=83) would take a non-credit course if they were offered locally.

Two of the supervisors were enrolled for a degree: one for the associate degree and one for the master's. One was planning to enroll for the bachelor's degree and four for the master's. Of those enrolled or planning to enroll, the major field of study was business administration for five, engineering for one, and psychology for one.

For the 82 percent (N=103) of the supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Cannot afford it . . . . .	23	22
Not a high school graduate . . . . .	21	20
Don't have the time. . . . .	18	17
Not interested . . . . .	12	12
Live too far from educational center .	8	8
Job demands no more education. . . . .	8	8
Can do better on my own. . . . .	2	2
Other (not specified). . . . .	11	11
<b>Total . . . . .</b>	<b>103</b>	<b>100</b>

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=125)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses. .	39	31
Managerial development within company.	36	29
Workshops or seminars on managerial topics . . . . .	29	23
Correspondence courses . . . . .	13	10
Attendance at regional or national meetings of professional societies .	12	10
Short refresher courses at colleges or universities. . . . .	6	5
High school courses to improve job performance. . . . .	3	2
Television courses . . . . .	2	2



The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38  
SOURCES OF INFORMATION USED IN UPDATING  
(N=107)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins. . .	57	33	3	2	5
Discussion with company personnel (informal or formal). . . . .	50	36	8	0	6
Subordinate-superior discussions or meetings . . . . .	34	51	6	2	7
Manufacturer's literature . . . . .	23	36	16	14	11
Management journals . . . . .	21	39	12	17	11
Company in-service courses. . . . .	13	25	13	18	31
Technical books, reports, abstracts and indexes . . . . .	12	30	20	24	14
Scientific and technical journals Lectures, conferences, workshops, and seminars. . . . .	11	30	20	28	11
Business reports. . . . .	9	35	17	20	19
Use of consultants. . . . .	6	28	24	37	5
College and university evening courses . . . . .	5	19	20	44	12
Professional society meetings . . .	3	8	7	73	9
College and university day courses . . . . .	1	15	13	67	4
College and university day courses . . . . .	0	0	2	96	2

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=125)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	66	53
Programmed instruction . . . . .	49	39
Educational television . . . . .	30	24
Courses recorded on records. . . . .	22	18
Courses recorded on tapes. . . . .	22	18
Two-way telephone courses. . . . .	12	10
Two-way radio courses. . . . .	11	9
Other (not specified). . . . .	4	3

Company Attitudes Toward Education

A total of 122 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Thirty-nine percent (N=47) said the superior encouraged them; 59 percent (N=72) said he was noncommittal; and two percent (N=3) said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in Table 40. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=111)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses . . . . .	69	10	1	20
Attend professional meetings. . . . .	63	13	3	21
Enroll for advanced work. . . . .	62	13	4	21
Attend seminars or workshops away from the company . . . . .	46	14	2	38
Hold office in professional societies . . . . .	45	15	2	38
Write technical and professional papers . . . . .	39	9	1	51
Educational leave of absence . . . . .	11	11	11	67

Fifty-one percent of the supervisors indicated that they were employed by companies which provided in-service training; 41 percent said their company did not provide it and eight percent did not know. Thirty-three percent said the training was completely on company time, 26 percent said it was partly on company time, 11 percent said it was entirely on the men's own time, and 30 percent did not know.

Seventy percent reported that their company had an educational assistance plan; 18 percent said it did not, and 12 percent did not know. Fifty-five percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 77 supervisors who answered this question, is shown below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	19
About 3/4. . . . .	8
About 2/3. . . . .	9
About 1/2. . . . .	19
About 1/3. . . . .	1
Less than 1/3. . . . .	0
Don't know . . . . .	21
 Total . . . . .	 77

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	12
251 - 300. . . . .	1
201 - 250. . . . .	0
151 - 200. . . . .	5
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	1
Don't know . . . . .	56
 Total . . . . .	 75

When asked what the effect of available financial assistance was on their motivation to undertake further education, 27 percent of the supervisors said it strongly encouraged them, 28 percent said it partially influenced them, and 45 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 55 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 125 respondents were actually enrolled and five were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE CHEMICAL, RUBBER, AND PLASTIC PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Chemical, Rubber and Plastic Products were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." The results were quite similar, except for the needs of top management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Chemical, Rubber and Plastic Products</u> N=30	<u>Total Report</u> N=705
Management of Research and Development. . . . .	54	*
Communication in the Organization . . . . .	*	59
Management Development. . . . .	*	53
Effective Speaking. . . . .	*	50
Effective Written Communications. . . . .	*	50
Long-range Planning and Forecasting for Corporate Growth. . . . .	*	50
Overall Strategy and Goals. . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Chemical, Rubber, and Plastic Products</u> N=30	<u>Total Report</u> N=705
Effective Written Communications . . . . .	73	74
Communication in the Organization . . . . .	70	65
Performance Appraisal and Counseling Techniques . . . . .	69	57
Management Development . . . . .	62	56
Creativity and Innovation . . . . .	60	*
Effective Speaking . . . . .	59	67
Improving Decision Making of Managers . . . . .	58	54
Working Effectively with Individuals and Groups . . . . .	58	66
Listening Skills . . . . .	52	62
Human Aspect of Management . . . . .	50	54
Effective Reading Skills . . . . .	*	62

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Chemical, Rubber, and Plastic Products and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	Percent	
	<u>Chemical, Rubber, and Plastic Products</u> N=61	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	64	65
Management Development . . . . .	63	66
Effective Communication in the Organization . . . . .	58	64
Performance Appraisal and Counseling Techniques . . . . .	53	*
Creativity and Innovation . . . . .	52	*
Criteria and Selection of Personnel for Promotion . . . . .	51	*
Supervisory Training and Employee Development . . . . .	*	53

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Chemical, Rubber, and Plastic Products</u> N=61	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	78	62
Supervisory Training and Employee Development . . . . .	64	61
Effective Communication in the Organization . . . . .	64	56
Listening Skills . . . . .	56	50
Performance Appraisal and Counseling Techniques . . . . .	52	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Chemical, Rubber, and Plastic Products</u> N=125	<u>Total Report</u> N=1,713
Leadership . . . . .	66	57
Fundamentals of the Supervisor's Job . . . . .	64	64
Safety . . . . .	61	*
Decision Making . . . . .	56	54
The Tools and Techniques of Effective Supervision . . . . .	56	55
Human Aspect of Management . . . . .	55	53
Communications . . . . .	50	51
Supervisor's Role in Employee Discipline . . . . .	50	*

\* Less than 50 percent



## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

**"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)**

**Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):**

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
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**MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
CONSTRUCTION INDUSTRY  
IN PENNSYLVANIA**

M-65

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
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M-65

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

H. LeRoy Marlow, Ed.D.

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE CONSTRUCTION INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 132 managers and supervisors from 13 companies in the Construction industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, six were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said four courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for two of 54 listed courses in the area of general management. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need only one of the listed courses. (Page 8)

Twenty-five percent had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-19)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.



First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for only one of 16 courses. (Page 20)

Nineteen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Construction, 36 top managers from 13 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Effective Speaking. . . . .	66
Financial Planning and Forecasting. . . . .	64
Effective Written Communications. . . . .	62
Fundamentals of Financial Reporting and Statement Analysis. . . . .	61
Management Development. . . . .	59
Effective Reading Skills. . . . .	51



Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications. . . . .	59
Working Effectively with Individuals and Groups . . . . .	54
Effective Speaking. . . . .	54
Effective Reading Skills. . . . .	51

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1  
GENERAL MANAGEMENT  
(N=35)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Overall Strategy and Goals . . . . .	49	72	26
Long-range Planning and Forecasting for Corporate Growth . . . . .	37	77	17
Improving Decision Making of Managers . . . . .	37	71	40
Industrial Organization and Administration . . . . .	37	71	34
Management Reporting Systems . . . . .	31	57	29
Managing Major Change in Organizations. . . . .	29	72	14
Policy Formation . . . . .	29	63	23
Ethical Considerations in Business . . . . .	26	55	29
Impact of Computer Technology. . . . .	24	56	29
Impact of Government Legislation and Controls on Business . . . . .	18	56	21
Impact of Science and Technology on Business Management . . . . .	18	47	24
Management of Research and Development. . . . .	16	38	22
Effective Utilization of Manpower Resources and Allocation . . . . .	12	56	21
Impact of Multinational Aspects of Planning and Control. . . . .	6	19	10

**TABLE 2**  
**BEHAVIORAL SCIENCE AND MANAGEMENT**  
**(N=35)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Working Effectively with Individuals and Groups . . . . .	49	80	54
Communication in the Organization . . . . .	46	72	37
Managerial Motivation . . . . .	35	70	44
Human Aspect of Management . . . . .	22	81	44
Creativity and Innovation . . . . .	21	39	21
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	7	24	14

**TABLE 3**  
**COMMUNICATIONS TECHNIQUES**  
**(N=36)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Speaking . . . . .	66	75	54
Effective Written Communications . . . . .	62	80	59
Effective Reading Skills . . . . .	51	82	51
Listening Skills . . . . .	47	75	39

**TABLE 4**  
**ECONOMICS**  
**(N=33)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	18	45	24
Comparative Economic Systems . . . . .	10	20	13

**TABLE 5**  
**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=31)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	10	39	16
Statistical Decision Theory . . . . .	3	42	23

**TABLE 6**  
**INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT**  
**(N=34)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	59	85	41
Criteria and Selection of Personnel . . . . .	45	69	36
Incentives . . . . .	39	71	35
Personnel Policy Affecting Labor-Management Relations . . . . .	39	71	26
Personnel Policy Affecting Wage and Salary Structure . . . . .	33	56	23
Personnel Policy Affecting Employment Practices . . . . .	21	49	17
Performance Appraisal and Counseling Techniques . . . . .	14	80	38

**TABLE 7**  
**FINANCIAL MANAGEMENT**  
**(N=34)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Financial Planning and Forecasting . . . . .	64	76	24
Fundamentals of Financial Reporting and Statement Analysis . . . . .	61	76	21
Capital Budgeting . . . . .	47	68	24
Managerial Accounting and Budgeting . . . . .	30	54	21

TABLE 8  
MANUFACTURING AND PRODUCTION  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	20	43	20
Operations Planning and Control . . . . .	17	38	34
Operations Research Applied to Production . . . . .	3	33	20

TABLE 9  
MARKETING  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Pricing . . . . .	31	41	28
Marketing Research . . . . .	28	38	21
Product Planning . . . . .	15	26	11
Logistics Planning . . . . .	8	27	19

TABLE 10  
INTERNATIONAL MANAGEMENT  
(N=27)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
International Understanding . . . . .	4	19	4
International Economic Analysis . . . . .	0	12	8

## MIDDLE MANAGEMENT

In the industrial category of Construction, 44 middle managers from 13 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

### Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development. . . . .	51
Working Efficiently with Individuals. . . . .	50

Only one course was above the 50 percent mark for those supervised by middle managers: Working Efficiently with Individuals. (55 percent)

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Construction industry.

TABLE 11

GENERAL MANAGEMENT  
(N=42)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	51	89	36
Working Efficiently with Individuals. . . . .	50	93	55
Supervisory Training and Employee Development . . . . .	43	88	48
Performance Appraisal and Counseling Techniques. . . . .	36	88	26
Criteria and Selection of Personnel for Promotion. . . . .	34	73	22
Analyzing Organizational Behavior . . . . .	30	73	28
Principles and Analysis of Office Systems . . . . .	28	66	18
Effective Utilization of Man- power Resources and Allocation	27	68	29
The Application of Information Technology on Decision Making.	21	50	16
Long-range Planning and Fore- casting for Corporate Growth .	20	68	18
Impact of Computer Technology. .	18	46	15
Impact of Science and Tech- nology on Business Management.	15	65	18
Impact of Government Legislation and Controls on Business . . .	10	55	13

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=42)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Psychology. . . . .	29	72	10
Human Aspect of Management . . .	25	75	20
Understanding Group Interaction and Behavior . . . . .	23	61	15
Creativity and Innovation. . . . .	22	61	20
Social and Cultural Trends and Their Impact on Business Management . . . . .	18	41	13
Industrial Sociology . . . . .	15	38	13
Impact of Consumer Behavior on Management . . . . .	13	34	10



TABLE 13

COMMUNICATION  
(N=42)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> <u>and "Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Business Letter Writing. . . . .	49	90	44
Effective Communication in the Organization . . . . .	48	83	43
Effective Report Writing . . . . .	43	79	38
Oral Presentation of Reports . . . . .	37	78	39
Listening Skills . . . . .	37	78	32
Effective Reading Skills . . . . .	33	79	38
Conference Leadership. . . . .	29	58	17

TABLE 14

ECONOMICS  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> <u>and "Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economics of Production and Cost	26	52	18
The Price Mechanism. . . . .	20	58	15
Economic Trends. . . . .	11	64	13
Fundamentals of Economics. . . . .	10	48	18
The Economic Systems of the United States. . . . .	8	44	10
Economics of Technology and Innovation . . . . .	3	34	5
Comparative Economic Systems . . . . .	0	23	5
International Economics. . . . .	0	10	3

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=41)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Improving Decision Making of Managers . . . . .	39	61	5
Replacement Management . . . . .	35	63	15
Review of Basic Mathematics . . . . .	30	58	40
Inventory Management . . . . .	28	58	15
Applying Program Evaluation and Review Techniques (PERT) . . . . .	23	61	18
Statistical Decision Theory . . . . .	13	59	8
Linear Programming . . . . .	13	37	8
Dynamic Programming . . . . .	13	29	3
Statistical Procedures and Methods . . . . .	10	38	5
Probability Theory . . . . .	8	31	8
Analytic Geometry . . . . .	5	28	13
Matrix Algebra . . . . .	5	20	8
Calculus of Infinite Series . . . . .	5	18	8
Calculus of Finite Differences . . . . .	5	15	5
Waiting Lines . . . . .	0	18	3

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Data Systems and Processing . . . . .	28	61	25
Applying the Computer to Problems of Business and Management . . . . .	23	66	18
Fundamentals of Programming for Computer Operations . . . . .	20	35	13
Mathematics for Digital Computers . . . . .	11	27	13

If the managers' area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	44	94	28
Management and Labor Relations .	44	77	28
In-plant Training. . . . .	35	76	35
Job Analysis and Job Evaluation Methods. . . . .	32	79	11
Maintaining Efficient and Up-To- Date Personnel Records . . . .	31	75	31
Employee Benefit Plans . . . . .	29	76	12
Salary and Wage Administration .	24	53	18
Industrial Safety and Medical Services . . . . .	18	53	29

TABLE 18

FINANCIAL MANAGEMENT  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
New Developments in Equipment Replacement Policy . . . . .	35	82	18
Budgets. . . . .	31	81	25
Fundamentals of Financial Reporting and Statement Analysis . . . . .	25	75	25
Taxes. . . . .	24	77	18
Managerial Accounting. . . . .	20	73	27
Financial Planning and Forecasting. . . . .	18	71	18

**TABLE 19**  
**MANUFACTURING AND PRODUCTION**  
**(N=21)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Methods Analysis and Work			
Simplification . . . . .	55	85	35
Organization and Management of			
Purchasing Operations . . . . .	50	89	39
Value Analysis . . . . .	47	84	37
Automation . . . . .	45	80	35
Engineering Economy . . . . .	45	80	30
Inventory Management . . . . .	44	66	33
Production Planning and Control			
Management . . . . .	43	81	24
Maintenance Planning and			
Control . . . . .	37	53	42
Materials Handling . . . . .	32	58	26
Quality Control . . . . .	26	42	21

**TABLE 20**

**MARKETING**  
**(N=13)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Marketing Management . . . . .	42	75	33
Physical Distribution Methods . . . . .	33	75	17
Fundamentals of Marketing . . . . .	33	66	8
Fundamentals of Pricing . . . . .	31	93	15
Product Planning . . . . .	25	75	25
Marketing Research . . . . .	25	50	17
Brand Marketing . . . . .	18	45	9
Application of Management			
Science and Computers to			
Marketing Problems . . . . .	8	39	8
Packaging Design and Development	0	0	10

TABLE 21

SALES MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Selection and Evaluation of Field Salesmen . . . . .	46	69	15
Motivating Salesmen. . . . .	36	86	21
Supervision of Field Salesmen. .	36	79	29
Compensation of Field Salesmen .	36	57	21
Training of Field Salesmen . . .	31	69	23

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=7)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . .	0	43	14
United States Foreign Economic Policy . . . . .	0	33	17
Monetary Exchange Problems . . .	0	17	17
Commercial Policy and Trade Control. . . . .	0	17	17
International Law. . . . .	0	17	17
International Economic Organizations. . . . .	0	17	17
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade. . . . .	0	17	17
Sources of Funds: Financing of Day-to-Day Transactions. . . . .	0	17	17
Appraising and Developing Foreign Markets. . . . .	0	17	17
International Economic Analysis.	0	17	0

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=10)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning Budgeting and Control of Projects. . . . .	60	90	30
Guidelines for Selecting and Appraising New Projects, . . .	13	38	13
Evaluation of the Research and Development Program. . . . .	0	44	22
Building Research and Develop- ment Teams . . . . .	0	33	33
Supervision and Management of Research Services. . . . .	0	33	11

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-nine percent (N=13) of the 44 middle managers were 40 years of age or younger. This means that they have a least 25 more years of productive employment. Eighty-nine percent (N=39) had completed high school, 25 percent (N=11) had the bachelor's degree, and five percent (N=2) had the master's degree. No one had the doctorate. Twenty-five percent (N=11) went to business school and five percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number</u> <u>Bachelor's</u>	<u>Number</u> <u>Master's</u>
Business Administration. . . . .	4	1
Engineering. . . . .	5	1
Psychology . . . . .	1	0
Other (not specified). . . . .	1	0
Total . . . . .	11	2

The major areas of work for the middle managers in Construction are shown in Table 25.



TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	16	40
Engineering. . . . .	6	15
Finance. . . . .	4	10
Maintenance. . . . .	1	2
Manufacturing. . . . .	2	5
Marketing and Sales. . . . .	2	5
Production Control — Records. . . . .	2	5
Purchasing and Procurement . . . . .	3	7
Service (yard and labor personnel, etc.) . . . . .	1	2
Traffic and Transportation . . . . .	1	2
Other (not specified). . . . .	3	7
Total . . . . .	41	100

Methods of Updating

Fifty-eight percent (N=23) of the middle managers would take a credit course and 65 percent (N=28) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the bachelor's degree and one for the master's. Two planned to enroll for the bachelor's degree. Major fields of study for those enrolled or planning to enroll were: two in business administration, one in education, and one in another field which was not specified.

Eighty-four percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time. . . . .	20	54
Job demands no more education. . . . .	6	16
Cannot afford it . . . . .	2	5
Live too far from educational center . . . . .	1	3
Can do better on my own. . . . .	1	3
Not interested . . . . .	1	3
Not a high school graduate . . . . .	1	3
Other (not specified). . . . .	5	13
 Total . . . . .	 37	 100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=44)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics . . . . .	18	41
Attendance at regional or national meetings of professional societies. . . . .	11	25
Correspondence courses . . . . .	7	16
Company in-service training courses. . . . .	6	14
Managerial development within company. . . . .	6	14
Short refresher courses at colleges or universities . . . . .	2	5

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources

TABLE 28  
SOURCES OF INFORMATION USED IN UPDATING  
(N=41)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	60	34	3	0	3
In-plant reports and bulletins . .	44	37	3	8	8
Subordinate-superior discussions or meetings. . . . .	43	49	5	3	0
Manufacturer's literature. . . . .	41	35	5	16	3
Business reports . . . . .	32	29	29	5	5
Management journals. . . . .	24	33	32	8	3
Lectures, conferences, workshops, and seminars . . . . .	23	31	23	13	10
Technical books, reports, abstracts and indexes. . . . .	19	49	24	8	0
Scientific and technical journals.	14	39	25	19	3
Professional society meetings. . .	8	17	36	36	3
College and university evening courses. . . . .	6	3	14	71	6
Use of consultants . . . . .	5	22	41	27	5
Company in-service courses . . . .	3	20	6	34	37
College and university day courses	0	3	6	91	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29  
PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=44)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	21	48
Programmed instruction . . . . .	17	39
Educational television . . . . .	11	25
Courses recorded on tapes. . . . .	9	20
Courses recorded on records. . . . .	9	20
Two-way telephone courses. . . . .	5	11
Other (not specified). . . . .	2	5

## Company Attitudes Toward Education

Of the 41 managers responding to a question on the attitude of their immediate superior toward continuing their education, 44 percent (N=18) said the superior encouraged them and 56 percent (N=23) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities as listed below:

TABLE 30

### MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT (N=38)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend professional meetings . . . . .	83	14	0	3
Attend company training courses . . . . .	82	12	0	6
Hold office in professional societies . . . . .	65	26	0	9
Attend seminars or workshops away from the company . . . . .	64	13	5	18
Enroll for advanced work . . . . .	61	22	3	14
Write technical and professional papers . . . . .	28	34	0	38
Educational leave of absence . . . . .	3	11	8	78

Twenty-six percent of the middle managers indicated that they were employed by companies which provided in-service training; 69 percent were not, and five percent did not know. Thirty-three percent said the training was entirely on company time, 22 percent said it was partly on company time, 19 percent said it was not on company time, and 26 percent did not know.

Twenty-seven percent reported that their company had an educational assistance plan. Sixty-three percent said it did not and ten percent did not know. Forty percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the ten managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	1
About 3/4. . . . .	0
About 2/3. . . . .	0
About 1/2. . . . .	7
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	2
 Total . . . . .	 10

None of the managers knew the maximum amount of tuition paid per year by the companies for which they work.

When asked about the effect of available company educational assistance in motivating them to undertake further education, 17 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 58 percent said it had no effect. There is an inconsistency here: while 42 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and two were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

FIRST-LINE SUPERVISION

In the industrial category of Construction, 52 first-line supervisors from 13 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

Educational Needs

The 52 first-line supervisors in the industrial category of Construction were asked to indicate which of the 16 course listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need."

The one course which was rated "Should Have" by 50 percent or more of the supervisors was Fundamentals of the Supervisor's Job, (52 percent).



Table 32 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 32

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=50)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . .	26	52	39	78
The Tools and Techniques of Effective Supervision. . . . .	18	37	40	82
Decision Making. . . . .	16	34	39	83
Supervisor's Role in Company Economics . .	15	33	36	79
Supervisor's Role in Employee Discipline .	11	23	31	66
Inter-Departmental Cooperation . . . . .	10	21	28	59
<u>Employee Training and Evaluation</u>				
Safety . . . . .	18	39	32	69
Evaluation of Employee Performance . . . .	14	30	30	65
Employee Training. . . . .	4	9	26	56
<u>The Supervisor and the Union</u>				
Labor Relations. . . . .	16	33	32	66
Grievance Procedure and Arbitration. . . .	8	17	28	59
Labor Relations Legislation. . . . .	7	15	24	51
<u>Developing Those We Supervise</u>				
Human Aspect of Management . . . . .	17	36	37	79
Communications . . . . .	15	33	29	63
Leadership . . . . .	13	28	41	88
Developing the Work Team . . . . .	13	28	31	67
<u>Background Information of First-Line Supervisors</u>				

Personal, Educational, and Professional Background

Thirty-two percent (N=16) of the first-line supervisors were 40 years of age or younger. Eighty-four percent (N=43) were high school graduates, 19 percent (N=10) had the bachelor's degree, and no one had the master's degree or the doctorate. Twelve percent (N=6) had gone to business school and 15 percent (N=8) to trade school. The major fields of study are indicated in the following table:





TABLE 33

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>
Architecture . . . . .	1
Engineering. . . . .	4
Law. . . . .	1
Liberal Arts . . . . .	1
Mineral Industries . . . . .	1
Other (not specified). . . . .	2
 Total . . . . .	 10

The major areas of work for the first-line supervisors in Construction are shown in the following table:

TABLE 34

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	7	15
Engineering. . . . .	10	23
Finance. . . . .	2	4
Industrial Relations . . . . .	1	2
Maintenance. . . . .	3	7
Manufacturing. . . . .	3	7
Marketing and Sales. . . . .	1	2
Production Control — Records. . . . .	1	2
Purchasing and Procurement . . . . .	2	4
Research and Development . . . . .	1	2
Service (yard and labor personnel, etc.)	7	15
Traffic and Transportation . . . . .	1	2
Other (not specified). . . . .	7	15
 Total . . . . .	 46	 100

Methods of Updating

Forty-seven percent (N=24) of the first-line supervisors would take a credit course and 72 percent (N=36) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for the bachelor's degree. Two planned to enroll for the bachelor's degree and one for the master's. Of those enrolled or planning to enroll, two wanted to study engineering and one psychology.

For the 45 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	20	45
Cannot afford it . . . . .	10	22
Job demands no more education. . . . .	5	11
Not a high school graduate . . . . .	4	9
Not interested . . . . .	4	9
Can do better on my own. . . . .	1	2
Other (not specified). . . . .	1	2
Total . . . . .	45	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=52)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses. . .	12	23
Workshops or seminars on managerial topics . . . . .	11	21
Managerial development within company. .	7	13
Correspondence courses . . . . .	6	12
Attendance at regional or national meetings of professional societies . .	5	10
Short refresher courses at colleges or universities. . . . .	5	10
Workshops or seminars in liberal arts or humanities. . . . .	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37  
SOURCES OF INFORMATION USED IN UPDATING  
(N=43)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	58	28	0	5	9
Subordinate-superior discussions or meetings. . . . .	34	34	13	16	3
Manufacturer's literature. . . . .	32	34	13	13	8
In-plant reports and bulletins . .	28	36	10	18	8
Scientific and technical journals.	18	43	13	21	5
Technical books, reports, abstracts, and indexes . . . . .	18	34	16	24	8
Professional society meetings. . .	14	8	11	56	11
Management journals. . . . .	13	44	10	15	18
Business reports . . . . .	7	37	21	33	2
Use of consultants . . . . .	6	20	26	45	3
Lectures, conferences, work- shops, and seminars. . . . .	5	29	15	23	28
College and university day courses. . . . .	3	0	0	80	17
Company in-service courses . . . .	0	22	3	30	45
College and university evening courses. . . . .	0	6	6	64	24

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=52)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	28	54
Programmed instruction . . . . .	20	38
Educational television . . . . .	10	19
Courses recorded on tapes. . . . .	10	19
Courses recorded on records. . . . .	6	12
Two-way telephone courses. . . . .	5	10
Two-way radio courses. . . . .	2	4

Company Attitudes Toward Education

A total of 48 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-eight percent (N=23) said the superior encouraged them; 50 percent (N=24) said he was noncommittal, and two percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=46)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	73	8	3	16
Attend professional meetings . . . . .	46	8	5	41
Hold office in professional societies. . .	42	29	3	26
Enroll for advanced work . . . . .	32	24	0	44
Attend seminars or workshops away from the company. . . . .	32	19	5	44
Write technical and professional papers . . . .	24	26	0	50
Educational leave of absence. . . . .	2	4	11	83

Twenty-two percent of the supervisors were employed by companies which provided in-service training; 66 percent said their company did not provide it and 12 percent did not know. Forty-one percent said the training was completely on company time, no one said it was partly on company time, 24 percent said it was entirely on the men's own time, and 35 percent did not know.

Twenty-eight percent reported that their company had an educational assistance plan; 48 percent said it did not, and 24 percent did not know. Thirty-six percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 17 supervisors who answered this question, is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	3
About 3/4. . . . .	0
About 2/3. . . . .	0
About 1/2. . . . .	4
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	10
 Total . . . . .	 17

None of the supervisors knew the maximum amount of tuition paid per year by the companies for which they work.

When asked what the effect of available financial assistance was on their motivation to undertake further education, 22 percent of the supervisors said it strongly encouraged them, 28 percent said it partially influenced them, and 50 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 50 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 52 respondents were actually enrolled and three were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE CONSTRUCTION INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Construction as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were relatively lower and less numerous, except for top management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Construction</u> N=36	<u>Total Report</u> N=705
Effective Speaking . . . . .	66	50
Financial Planning and Forecasting . . . . .	64	*
Effective Written Communications . . . . .	62	50
Fundamentals of Financial Reporting and Statement Analysis . . . . .	61	*
Management Development . . . . .	59	53
Effective Reading Skills . . . . .	51	*
Communication in the Organization. . . . .	*	59
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent



Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Construction</u> N=36	<u>Total Report</u> N=705
Effective Written Communications . . . . .	59	74
Effective Speaking . . . . .	54	67
Working Effectively with Individuals and Groups. . . . .	54	66
Effective Reading Skills . . . . .	51	62
Communication in the Organization. . . . .	*	65
Listening Skills . . . . .	*	62
Performance Appraisal and Counseling Techniques. . . . .	*	57
Management Development . . . . .	*	56
Human Aspect of Management . . . . .	*	54
Improving Decision Making of Managers. . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Construction and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Construction</u> N=44	<u>Total Report</u> N=1,202
Management Development . . . . .	51	66
Working Efficiently with Individuals . . . . .	50	65
Effective Communication in the Organization. . . . .	*	64
Supervisory Training and Employee Development. . . . .	*	53

\* Less than 50 percent

Subjects with 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Construction</u> N=44	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	55	62
Supervisory Training and Employee Development. . . . .	*	61
Effective Communication in the Organization. . . . .	*	56
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Construction</u> N=52	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	52	64
Leadership . . . . .	*	57
The Tools and Techniques of Effective Supervision. . . . .	*	55
Decision Making. . . . .	*	54
Human Aspect of Management . . . . .	*	53
Communications . . . . .	*	51

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN  
DEPARTMENT STORES  
IN PENNSYLVANIA

M-66

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN  
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M-66

Samuel S. Dubin, Ph.D.

Everett Alderman, Ed.D.

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN DEPARTMENT STORES IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.



## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 160 managers and supervisors from nine Department Stores in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

## SUMMARY

### Top Management

Of 48 courses listed, eight were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 11 courses were needed. (Page 4)

### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for four courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need one of the listed courses. (Page 9)

The educational level was high, with 46 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for six out of 16 courses. (Page 21)

Fifty-seven percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the category of Department Stores, 31 top managers from nine stores completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	79
Effective Written Communications . . . . .	63
Working Effectively with Individuals and Groups . . . . .	61
Effective Speaking. . . . .	59
Performance Appraisal and Counseling Techniques . . . . .	59
Human Aspect of Management. . . . .	52
Improving Decision Making of Managers . . . . .	50
Long-range Planning and Forecasting for Corporate Growth. . . . .	50



Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications . . . . .	70
Effective Speaking . . . . .	66
Improving Decision Making of Managers. . . . .	64
Working Effectively with Individuals and Groups. . . . .	64
Management Development . . . . .	61
Human Aspect of Management . . . . .	59
Communication in the Organization. . . . .	57
Effective Reading Skills . . . . .	55
Listening Skills . . . . .	55
Managerial Motivation. . . . .	52
Performance Appraisal and Counseling Techniques. . . . .	52

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	50	86	64
Long-range Planning and Fore- casting for Corporate Growth	50	70	20
Overall Strategy and Goals . .	43	70	27
Policy Formation . . . . .	40	83	23
Impact of Government Legis- lation and Controls on Business . . . . .	37	74	40
Effective Utilization of Man- power Resources and Allocation . . . . .	36	90	29
Impact of Computer Technology.	33	63	33
Management Reporting Systems .	32	71	36
Management of Research and Development. . . . .	29	61	21
Industrial Organization and Administration . . . . .	17	62	17
Impact of Science and Techno- logy on Business Management.	17	55	24
Ethical Considerations in Business . . . . .	14	57	32
Managing Major Change in Organizations. . . . .	10	62	17
Impact of Multinational Aspects of Planning and Control. . . . .	0	8	4

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	79	93	57
Working Effectively with Individuals and Groups . . .	61	86	64
Human Aspect of Management . .	52	86	59
Managerial Motivation. . . . .	45	79	52
Creativity and Innovation. . .	33	66	37
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	21	60	21

TABLE 3  
COMMUNICATIONS TECHNIQUES  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Written Communications . . . . .	63	86	70
Effective Speaking . . . . .	59	90	66
Effective Reading Skills . . . . .	45	83	55
Listening Skills . . . . .	41	86	55

TABLE 4  
ECONOMICS  
(N=31)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	19	58	16
Comparative Economic Systems . . . . .	8	28	20

TABLE 5  
QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Statistical Decision Theory . . . . .	12	43	15
Survey Course on Quantitative Methods, . . . . .	4	39	12

TABLE 6  
INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=31)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Performance Appraisal and Counseling Techniques . . . . .	59	87	52
Management Development . . . . .	48	90	61
Incentives . . . . .	38	86	28
Criteria and Selection of Personnel . . . . .	33	80	43
Personnel Policy Affecting Employment Practices . . . . .	32	71	39
Personnel Policy Affecting Wage and Salary Structure . . . . .	29	72	36
Personnel Policy Affecting Labor-Management Relations . . . . .	25	86	32

TABLE 7  
FINANCIAL MANAGEMENT  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Managerial Accounting and Budgeting . . . . .	37	63	22
Fundamentals of Financial Reporting and Statement Analysis . . . . .	33	60	17
Financial Planning and Fore- casting . . . . .	21	50	18
Capital Budgeting . . . . .	18	50	11



TABLE 8  
MANUFACTURING AND PRODUCTION  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning and Utilization of Physical Facilities. . . . .	15	30	8
Operations Planning and Control. . . . .	13	22	9
Operations Research Applied to Production. . . . .	0	9	0

TABLE 9

MARKETING  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Marketing Research . . . . .	38	76	31
Pricing. . . . .	22	35	26
Logistics Planning . . . . .	13	55	0
Product Planning . . . . .	9	18	4

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=24)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. .	13	21	4
International Economic Analysis . . . . .	9	13	4

## MIDDLE MANAGEMENT

In the category of Department Stores, 54 middle managers from nine stores completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

### Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)  
Behavioral Science and Management (7 subjects)  
Communication (7 subjects)  
Economics (8 subjects)  
Quantitative Methods Applied to Business and Industry (15 subjects)  
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Working Efficiently with Individuals. . . . .	71
Management Development. . . . .	54
Effective Communication in the Organization . . . . .	53
Supervisory Training and Employee Development . . . . .	52

The only course that 50 percent or more of the middle managers thought those they supervise needed was Working Efficiently with Individuals, 57 percent.

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Department Stores category.

TABLE 11

GENERAL MANAGEMENT  
(N=50)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Working Efficiently with Individuals . . . . .	71	91	57
Management Development . . . . .	54	92	40
Supervisory Training and Employee Development . . . . .	52	84	42
Performance Appraisal and Counseling Techniques . . . . .	42	75	35
Criteria and Selection of Personnel for Promotion . . . . .	38	68	26
Analyzing Organizational Behavior . . . . .	35	74	18
Effective Utilization of Man- power Resources and Allocation . . . . .	27	50	23
Impact of Government Legis- lation and Controls on Business . . . . .	21	59	21
Long-range Planning and Fore- casting for Corporate Growth	21	47	19
Impact of Computer Technology.	13	49	11
The Application of Information Technology on Decision Making . . . . .	13	40	9
Principles and Analysis of Office Systems . . . . .	11	44	9
Impact of Science and Techno- logy on Business Management.	2	42	11

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Human Aspect of Management . . . . .	33	80	27
Understanding Group Inter- action and Behavior . . . . .	33	73	23
Impact of Consumer Behavior on Management . . . . .	30	70	23
Management Psychology . . . . .	25	75	25
Creativity and Innovation . . . . .	22	59	15
Social and Cultural Trends and Their Impact on Business Management . . . . .	19	47	23
Industrial Sociology . . . . .	13	36	11

TABLE 13

COMMUNICATION  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	53	92	43
Oral Presentation of Reports . . . . .	37	72	31
Effective Reading Skills . . . . .	34	72	34
Listening Skills . . . . .	33	72	41
Business Letter Writing . . . . .	25	63	27
Effective Report Writing . . . . .	23	58	23
Conference Leadership . . . . .	22	59	17

TABLE 14

ECONOMICS  
(N=47)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economic Trends . . . . .	13	64	9
The Price Mechanism . . . . .	13	46	9
Fundamentals of Economics . . . . .	11	47	13
Economics of Production and Cost . . . . .	7	36	4
The Economic Systems of the United States . . . . .	6	29	4
Comparative Economic Systems . . . . .	2	17	9
Economics of Technology and Innovation . . . . .	2	9	4
International Economics . . . . .	0	9	2

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=46)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Inventory Management . . . . .	30	48	9
Improving Decision Making of Managers . . . . .	24	63	9
Review of Basic Mathematics. . . . .	24	44	22
Statistical Decision Theory. . . . .	16	43	2
Replacement Management . . . . .	14	41	5
Statistical Procedures and Methods. . . . .	9	23	5
Applying Program Evaluation and Review Techniques (PERT)	7	27	2
Linear Programming . . . . .	7	18	5
Analytic Geometry. . . . .	7	14	2
Probability Theory . . . . .	2	16	5
Dynamic Programming. . . . .	2	16	2
Waiting Lines. . . . .	2	9	2
Calculus of Finite Differences	0	7	2
Matrix Algebra . . . . .	0	5	2
Calculus of Infinite Series. . . . .	0	4	2

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=42)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Data Systems and Processing. . . . .	21	54	12
Applying the Computer to Problems of Business and Management . . . . .	19	50	10
Fundamentals of Programming for Computer Operations. . . . .	15	32	7
Mathematics for Digital Computers. . . . .	12	29	7

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=22)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
In-plant Training. . . . .	48	67	14
Job Analysis and Job Evaluation Methods . . . . .	35	60	15
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	32	68	18
Maintaining Efficient and Up- To-Date Personnel Records. .	32	43	21
Management and Labor Relations	25	50	5
Salary and Wage Administration	24	67	19
Employee Benefit Plans . . . . .	20	55	5
Industrial Safety and Medical Services . . . . .	14	33	10



TABLE 18

FINANCIAL MANAGEMENT  
(N=16)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets . . . . .	44	69	13
Financial Planning and Fore- casting . . . . .	31	44	13
Managerial Accounting . . . . .	25	56	13
Fundamentals of Financial Reporting and Statement Analysis . . . . .	25	50	13
New Developments in Equipment Replacement Policy . . . . .	19	38	13
Taxes . . . . .	19	38	13

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Methods Analysis and Work Simplification . . . . .	20	40	20
Organization and Management of Purchasing Operations . . . . .	20	20	0
Materials Handling . . . . .	11	22	22
Inventory Management . . . . .	11	22	0
Automation . . . . .	10	30	10
Production Planning and Control Management . . . . .	10	20	0
Quality Control . . . . .	9	18	9
Maintenance Planning and Control . . . . .	9	9	9
Value Analysis . . . . .	0	20	0
Engineering Economy . . . . .	0	10	0

TABLE 20

MARKETING  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Marketing. . . . .	50	69	31
Marketing Management . . . . .	41	59	12
Brand Marketing. . . . .	24	53	6
Fundamentals of Pricing. . . . .	20	47	7
Packaging Design and Development. . . . .	17	17	6
Product Planning . . . . .	14	21	7
Marketing Research . . . . .	13	44	13
Application of Management Science and Computers to Marketing Problems . . . . .	7	20	13
Physical Distribution Methods.	7	14	7

TABLE 21

SALES MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Motivating Salesmen. . . . .	33	50	17
Selection and Evaluation of Field Salesmen. . . . .	10	10	0
Supervision of Field Salesmen.	9	18	0
Training of Field Salesmen . .	9	18	0
Compensation of Field Salesmen	0	10	0

INTERNATIONAL MANAGEMENT  
(N=8)

None of the middle managers in Department Stores indicated a need for any of the ten courses in International Management for themselves or those they supervise.

RESEARCH AND DEVELOPMENT  
(N=10)

One manager indicated he "Should Have" the course in Supervision and Management of Research Services. One manager each reported he "Could Use" a course in Evaluation of the Research and Development Programs, and Planning Budgeting and Control of Projects. None of the managers indicated a need for the other two courses listed, nor a need for any of the courses on the part of those they supervise.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-eight percent (N=26) of the 54 middle managers were 40 years of age or younger. This means that almost half have at least 25 more years of productive employment. Ninety-three percent (N=50) had completed high school, 46 percent (N=25) had the bachelor's degree, and seven percent (N=4) had the master's degree. No one had the doctorate. Six percent (N=3) went to business school and six percent (N=3) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 22

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Agriculture. . . . .	0	1
Business Administration. . . . .	11	2
Education. . . . .	1	1
Engineering. . . . .	1	0
Law. . . . .	1	0
Liberal Arts . . . . .	6	0
Psychology . . . . .	2	0
Other (not specified). . . . .	3	0
Total . . . . .	25	4

The major areas of work for the middle managers in Department Stores are shown below:

TABLE 23

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	18	36
Finance. . . . .	2	4
Industrial Relations . . . . .	3	6
Marketing and Sales. . . . .	17	34
Purchasing and Procurement . . . . .	4	8
Research and Development . . . . .	1	2
Traffic and Transportation . . . . .	1	2
Other (not specified). . . . .	4	8
Total . . . . .	50	100

## Methods of Updating

Forty-nine percent (N=26) of the middle managers would take a credit course and 67 percent (N=36) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. Four managers planned to enroll: one planned to earn the bachelor's degree and three the master's. Three of the managers planned to study business administration and one liberal arts.

Eighty-seven percent had no plans for further degree work and their reasons are given below:

TABLE 24

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time. . . . .	16	34
Job demands no more education. . . . .	12	26
Cannot afford it . . . . .	5	11
Not interested . . . . .	4	9
Can do better on my own. . . . .	3	6
Not a high school graduate . . . . .	3	6
Live too far from educational center . . . . .	1	2
Other (not specified). . . . .	3	6
 Total . . . . .	 47	 100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 25

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=54)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics . . . . .	21	39
Company in-service training courses. . . . .	16	30
Attendance at regional or national meetings of professional societies. . . . .	11	20
Managerial development within company. . . . .	10	19
Workshops or seminars in liberal arts or humanities . . . . .	7	13
Short refresher courses at colleges or universities . . . . .	4	7
Correspondence courses . . . . .	3	6
Television courses . . . . .	3	6

Many sources of information were used by the middle managers to keep up with new developments. Table 26 lists these sources:

TABLE 26

SOURCES OF INFORMATION USED IN UPDATING  
(N=53)

	Use Frequently	Average Use	Percent		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	58	38	2	0	2
In-plant reports and bulletins . .	52	23	9	7	9
Business reports . . . . .	43	47	6	2	2
Subordinate-superior discussions or meetings. . . . .	41	45	5	2	7
Manufacturer's literature. . . . .	28	40	17	11	4
Management journals. . . . .	20	58	13	2	7
Company in-service courses . . . . .	16	22	11	20	31
Lectures, conferences, workshops, and seminars. . . . .	13	49	11	9	18
Technical books, reports, abstracts, and indexes . . . . .	7	20	36	32	5
Scientific and technical journals.	7	19	23	46	5
Use of consultants . . . . .	5	16	23	49	7
Professional society meetings. . .	2	18	14	46	20
College and university evening courses. . . . .	2	7	7	77	7
College and university day courses. . . . .	0	0	5	90	5

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 27)

TABLE 27

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=54)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses. . . . .	18	33
Educational television. . . . .	17	31
Programmed instruction. . . . .	16	30
Courses recorded on tapes . . . . .	12	22
Courses recorded on records . . . . .	9	17
Two-way telephone courses . . . . .	2	4
Two-way radio courses . . . . .	1	2

Company Attitudes Toward Education

Of the 43 managers responding to a question on the attitude of their immediate superior toward continuing their education, 35 percent (N=15) said the superior encouraged them and 63 percent (N=27) said the superior was noncommittal. Two percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities:

TABLE 28

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=49)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. .	90	0	0	10
Attend professional meetings. . . . .	56	22	2	20
Hold office in professional societies	43	23	3	31
Attend seminars or workshops away from the company . . . . .	33	24	3	40
Enroll for advanced work. . . . .	27	39	2	32
Write technical and professional papers	19	27	0	54
Educational leave of absence . . . . .	2	8	22	68



Fifty-five percent of the middle managers indicated that they were employed by companies which provided in-service training; 33 percent were not, and 12 percent did not know. Sixty-four percent said the training was entirely on company time, 23 percent said it was partly on company time, three percent said it was not on company time, and ten percent did not know.

Forty percent reported that their company had an educational assistance plan. Forty-seven percent said it did not and 13 percent did not know. Thirty-four percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company as indicated by the 19 managers who responded to this question, follows:

TABLE 29

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	2
About 3/4. . . . .	0
About 2/3. . . . .	2
About 1/2. . . . .	8
About 1/3. . . . .	1
Less than 1/3. . . . .	1
Don't know . . . . .	5
 Total . . . . .	 19

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 30

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	0
251 - 300. . . . .	0
201 - 250. . . . .	0
151 - 200. . . . .	2
101 - 150. . . . .	0
51 - 100. . . . .	3
50 or less. . . . .	0
Don't know . . . . .	14
 Total . . . . .	 19

When asked about the effect of available company educational assistance in motivating them to undertake further education, ten percent of the middle managers said it had strongly encouraged them, 30 percent said it had partially influenced them, and 60 percent said it had no effect. There is an inconsistency here: while 40 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and four were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

### FIRST-LINE SUPERVISION

In the category of Department Stores, 75 first-line supervisors from nine stores completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 75 first-line supervisors in the category of Department Stores were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	70
The Tools and Techniques of Effective Supervision . . . . .	69
Human Aspect of Management. . . . .	68
Decision Making . . . . .	67
Leadership. . . . .	66
Supervisor's Role in Company Economics. . . . .	51

Table 31 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 31

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=71)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . . .	50	70	66	93
The Tools and Techniques of Effective Supervision. . . . .	47	69	65	95
Decision Making. . . . .	46	67	61	89
Supervisor's Role in Company Economics . . . . .	35	51	54	79
Supervisor's Role in Employee Discipline . . . . .	30	43	60	86
Inter-Departmental Cooperation . . . . .	21	30	51	73
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . . .	32	46	60	87
Employee Training. . . . .	30	43	56	81
Safety . . . . .	8	12	37	54
<u>The Supervisor and the Union</u>				
Labor Relations. . . . .	10	14	26	37
Grievance Procedure and Arbitration. . . . .	7	10	29	42
Labor Relations Legislation. . . . .	4	6	23	34
<u>Developing Those We Supervise</u>				
Human Aspect of Management . . . . .	46	68	67	99
Leadership . . . . .	45	66	66	97
Communications . . . . .	31	46	58	86
Developing the Work Team . . . . .	25	35	56	79

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Seventy-eight percent (N=57) of the first-line supervisors were 40 years of age or younger. Ninety-five percent (N=69) were high school graduates, 57 percent (N=43) had the bachelor's degree, and one percent (N=1) had the master's degree; no one had the doctorate. Seven percent (N=5) had gone to business school and three percent (N=2) to trade school. The major fields of study for a degree are indicated in the following table:

TABLE 32

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Agriculture. . . . .	3	0
Business Administration. . . . .	17	1
Education. . . . .	2	0
Engineering. . . . .	1	0
Liberal Arts . . . . .	18	0
Other (not specified). . . . .	2	0
 Total . . . . .	 43	 1

Below is a listing of the major areas of work for the first-line supervisors in Department Stores:

TABLE 33

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	11	15
Engineering. . . . .	1	1
Finance. . . . .	1	1
Marketing and Sales. . . . .	41	57
Production Control - Records . . . . .	2	3
Purchasing and Procurement . . . . .	11	15
Service (yard and labor personnel, etc.). . . . .	1	1
Other (not specified). . . . .	5	7
 Total . . . . .	 73	 100

Methods of Updating

Sixty-two percent (N=46) of the first-line supervisors would take a credit course and 65 percent (N=48) would take a non-credit course if they were offered locally.

One of the supervisors was currently enrolled for the bachelor's degree and one for the master's. Twelve were planning to enroll: one for the associate degree, one for the bachelor's, and ten for the master's. The curriculum for those enrolled or planning to enroll was: eight in business administration, three in liberal arts, one in education, and one in another field which was not specified.

For the 71 percent (N=53) of the supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 34

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time. . . . .	24	44
Cannot afford it . . . . .	12	23
Job demands no more education. . . . .	8	15
Not interested . . . . .	4	8
Can do better on my own. . . . .	1	2
Other (not specified). . . . .	4	8
 Total . . . . .	 53	 100

First-line supervisors had used a variety of educational methods for updating within the past four years. (Table 35)

TABLE 35

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N-75)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses. . . . .	43	57
Managerial development within company. . . . .	23	31
Workshops or seminars on managerial topics . . . . .	7	9
Short refresher courses at colleges or universities . . . . .	5	7
Attendance at regional or national meetings of professional societies . . . . .	3	4
Workshops or seminars in liberal arts or humanities . . . . .	3	4

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 36  
SOURCES OF INFORMATION USED IN UPDATING  
(N=71)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins . .	51	42	3	3	1
Subordinate-superior discussions or meetings . . . . .	49	39	10	1	1
Discussion with company personnel (informal or formal) . . . . .	44	46	8	1	1
Manufacturer's literature . . . . .	41	31	15	9	4
Business reports . . . . .	37	47	11	1	4
Company in-service courses . . . . .	35	33	10	10	12
Management journals . . . . .	21	28	27	15	9
Lectures, conferences, workshops, and seminars . . . . .	9	27	26	20	18
Use of consultants . . . . .	5	18	11	61	5
College and university evening courses . . . . .	3	5	8	75	9
College and university day courses . . . . .	3	2	6	83	6
Technical books, reports, abstracts, and indexes . . . . .	2	15	20	60	3
Scientific and technical journals	2	13	16	64	5
Professional society meetings . .	0	9	20	62	9

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 37)



TABLE 37

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=75)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	31	41
Programmed instruction . . . . .	27	36
Educational television . . . . .	18	24
Courses recorded on records. . . . .	7	9
Courses recorded on tapes. . . . .	4	5
Two-way telephone courses. . . . .	3	4
Two-way radio courses. . . . .	1	1
Other (not specified). . . . .	4	5

Company Attitudes Toward Education

A total of 68 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Twenty-six percent (N=18) said the superior encouraged them; 74 percent (N=50) said he was noncommittal, and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 38

SUPERVISOR'S PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=69)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. .	84	6	2	8
Attend professional meetings. . . . .	49	25	3	23
Enroll for advanced work. . . . .	38	33	0	29
Hold office in professional societies	37	30	0	33
Attend seminars or workshops away from the company . . . .	18	22	9	51
Write technical and professional papers	11	24	2	63
Educational leave of absence . . . . .	3	9	23	65

Seventy-one percent of the supervisors indicated that they were employed by companies which provided in-service training; 26 percent said their company did not provide it and three percent did not know. Sixty-eight percent said the training was completely on company time, 22 percent said it was partly on company time, two percent said it was entirely on the men's own time, and eight percent did not know.

Forty percent reported that their company had an educational assistance plan; 49 percent said it did not, and 11 percent did not know. Fifty-two percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 33 supervisors who answered this question, is shown in the table below:

TABLE 39

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	3
About 3/4. . . . .	0
About 2/3. . . . .	1
About 1/2. . . . .	23
About 1/3. . . . .	1
Less than 1/3. . . . .	0
Don't know . . . . .	5
 Total . . . . .	 33

Table 40 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 40

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	1
251 - 300. . . . .	0
201 - 250. . . . .	0
151 - 200. . . . .	0
101 - 150. . . . .	1
51 - 100. . . . .	4
50 or less. . . . .	1
Don't know . . . . .	25
 Total . . . . .	 32

When asked what the effect of available financial assistance was on their motivation to undertake further education, six percent of the supervisors said it strongly encouraged them, 32 percent said it partially influenced them, and 62 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 38 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two (3%) of the 75 respondents were actually enrolled and 12 (16%) were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN DEPARTMENT STORES WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the category of Department Stores as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were in general slightly higher.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Department Stores</u> N=31	<u>Total Report</u> N=705
Communication in the Organization . . . . .	79	59
Effective Written Communications . . . . .	63	50
Working Effectively with Individuals and Groups . . . . .	61	*
Effective Speaking . . . . .	59	50
Performance Appraisal and Counseling Techniques . . . . .	59	*
Human Aspect of Management . . . . .	52	*
Long-range Planning and Forecasting for Corporate Growth . . . . .	50	50
Improving Decision Making of Managers . . . . .	50	*
Management Development . . . . .	*	53
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Department Stores</u> N=31	<u>Total Report</u> N=705
Effective Written Communications. . . . .	70	74
Effective Speaking. . . . .	66	67
Improving Decision Making of Managers . . . . .	64	54
Working Effectively with Individuals and Groups . . . . .	64	66
Management Development. . . . .	61	56
Human Aspect of Management. . . . .	59	54
Communication in the Organization . . . . .	57	65
Effective Reading Skills. . . . .	55	62
Listening Skills. . . . .	55	62
Managerial Motivation . . . . .	52	*
Performance Appraisal and Counseling Techniques . . . . .	52	57

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Department Stores and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	Percent	
	<u>Department Stores</u> N=54	<u>Total Report</u> N=1,202
Working Efficiently with Individuals. . . . .	71	65
Management Development. . . . .	54	66
Effective Communication in the Organization . . . . .	53	64
Supervisory Training and Employee Development . . . . .	52	53

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Department Stores</u> N=54	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	57	62
Supervisory Training and Employee Development. . . .	*	61
Effective Communication in the Organization. . . . .	*	56
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u>	
	Percent	
	<u>Department Stores</u> N=75	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	70	64
The Tools and Techniques of Effective Supervision. .	69	55
Human Aspect of Management . . . . .	68	53
Decision Making. . . . .	67	54
Leadership . . . . .	66	57
Supervisor's Role in Company Economics . . . . .	51	*
Communications . . . . .	*	51

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.



4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

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- H-55 Nursing Service and Nursing Education
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MANAGERIAL AND SUPERVISORY  
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IN PENNSYLVANIA

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IN PENNSYLVANIA

M-67

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE ELECTRICAL MACHINERY INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 384 managers and supervisors from 24 companies in the Electrical Machinery industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, the only one checked by 50 percent or more of top managers was Long-Range Planning and Forecasting for Corporate Growth. (Page 3) However, nine other courses were said to be needed by between 40 and 50 percent.

For those they supervise, 50 percent or more of top managers said 13 courses were needed, in the areas of communications; behavioral science and management; general management; and industrial relations and personnel management. (Page 3)

#### Middle Management

Fifty percent or more of the middle managers expressed a need for three of 54 listed courses, in areas of management development, human relations, and communications. (Page 8) Twelve other courses were in the 40 to 50 percent "Should Have" range.

Those supervised by middle management were thought by 50 percent or more of the managers to need seven of the listed courses. (Page 8)

The educational level was high, with 51 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Page 16)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

### First-Line Supervision

Fifty percent or more of the first-line supervisors reported needing six out of 16 courses in the groupings of principles of supervision and developing those we supervise. (Page 21) Five other courses were in the 40 to 50 percent range.

Twenty-nine percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Page 22)

### TOP MANAGEMENT

In the industrial category of Electrical Machinery, 74 top managers from 24 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

### Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

Long-Range Planning and Forecasting for Corporate Growth was the only course with a "Should Have" need of 50 percent or more, at 53 percent. However, 50 percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Written Communication. . . . .	74
Effective Speaking . . . . .	67
Working Effectively with Individuals and Groups. . . . .	64
Effective Reading Skills . . . . .	63
Communication in the Organization. . . . .	63
Listening Skills . . . . .	61
Improving Decision Making of Managers. . . . .	59
Creativity and Innovation. . . . .	57
Human Aspect of Management . . . . .	55
Management Development . . . . .	54
Management Reporting Systems . . . . .	51
Performance Appraisal and Counseling Techniques. . . . .	50
Criteria and Selection of Personnel . . . . .	50

Tables 1 to 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. The "Subordinates' Needs" column shows the subjects needed by those supervised by top management.

TABLE 1

GENERAL MANAGEMENT  
(N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Long-Range Planning and Forecasting			
for Corporate Growth . . . . .	53	87	33
Overall Strategy and Goals . . . . .	49	88	30
Policy Formation . . . . .	44	83	28
Improving Decision Making of			
Managers . . . . .	41	84	59
Industrial Organization and			
Administration . . . . .	37	78	46
Impact of Computer Technology. . . . .	34	78	43
Effective Utilization of Manpower			
Resources and Allocation . . . . .	34	65	40
Management Reporting Systems . . . . .	33	76	51
Managing Major Change in			
Organizations . . . . .	31	59	24
Ethical Considerations in Business	23	56	32
Impact of Science and Technology on			
Business Management . . . . .	19	61	28
Management of Research and			
Development . . . . .	18	43	23
Impact of Government Legislation and			
Controls on Business . . . . .	14	50	23
Impact of Multinational Aspects of			
Planning and Control . . . . .	13	29	9

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Communication in the Organization.	47	78	63
Human Aspect of Management . . . . .	39	78	55
Managerial Motivation . . . . .	38	85	36
Working Effectively with Individuals			
and Groups . . . . .	30	76	64
Creativity and Innovation. . . . .	29	68	57
Political, Social, and Cultural			
Trends and Their Impact on			
Business Management. . . . .	1	32	10

TABLE 3  
 COMMUNICATIONS TECHNIQUES  
 (N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Written Communications . . . . .	47	76	74
Effective Speaking . . . . .	47	73	67
Effective Reading Skills . . . . .	37	82	63
Listening Skills . . . . .	34	81	61

TABLE 4  
 ECONOMICS  
 (N=69)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economic Trends . . . . .	17	46	12
Comparative Economic Systems . . . . .	4	26	10

TABLE 5  
 QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
 (N=69)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	13	61	14
Statistical Decision Theory . . . . .	12	55	20



TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Performance Appraisal and Counseling Techniques . . . . .	41	71	50
Management Development . . . . .	39	81	54
Incentives . . . . .	31	73	28
Criteria and Selection of Personnel . . . . .	31	65	50
Personnel Policy Affecting Wage and Salary Structure . . . . .	19	53	24
Personnel Policy Affecting Labor- Management Relations . . . . .	17	55	30
Personnel Policy Affecting Employment Practices . . . . .	15	46	28

TABLE 7

FINANCIAL MANAGEMENT  
(N=69)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs</u> Percent
Managerial Accounting and Budgeting . . . . .	45	65	43
Capital Budgeting . . . . .	39	61	31
Fundamentals of Financial Reporting and Statement Analysis . . . . .	36	69	38
Financial Planning and Forecasting	35	67	23



TABLE 8

MANUFACTURING AND PRODUCTION  
(N=68)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	26	52	35
Operations Planning and Control . . . . .	15	41	35
Operations Research Applied to Production . . . . .	9	37	31

TABLE 9

MARKETING  
(N=66)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Pricing . . . . .	44	65	45
Product Planning . . . . .	24	61	27
Marketing Research . . . . .	23	57	16
Logistics Planning . . . . .	14	42	22

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=66)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding . . . . .	8	38	8
International Economic Analysis . . . . .	7	30	2

MIDDLE MANAGEMENT

In the industrial category of Electrical Machinery, 135 middle managers from 24 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communications (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development . . . . .	61
Working Efficiently with Individuals . . . . .	57
Effective Communication in the Organization . . . . .	53

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Supervisory Training and Employee Development . . . . .	68
Working Efficiently with Individuals . . . . .	65
Effective Communication in the Organization . . . . .	57
Performance Appraisal and Counseling Techniques . . . . .	53
Listening Skills . . . . .	53
Oral Presentation of Reports . . . . .	51
Effective Report Writing . . . . .	51

The tables following, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Electrical Machinery category.

TABLE 11

GENERAL MANAGEMENT  
(N=122)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Management Development . . . . .	61	93	48
Working Efficiently with Individuals	57	88	65
Supervisory Training and Employee Development . . . . .	45	73	68
Performance Appraisal and Counseling Techniques . . . . .	44	85	53
Criteria and Selection of Personnel for Promotion . . . . .	39	79	33
Long-Range Planning and Forecasting for Corporate Growth . . . . .	28	65	19
Analyzing Organizational Behavior .	25	70	21
Effective Utilization of Manpower Resources and Allocation. . . . .	25	61	28
Principles and Analysis of Office Systems . . . . .	21	51	24
The Application of Information Tech- nology on Decision Making . . . . .	19	58	22
Impact of Computer Technology . . .	18	60	24
Impact of Science and Technology on Decision Making . . . . .	15	52	18
Impact of Government Legislation and Controls on Business . . . . .	11	36	16

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=117)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Human Aspect of Management. . . . .	35	78	34
Creativity and Innovation . . . . .	32	86	43
Understanding Group Interaction and Behavior. . . . .	22	69	31
Management Psychology . . . . .	21	65	27
Industrial Sociology. . . . .	6	37	16
Social and Cultural Trends and Their Impact on Business Management . .	5	28	9
Impact of Consumer Behavior on Management. . . . .	3	24	8

TABLE 13

COMMUNICATION  
(N=120)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	53	91	57
Oral Presentation of Reports . . .	42	76	51
Effective Report Writing . . . . .	42	72	51
Conference Leadership . . . . .	38	72	41
Effective Reading Skills . . . . .	37	79	46
Listening Skills . . . . .	35	74	53
Business Letter Writing . . . . .	30	67	44

TABLE 14

ECONOMICS  
(N=115)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economics of Production and Cost	27	70	29
The Price Mechanism . . . . .	22	64	18
Economic Trends . . . . .	14	42	6
Economics of Technology and Innovation . . . . .	9	31	9
Fundamentals of Economics . . . . .	6	39	16
International Economics . . . . .	5	22	7
Comparative Economic Systems . . .	4	18	8
The Economic Systems of the United States . . . . .	3	18	8

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=115)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers. . . . .	30	73	29
Inventory Management. . . . .	25	47	26
Applying Program Evaluation and Review Techniques (PERT). . . . .	21	55	21
Review of Basic Mathematics . . . . .	20	40	20
Replacement Management. . . . .	19	49	16
Statistical Procedures and Methods	18	57	33
Statistical Decision Theory . . . . .	17	62	20
Probability Theory. . . . .	14	51	23
Linear Programming. . . . .	10	32	12
Dynamic Programming . . . . .	8	33	12
Waiting Lines . . . . .	6	30	6
Analytic Geometry . . . . .	5	22	9
Matrix Algebra . . . . .	4	23	10
Calculus of Infinite Series . . . . .	4	14	8
Calculus of Finite Differences. . . . .	2	13	7

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=117)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management. . . . .	24	64	25
Data Systems and Processing . . . . .	21	57	26
Fundamentals of Programming for Computer Operations . . . . .	18	40	23
Mathematics for Digital Computers	10	26	16

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

Industrial Relations and Personnel Management (8 subjects)  
Financial Management (6 subjects)  
Manufacturing and Production (10 subjects)  
Marketing (9 subjects)  
Sales Management (5 subjects)  
International Management (10 subjects)  
Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.



**TABLE 17**  
**INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT**  
**(N=41)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . . . . .	41	61	37
In-Plant Training . . . . .	31	68	29
Management and Labor Relations . . . . .	30	60	24
Salary and Wage Administration . . . . .	22	57	19
Job Analysis and Job Evaluation Methods . . . . .	19	61	31
Maintaining Efficient and Up-To- Date Personnel Records . . . . .	15	56	32
Employee Benefit Plans . . . . .	11	30	14
Industrial Safety and Medical Services . . . . .	8	36	18

**TABLE 18**  
**FINANCIAL MANAGEMENT**  
**(N=35)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets . . . . .	45	69	27
Managerial Accounting . . . . .	32	56	18
Fundamentals of Financial Reporting and Statement Analysis . . . . .	31	56	25
Financial Planning and Forecasting . . . . .	25	47	19
New Developments in Equipment Replacement Policy . . . . .	23	57	20
Taxes . . . . .	9	31	9

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Value Analysis. . . . .	49	77	44
Production Planning and Control Management. . . . .	45	73	45
Inventory Management. . . . .	40	55	36
Automation. . . . .	36	70	33
Maintenance Planning and Control. . . . .	36	59	46
Engineering Economy . . . . .	34	66	38
Methods Analysis and Work Simplification. . . . .	33	69	49
Quality Control . . . . .	32	60	36
Organization and Management of Purchasing Operations . . . . .	32	60	30
Materials Handling. . . . .	32	58	45

TABLE 20

MARKETING  
(N=27)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Fundamentals of Pricing . . . . .	44	63	22
Product Planning. . . . .	42	61	31
Marketing Management. . . . .	23	38	12
Fundamentals of Marketing . . . . .	22	41	15
Packaging Design and Development. . . . .	15	23	15
Marketing Research. . . . .	13	38	13
Application of Management Science and Computers to Marketing Problems. . . . .	12	36	16
Physical Distribution Methods . . . . .	8	20	8
Brand Marketing . . . . .	4	4	4

TABLE 21

SALES MANAGEMENT  
(N=25)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Supervision of Field Salesmen . . . . .	29	29	4
Motivating Salesmen . . . . .	25	29	4
Compensation of Field Salesmen . . . . .	21	29	4
Selection and Evaluation of Field Salesmen . . . . .	20	28	4
Training of Field Salesmen . . . . .	17	34	4

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Monetary Exchange Problems . . . . .	6	6	6
International Understanding . . . . .	0	11	6
Commercial Policy and Trade Control . . . . .	0	11	6
International Law . . . . .	0	6	12
International Economic Organizations . . . . .	0	6	6
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade . . . . .	0	6	6
United States Foreign Economic Policy . . . . .	0	6	6
International Economic Analysis . . . . .	0	0	6
Sources of Funds: Financing of Day-to-Day Transactions . . . . .	0	0	6
Appraising and Developing Foreign Markets . . . . .	0	0	5

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=37)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Evaluation of the Research and Development Programs . . . . .	46	65	27
Planning Budgeting and Control of Products . . . . .	39	75	31
Guidelines for Selecting and Appraising New Projects . . . . .	39	72	31
Supervision and Management of Research Services . . . . .	35	67	29
Building Research and Development Teams . . . . .	34	65	26

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-eight percent (N=51) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-six percent (N=130) had completed high school, 51 percent (N=69) had the bachelor's degree, and ten percent (N=14) had the master's degree. Three persons had the doctorate. Six percent (N=8) went to business school and nine percent (N=12) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below.

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>	<u>Number Doctor's</u>
Agriculture . . . . .	1	0	0
Architecture . . . . .	1	0	0
Business Administration . . . . .	10	2	0
Education . . . . .	4	2	0
Engineering . . . . .	36	7	1
Law . . . . .	0	1	0
Liberal Arts . . . . .	9	0	0
Psychology . . . . .	6	2	2
Other (not specified) . . . . .	2	0	0
Total . . . . .	69	14	3

The major areas of work for the middle managers in Electrical Machinery are shown below.

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	18	13
Engineering . . . . .	28	22
Finance . . . . .	11	8
Industrial Relations . . . . .	7	5
Maintenance . . . . .	3	2
Manufacturing . . . . .	34	27
Marketing and Sales . . . . .	12	9
Production Control — Records . . . . .	5	4
Purchasing and Procurement . . . . .	7	5
Research and Development . . . . .	4	3
Traffic and Transportation . . . . .	3	1
Other (not specified) . . . . .	2	1
Total . . . . .	134	100

## Methods of Updating

Sixty-nine percent (N=92) of the middle managers would take a credit course and 77 percent (N=103) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree and one was enrolled for the doctorate. Sixteen managers planned to enroll and ten of these planned to earn the master's degree; 11 planned to study business administration, three engineering, and two education. Seventy-six percent had no plans for further degree work and their reasons are given below.

TABLE 26

### REASONS FOR NOT UNDERTAKING ADDITIONAL DEGREE WORK

	<u>Number Managers</u>
Don't have the time . . . . .	38
Live too far from educational center . . . . .	15
Job demands no more education. . . . .	13
Cannot afford it . . . . .	7
Can do better on my own. . . . .	5
Not interested . . . . .	5
Not a high school graduate . . . . .	3
Other (not-specified). . . . .	16
<b>Total . . . . .</b>	<b>102</b>

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=135)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics. . .	63	47
Company in-service training courses . . . . .	55	41
Attendance at regional or national meetings of professional societies . . . . .	54	40
Managerial development within company . . . . .	41	30
Short refresher courses at colleges or universities. . . . .	19	14
Correspondence courses. . . . .	19	14
Workshops or seminars in liberal arts or humanities. . . . .	4	3
Television courses. . . . .	3	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=132)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	59	34	3	2	2
Subordinate-superior discussions or meetings . . . . .	57	34	5	3	1
In-plant reports and bulletins . . . . .	51	39	3	2	5
Business reports . . . . .	33	42	15	9	1
Manufacturer's literature . . . . .	31	39	16	13	1
Management Journals . . . . .	21	45	19	9	6
Technical books, reports, abstracts, and indexes . . . . .	20	41	23	14	2
Scientific and technical journals . . . . .	18	42	23	16	1
Lectures, conferences, workshops, and seminars . . . . .	17	38	26	8	11
Company in-service courses . . . . .	10	28	18	22	22
Professional society meetings . . . . .	9	28	33	28	2
College-university evening courses . . . . .	7	6	10	63	14
Use of consultants . . . . .	4	12	34	47	3
College-university day courses . . . . .	2	1	7	86	4



Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=135)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction . . . . .	58	43
Correspondence courses . . . . .	50	37
Educational television . . . . .	42	31
Courses recorded on tapes . . . . .	17	13
Courses recorded on records . . . . .	15	11
Two-way radio courses . . . . .	8	6
Two-way telephone courses . . . . .	7	5

Company Attitudes Toward Education

Of the 132 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 38 percent (N=50) said the superior encouraged them and 61 percent (N=81) said the superior was noncommittal. One person said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=128)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses . . . . .	84	6	1	9
Attend professional meetings	77	17	2	4
Write technical and professional papers . . . . .	76	12	0	12
Enroll for advanced work . . . . .	75	11	0	14
Hold office in professional societies . . . . .	75	18	1	6
Attend workshops or seminars away from the company . . . . .	62	19	5	14
Educational leave of absence	11	22	7	60

Fifty-nine percent of the middle managers were employed by companies which provided in-service training; 38 percent were not, and three percent did not know. Thirty-three percent said the training was entirely on company time, 44 percent said it was partly on company time, 11 percent said it was not on company time, and 12 percent did not know.

Eighty-eight percent reported that their company had an educational assistance plan. Nine percent said it did not and three percent did not know. Sixty-six percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below.

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	76
About 3/4 . . . . .	9
About 2/3 . . . . .	5
About 1/2 . . . . .	16
About 1/3 . . . . .	0
Less than 1/3 . . . . .	1
Don't know . . . . .	7
 Total . . . . .	 114

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	31
251 - 300 . . . . .	10
201 - 250 . . . . .	3
151 - 200 . . . . .	5
101 - 150 . . . . .	2
51 - 100 . . . . .	3
50 or less . . . . .	0
Don't know . . . . .	57
 Total . . . . .	 111

When asked about the effect of available company educational assistance in motivating them to undertake further education, 20 percent of the middle managers said it had strongly encouraged them, 35 percent said it had partially influenced them, and 45 percent said it had no effect. There is an inconsistency here: while 55 percent said the availability of aid motivated them to some extent, only three persons were actually enrolled and 16 were planning to enroll.

#### FIRST-LINE SUPERVISION

In the industrial category of Electrical Machinery, 175 first-line supervisors from 24 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 175 first-line supervisors in the category of Electrical Machinery were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job . . . . .	62
The Tools and Techniques of Effective Supervision . . . . .	59
Leadership . . . . .	54
Human Aspect of Management . . . . .	52
Decision Making . . . . .	52
Communications . . . . .	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=170)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . .	104	62	154	92
The Tools and Techniques of Effective Supervision . . . . .	100	59	147	87
Decision Making . . . . .	86	52	139	84
Supervisor's Role in Employee Discipline .	79	48	138	84
Inter-Departmental Cooperation . . . . .	73	44	132	79
Supervisor's Role in Company Economics . .	73	43	140	83
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . .	75	45	139	83
Safety . . . . .	58	35	121	73
Employee Training . . . . .	53	31	120	71
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration . . .	62	37	112	67
Labor Relations . . . . .	53	31	114	67
Labor Relations Legislation . . . . .	22	13	95	57
<u>Developing Those We Supervise</u>				
Leadership . . . . .	91	54	150	89
Human Aspect of Management . . . . .	87	52	144	86
Communications . . . . .	86	51	143	85
Developing the Work Team . . . . .	68	41	133	80
<u>Background Information of First-Line Supervisors</u>				

Personal, Educational, and Professional Background

Forty-five percent (N=78) of the first-line supervisors were 40 years of age or younger. Eighty-four percent (N=147) were high school graduates, 29 percent (N=50) had the bachelor's degree, and two percent (N=3) had the master's degree; no one had the doctorate. Six percent (N=10) had gone to business school and 19 percent (N=33) to trade school. The major fields of study are indicated in the following table.

TABLE 34

## MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Agriculture . . . . .	1	0
Business Administration . . . . .	7	1
Education . . . . .	2	0
Engineering . . . . .	34	2
Law . . . . .	1	0
Liberal Arts . . . . .	2	0
Psychology . . . . .	2	0
Other (not specified) . . . . .	1	0
Total . . . . .	50	3

The major areas of work for the first-line supervisors in Electrical Machinery are shown in the following table:

TABLE 35

## MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	11	6
Engineering . . . . .	27	16
Finance . . . . .	7	4
Industrial Relations . . . . .	6	3
Maintenance . . . . .	11	6
Manufacturing . . . . .	75	45
Marketing and Sales . . . . .	1	1
Production Control - Records . . . . .	10	6
Purchasing and Procurement . . . . .	2	1
Research and Development . . . . .	4	2
Service (yard and labor personnel, etc.) . . . . .	4	2
Traffic and Transportation . . . . .	3	2
Other (not specified) . . . . .	11	6
Total . . . . .	172	100

Methods of Updating

Sixty-one percent (N=104) of the first-line supervisors would take a credit course and 71 percent (N=123) would take a non-credit course if they were offered locally.

Ten of the supervisors were currently enrolled and 18 were planning to enroll in a degree program. Business administration and engineering were the most popular major fields of study. For the 124 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>
Don't have the time . . . . .	45
Not a high school graduate . . . . .	18
Cannot afford it . . . . .	16
Live too far from educational center . . . . .	10
Job demands no more education. . . . .	8
Not interested . . . . .	6
Can do better on my own. . . . .	5
Other (not specified). . . . .	16
 Total . . . . .	 124

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=175)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses. . . . .	82	47
Managerial development within company. . . . .	65	37
Workshops or seminars on managerial topics . . . . .	55	31
Attendance at regional or national meetings of professional societies . . . . .	34	19
Short refresher courses at colleges or universities. . . . .	21	12
Correspondence courses . . . . .	21	12
Workshops or seminars in liberal arts or humanities . . . . .	6	3
High school courses to improve job performance. . . . .	5	3
Television courses . . . . .	5	3



The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table.

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING  
(N=163)

	Use Frequently	Average Use	Percent		Would Use If Available
			Use Very Little	Do Not Use	
In-plant reports and bulletins .	54	35	5	3	3
Discussion with company personnel (informal or formal) . .	49	45	4	1	1
Subordinate-superior discussions or meetings . . . . .	37	46	11	3	3
Manufacturer's literature . . . .	20	46	13	14	7
Technical books, reports, abstracts, and indexes . . . . .	14	40	25	19	2
Management journals . . . . .	13	34	25	18	10
Scientific and technical journals . . . . .	12	32	30	23	3
Lectures, conferences, workshops, and seminars . . . . .	12	31	24	15	18
Company in-service courses . . .	10	32	12	17	29
Business reports . . . . .	9	33	31	23	4
Use of consultants . . . . .	7	19	24	45	5
Professional society meetings . .	5	16	24	51	4
College-university evening courses . . . . .	3	11	16	60	10
College-university day courses .	1	3	5	86	5

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preferences for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=175)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	81	46
Programmed instruction . . . . .	81	46
Educational television . . . . .	53	30
Courses recorded on records. . . . .	25	14
Courses recorded on tapes. . . . .	20	11
Two-way telephone courses. . . . .	16	9
Two-way radio courses. . . . .	8	5

Company Attitudes Toward Education

A total of 166 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-eight percent (N=79) said the superior encouraged him; 51 percent said he was noncommittal, and two individuals said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=161)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	80	5	1	14
Attend professional meetings . . . . .	69	8	5	18
Enroll for advanced work . . . . .	63	16	1	20
Hold office in professional societies. . . . .	57	17	1	25
Write technical and professional papers. . . . .	48	13	0	39
Attend seminars or workshops away from the company. . . . .	43	18	7	32
Educational leave of absence . . . . .	15	9	9	67

Fifty-nine percent of the supervisors were employed by companies which provided in-service training; 35 percent said their company did not provide it and six percent did not know. Thirty-five percent said the training was completely on company time, 30 percent said it was partly on company time, 15 percent said it was entirely on the men's own time, and 20 percent did not know.

Seventy-five percent reported that their company had an educational assistance plan; 13 percent said it did not, and 12 percent did not know. Fifty-seven percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below.

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	58
About 3/4. . . . .	11
About 2/3. . . . .	7
About 1/2. . . . .	21
About 1/3. . . . .	1
Less than 1/3. . . . .	1
Don't know . . . . .	26
Total . . . . .	125

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	18
251 - 300. . . . .	8
201 - 250. . . . .	5
151 - 200. . . . .	2
101 - 150. . . . .	0
51 - 100. . . . .	4
50 or less. . . . .	0
Don't know . . . . .	84
Total . . . . .	121

When asked what the effect of available financial assistance was on their motivation to undertake further education, 21 percent of the supervisors said it strongly encouraged them, 33 percent said it partially influenced them, and 46 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 54 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only ten of the 175 respondents were actually enrolled and 18 were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN ELECTRICAL MACHINERY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Electrical Machinery as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar. The only notable difference was in the educational needs of top management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u>	
	Percent	
	<u>Electrical Machinery</u> N=74	<u>Total Report</u> N=705
Communication in the Organization . . . . .	*	59
Management Development . . . . .	*	53
Long-Range Planning and Forecasting for Corporate Growth . . . . .	53	50
Effective Speaking . . . . .	*	50
Effective Written Communication . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Electrical Machinery</u> N=74	<u>Total Report</u> N=705
Effective Written Communication . . . . .	74	74
Effective Speaking . . . . .	67	67
Working Effectively with Individuals and Groups . . . . .	64	66
Communication in the Organization . . . . .	63	65
Effective Reading Skills . . . . .	63	62
Listening Skills . . . . .	61	62
Performance Appraisal and Counseling Techniques . . . . .	50	57
Management Development . . . . .	54	56
Human Aspect of Management . . . . .	55	54
Improving Decision Making of Managers . . . . .	59	54
Creativity and Innovation . . . . .	57	*
Management Reporting Systems . . . . .	51	*
Criteria and Selection of Personnel . . . . .	50	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Electrical Machinery and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	Percent	
	<u>Electrical Machinery</u> N=135	<u>Total Report</u> N=1202
Management Development . . . . .	61	66
Working Efficiently with Individuals . . . . .	57	65
Effective Communication in the Organization . . . . .	53	64
Supervisory Training and Employee Development . . . . .	*	53

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Electrical Machinery</u> N=135	<u>Total Report</u> N=1202
Supervisory Training and Employee Development. . .	68	61
Working Efficiently with Individuals . . . . .	65	62
Effective Communication in the Organization. . . .	57	56
Performance Appraisal and Counseling Techniques. .	53	*
Listening Skills . . . . .	53	50
Oral Presentation of Reports . . . . .	51	*
Effective Report Writing . . . . .	51	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they needed the following six of a listing of 16 subjects:

	<u>"Should Have"</u>	
	Percent .	
	<u>Electrical Machinery</u> N=175	<u>Total Report</u> N=1713
Fundamentals of the Supervisor's Job . . . . .	62	64
Leadership . . . . .	54	57
The Tools and Techniques of Effective Supervision.	59	55
Decision Making. . . . .	52	54
Human Aspect of Management . . . . .	52	53
Communications . . . . .	51	51



## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications -- such subjects as report writing, effective speaking, conference leadership -- was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient location.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service educational programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
FABRICATED METAL PRODUCTS INDUSTRY

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
FABRICATED METAL PRODUCTS INDUSTRY  
IN PENNSYLVANIA

M-68

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE FABRICATED METAL PRODUCTS INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 90 managers and supervisors from ten companies in the Fabricated Metal Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, seven were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said two courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management and communication out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need two of the listed courses. (Page 8)

Only 16 percent had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

X

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for nine out of 16 courses. (Page 20 )

Only two percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25 )

TOP MANAGEMENT

In the industrial category of Fabricated Metal Products, 13 top managers from ten companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Working Effectively with Individuals and Groups . . . . .	69
Management Development. . . . .	58
Communication in the Organization . . . . .	54
Effective Utilization of Manpower Resources and Allocation. . .	54
Human Aspect of Management. . . . .	54
Operations Planning and Control . . . . .	50
Policy Formation. . . . .	50



Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications . . . . .	75
Effective Speaking . . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervised.

TABLE 1

GENERAL MANAGEMENT  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Utilization of Manpower Resources and Allocation . . . . .	54	92	15
Policy Formation . . . . .	50	92	25
Industrial Organization and Administration . . . . .	46	100	23
Overall Strategy and Goals . .	46	84	38
Improving Decision Making of Managers . . . . .	46	77	31
Management Reporting Systems .	46	77	8
Impact of Science and Techno- logy on Business Management.	38	69	8
Long-range Planning and Fore- casting for Corporate Growth	33	83	25
Management of Research and Development. . . . .	33	66	17
Impact of Computer Technology.	23	69	31
Managing Major Change in Organizations. . . . .	15	77	15
Ethical Considerations in Business . . . . .	8	39	31
Impact of Government Legis- lation and Controls on Business . . . . .	0	77	8
Impact of Multinational Aspects of Planning and Control. . . . .	0	8	0

TABLE 2  
 BEHAVIORAL SCIENCE AND MANAGEMENT  
 (N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Working Effectively with Individuals and Groups . . . . .	69	92	38
Communication in the Organization . . . . .	54	92	46
Human Aspect of Management . . . . .	54	77	38
Managerial Motivation . . . . .	38	92	31
Creativity and Innovation . . . . .	33	83	42
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	0	17	0

TABLE 3  
 COMMUNICATIONS TECHNIQUES  
 (N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Speaking . . . . .	33	83	50
Listening Skills . . . . .	33	66	33
Effective Reading Skills . . . . .	18	82	36
Effective Written Communications . . . . .	17	84	75

TABLE 4  
 ECONOMICS  
 (N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	8	16	17
Comparative Economic Systems . . . . .	0	0	9

TABLE 5  
 QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
 (N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	25	50	0
Statistical Decision Theory . . . . .	17	25	8

TABLE 6  
 INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
 (N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	58	83	33
Personnel Policy Affecting Labor-Management Relations . . . . .	42	100	42
Performance Appraisal and Counseling Techniques . . . . .	42	75	42
Incentives . . . . .	33	66	33
Personnel Policy Affecting Wage and Salary Structure . . . . .	25	67	17
Personnel Policy Affecting Employment Practices . . . . .	25	58	33
Criteria and Selection of Personnel . . . . .	17	67	8

TABLE 7  
 FINANCIAL MANAGEMENT  
 (N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Financial Planning and Forecasting . . . . .	33	66	0
Fundamentals of Financial Reporting and Statement Analysis . . . . .	23	77	15
Managerial Accounting and Budgeting . . . . .	17	59	17
Capital Budgeting . . . . .	8	66	0

TABLE 8  
 MANUFACTURING AND PRODUCTION  
 (N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Operations Planning and Control. . . . .	50	58	17
Planning and Utilization of Physical Facilities. . . . .	46	84	31
Operations Research Applied to Production. . . . .	9	27	18

TABLE 9  
 MARKETING  
 (N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Pricing. . . . .	33	66	17
Product Planning . . . . .	33	66	17
Logistics Planning . . . . .	25	42	8
Marketing Research . . . . .	15	53	15

TABLE 10  
 INTERNATIONAL MANAGEMENT  
 (N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . . . .	0	17	8
International Economic Analysis . . . . .	0	9	0

MIDDLE MANAGEMENT

In the industrial category of Fabricated Metal Products, 31 middle managers from ten companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Effective Communication in the Organization. . . . .	75
Management Development . . . . .	71
Working Efficiently with Individuals . . . . .	69
Supervisory Training and Employee Development. . . . .	62
Performance Appraisal and Counseling Techniques. . . . .	52
Listening Skills . . . . .	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Supervisory Training and Employee Development. . . . .	55
Working Efficiently with Individuals . . . . .	52

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Fabricated Metal Products category.

TABLE 11  
GENERAL MANAGEMENT  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Management Development . . . .	71	96	46
Working Efficiently with Individuals . . . . .	69	97	52
Supervisory Training and Employee Development . . . .	62	96	55
Performance Appraisal and Counseling Techniques . . . .	52	93	34
Principles and Analysis of Office Systems . . . . .	43	79	18
Criteria and Selection of Personnel for Promotion . . .	37	89	44
Effective Utilization of Man- power Resources and Allocation . . . . .	37	78	30
Long-range Planning and Fore- casting for Corporate Growth	32	57	11
Analyzing Organizational Behavior . . . . .	31	62	28
Impact of Government Legis- lation and Controls on Business . . . . .	26	48	15
The Application of Infor- mation Technology on Decision Making . . . . .	22	52	11
Impact of Computer Technology.	18	57	11
Impact of Science and Techno- logy on Business Management.	17	58	14



TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Creativity and Innovation. . .	41	78	33
Understanding Group Inter- action and Behavior. . . . .	41	78	33
Human Aspect of Management . .	33	89	48
Management Psychology. . . . .	30	67	19
Social and Cultural Trends and Their Impact on Business Management. . . . .	18	54	14
Impact of Consumer Behavior on Management. . . . .	18	39	4
Industrial Sociology . . . . .	11	67	19

TABLE 13

COMMUNICATION  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Communication in the Organization . . . . .	75	93	46
Listening Skills . . . . .	50	75	46
Business Letter Writing. . . . .	48	81	41
Effective Reading Skills . . . . .	48	81	41
Effective Report Writing . . . . .	46	77	38
Oral Presentation of Reports . .	44	70	33
Conference Leadership. . . . .	43	86	25

TABLE 14

ECONOMICS  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	33	63	22
The Price Mechanism. . . . .	29	65	18
Economic Trends. . . . .	22	59	19
Fundamentals of Economics. . . . .	15	56	15
The Economic Systems of the United States. . . . .	4	43	11
Comparative Economic Systems . . . . .	4	33	11
Economics of Technology and Innovation . . . . .	4	30	4
International Economics. . . . .	0	22	7

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Replacement Management . . . . .	37	70	26
Inventory Management . . . . .	32	75	29
Improving Decision Making of Managers . . . . .	25	82	14
Statistical Decision Theory. . . . .	21	75	14
Review of Basic Mathematics. . . . .	19	67	26
Applying Program Evaluation and Review Techniques (PERT)	14	64	7
Waiting Lines. . . . .	11	32	4
Statistical Procedures and Methods. . . . .	11	25	7
Linear Programming . . . . .	7	39	4
Dynamic Programming. . . . .	7	36	7
Probability Theory . . . . .	7	18	4
Analytic Geometry. . . . .	4	22	4
Matrix Algebra . . . . .	4	11	0
Calculus of Finite Differences	4	4	0
Calculus of Infinite Series. . . . .	4	4	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management . . . . .	28	52	10
Fundamentals of Programming for Computer Operations. . .	25	39	14
Data Systems and Processing. .	21	60	21
Mathematics for Digital Computers. . . . .	11	25	11

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management and Labor Relations	55	82	27
Job Analysis and Job Evaluation Methods . . . . .	42	59	17
Maintaining Efficient and Up- To-Date Personnel Records. .	18	54	9
In-plant Training. . . . .	17	84	33
Employee Benefit Plans . . . .	17	42	0
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	9	64	9
Salary and Wage Administration	8	58	8
Industrial Safety and Medical Services . . . . .	8	50	17

TABLE 18

FINANCIAL MANAGEMENT  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets . . . . .	36	45	9
New Developments in Equipment Replacement Policy . . . . .	18	54	18
Financial Planning and Fore- casting . . . . .	18	54	9
Fundamentals of Financial Reporting and Statement Analysis . . . . .	9	45	9
Taxes . . . . .	9	45	9
Managerial Accounting . . . . .	9	36	9

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Inventory Management . . . . .	75	88	19
Automation . . . . .	59	83	29
Production Planning and Control Management . . . . .	56	94	25
Quality Control . . . . .	53	82	18
Value Analysis . . . . .	50	75	19
Maintenance Planning and Control . . . . .	47	71	18
Engineering Economy . . . . .	44	75	13
Methods Analysis and Work Simplification . . . . .	41	82	29
Materials Handling . . . . .	39	72	11
Organization and Management of Purchasing Operations . . . . .	38	82	25

TABLE 20

MARKETING  
(N=7)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Product Planning . . . . .	43	72	29
Fundamentals of Pricing. . . . .	29	43	14
Packaging Design and Development. . . . .	14	43	14
Fundamentals of Marketing. . . . .	14	43	0
Physical Distribution Methods. . . . .	14	28	0
Brand Marketing. . . . .	0	43	0
Marketing Management . . . . .	0	43	0
Marketing Research . . . . .	0	43	0
Application of Management Science and Computers to Marketing Problems . . . . .	0	29	0

TABLE 21

SALES MANAGEMENT  
(N=7)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Motivating Salesmen. . . . .	43	43	14
Selection and Evaluation of Field Salesmen . . . . .	43	43	0
Compensation of Field Salesmen . . . . .	29	43	0
Training of Field Salesmen . . . . .	29	43	0
Supervision of Field Salesmen. . . . .	29	29	14

INTERNATIONAL MANAGEMENT  
(N=4)

One of the four managers said he "Should Have" the course in Appraising and Developing Foreign Markets, and "Could Use" the other nine courses, such as International Understanding and International Economic Analysis. No managers indicated a need for any of the courses on the part of those they supervise.

RESEARCH AND DEVELOPMENT  
(N=4)

One manager indicated that he "Could Use" each of the five courses listed, such as Supervision and Management of Research Services and Planning Budgeting and Control of Products. No one said he "Should Have" any of the courses, nor that those he supervised needed any of them.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-nine percent (N=9) of the 31 middle managers were 40 years of age or younger. Ninety-seven percent (N=30) had completed high school, 16 percent (N=5) had the bachelor's degree, and six percent (N=2) had the master's degree. No one had the doctorate. Ten percent (N=3) went to business school and six percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 22

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration. . . . .	2	2
Engineering. . . . .	1	0
Liberal Arts . . . . .	2	0
Total . . . . .	5	2

The major areas of work for the middle managers in the Fabricated Metal Products industry are shown below:

TABLE 23

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	7	26
Engineering. . . . .	1	3
Finance. . . . .	3	10
Industrial Relations . . . . .	2	7
Manufacturing. . . . .	6	21
Marketing and Sales. . . . .	1	3
Production Control -- Records. . . . .	3	10
Purchasing and Procurement . . . . .	4	14
Service (yard and labor personnel, etc.). . . . .	1	3
Traffic and Transportation . . . . .	1	3
Total . . . . .	29	100



## Methods of Updating

Sixty percent (N=18) of the middle managers would take a credit course and 77 percent (N=24) would take a non-credit course if they were offered locally.

No one was currently enrolled for a degree. Four managers planned to enroll and all of these planned to earn the bachelor's degree. Three said they planned to study business administration, and one was unspecified.

Sixty-eight percent had no plans for further degree work and their reasons are given below:

TABLE 24

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time. . . . .	8	38
Live too far from educational center . . . . .	5	24
Job demands no more education. . . . .	2	9
Cannot afford it . . . . .	1	5
Not interested . . . . .	1	5
Other (not specified). . . . .	4	19
Total . . . . .	21	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 25

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=31)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics .	16	52
Attendance at regional or national meetings. of professional societies. . . . .	10	32
Company in-service training courses. . . . .	7	23
Managerial development within company. . . . .	3	10
Short refresher courses at colleges or universities . . . . .	2	6
Correspondence courses . . . . .	2	6
Workshops or seminars in liberal arts or humanities . . . . .	1	3

Many sources of information were used by the middle managers to keep up with new developments. Table 26 lists these sources.

TABLE 26  
 SOURCES OF INFORMATION USED IN UPDATING  
 (N=29)

	Use Frequently	Average Use	Percent		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	56	36	4	4	0
Subordinate-superior discussions or meetings . . . . .	55	37	4	0	4
In-plant reports and bulletins . .	44	41	4	0	11
Business reports . . . . .	24	48	14	14	0
Management journals . . . . .	21	64	7	4	4
Manufacturer's literature . . . . .	17	59	21	3	0
Lectures, conferences, workshops, and seminars . . . . .	11	38	33	7	11
Professional society meetings . .	11	25	25	39	0
Technical books, reports, abstracts, and indexes . . . . .	7	49	33	11	0
Scientific and technical journals	4	55	30	11	0
Company in-service courses . . . .	4	12	12	28	44
Use of consultants . . . . .	0	33	22	41	4
College and university day courses . . . . .	0	0	4	88	8
College and university evening courses . . . . .	0	0	0	85	15

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 27)

TABLE 27

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=31)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	16	52
Programmed instruction . . . . .	15	48
Courses recorded on tapes . . . . .	7	23
Courses recorded on records . . . . .	6	19
Educational television . . . . .	5	16
Two-way telephone courses . . . . .	2	6
Two-way radio courses . . . . .	1	3

Company Attitudes Toward Education

Of the 25 managers responding to a question on the attitude of their immediate superior toward continuing their education, 32 percent (N=8) said the superior encouraged them and 68 percent (N=17) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 28

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=28)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend professional meetings . . . . .	89	11	0	0
Attend company training courses . . . . .	68	9	0	23
Hold office in professional societies . .	62	19	0	19
Attend seminars or workshops away from the company . . . . .	62	19	0	19
Enroll for advanced work	50	27	0	23
Write technical and professional papers . .	36	28	0	36
Educational leave of absence . . . . .	4	18	7	71

Thirty-eight percent of the middle managers indicated that they were employed by companies which provided in-service training; 59 percent were not, and three percent did not know. Thirty-one percent said the training was entirely on company time, 30 percent said it was partly on company time, 13 percent said it was not on company time, and 26 percent did not know.

Forty percent reported that their company had an educational assistance plan. Fifty-three percent said it did not and seven percent did not know. Thirty-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the nine managers who responded to this question, follows:

TABLE 29

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	6
About 3/4. . . . .	0
About 2/3. . . . .	0
About 1/2. . . . .	1
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	2
 Total . . . . .	 9

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 30

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	3
251 - 300. . . . .	2
201 - 250. . . . .	0
151 - 200. . . . .	0
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	4
 Total . . . . .	 9

When asked about the effect of available company educational assistance in motivating them to undertake further education, none of the middle managers said it had strongly encouraged them, 56 percent said it had partially influenced them, and 44 percent said it had no effect. There is an inconsistency here: while 56 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and only four were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

#### FIRST-LINE SUPERVISION

In the industrial category of Fabricated Metal Products, 46 first-line supervisors from ten companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 46 first-line supervisors in the category of Fabricated Metal Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	70
Decision Making . . . . .	60
The Tools and Techniques of Effective Supervision . . . . .	58
Communications. . . . .	57
Human Aspect of Management. . . . .	56
Leadership. . . . .	54
Safety. . . . .	54
Inter-Departmental Cooperation. . . . .	53
Grievance Procedure and Arbitration . . . . .	52

Table 31 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 31

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=44)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . .	31	70	42	95
Decision Making. . . . .	25	60	35	84
The Tools and Techniques of Effective Supervision. . . . .	25	58	39	91
Inter-Departmental Cooperation . . . . .	23	53	38	88
Supervisor's Role in Company Economics . .	19	45	32	76
Supervisor's Role in Employee Discipline .	19	45	32	76
<u>Employee Training and Evaluation</u>				
Safety . . . . .	22	54	35	86
Evaluation of Employee Performance . . . .	20	48	36	86
Employee Training. . . . .	17	40	32	76
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . .	22	52	35	83
Labor Relations. . . . .	16	38	36	86
Labor Relations Legislation. . . . .	4	10	27	65
<u>Developing Those we Supervise</u>				
Communications . . . . .	24	57	34	81
Human Aspect of Management . . . . .	24	56	40	93
Leadership . . . . .	22	54	38	93
Developing the Work Team . . . . .	17	40	33	77

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Twenty-six percent (N=12) of the first-line supervisors were 40 years of age or younger. Sixty-five percent (N=30) were high school graduates, two percent (N=1) had the bachelor's degree, and two percent (N=1) had the master's degree; no one had the doctorate. Twenty-two percent (N=10) had gone to trade school.

One person had earned the bachelor's degree in engineering and one had earned the master's in agriculture.



Below is a listing of the major areas of work for the first-line supervisors in Fabricated Metal Products:

TABLE 32

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	2	5
Engineering . . . . .	3	7
Industrial Relations . . . . .	2	5
Maintenance . . . . .	3	7
Manufacturing . . . . .	22	51
Marketing and Sales . . . . .	1	2
Production Control — Records . . . . .	2	5
Research and Development . . . . .	1	2
Service (yard and labor personnel, etc.) . . . . .	3	7
Traffic and Transportation . . . . .	3	7
Other (not specified) . . . . .	1	2
Total . . . . .	43	100

Methods of Updating

Forty-five percent (N=20) of the first-line supervisors would take a credit course and 68 percent (N=30) would take a non-credit course if they were offered locally.

One of the supervisors was currently enrolled for the associate degree and one was planning to enroll for the bachelor's degree in engineering.

For the 74 percent of the supervisors (N=34) who did not have plans for further formal education, the following reasons were indicated:

TABLE 33

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Not a high school graduate . . . . .	9	25
Don't have the time . . . . .	7	21
Cannot afford it . . . . .	4	12
Live too far from educational center . . . . .	4	12
Not interested . . . . .	3	9
Job demands no more education . . . . .	2	6
Can do better on my own . . . . .	1	3
Other (not specified) . . . . .	4	12
Total . . . . .	34	100

First-line supervisors had used a variety of educational methods for updating within the past four years. (Table 34)

TABLE 34

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=46)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Workshops or seminars on managerial topics. . . . .	16	35
Company in-service training courses. .	14	30
Managerial development within company. . . . .	11	24
Attendance at regional or national meetings of professional societies .	6	13
Correspondence courses . . . . .	6	13
Short refresher courses at colleges or universities. . . . .	3	7
Workshops or seminars in liberal arts or humanities . . . . .	3	7
High school courses to improve job performance. . . . .	1	2
Television courses . . . . .	1	2



The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 35  
SOURCES OF INFORMATION USED IN UPDATING  
(N=41)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	50	41	5	2	2
Subordinate-superior discussions or meetings . . . . .	44	39	15	0	2
In-plant reports and bulletins . . .	42	35	8	5	10
Manufacturer's literature . . . . .	35	39	13	5	8
Management journals . . . . .	21	42	21	11	5
Technical books, reports, abstracts, and indexes . . . . .	21	26	27	21	5
Scientific and technical journals . .	18	30	21	26	5
Use of consultants . . . . .	11	14	24	37	14
Lectures, conferences, workshops, and seminars . . . . .	8	31	28	18	15
Professional society meetings . . . .	6	19	25	44	6
Business reports . . . . .	5	28	18	49	0
Company in-service courses . . . . .	3	25	8	28	36
College and university evening courses . . . . .	3	11	8	59	19
College and university day courses . . . . .	0	0	6	88	6

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 36)

TABLE 36

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=46)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Programmed instruction . . . . .	20	43
Correspondence courses . . . . .	19	41
Educational television . . . . .	17	37
Courses recorded on records . . . . .	8	17
Courses recorded on tapes . . . . .	6	13
Two-way telephone courses . . . . .	4	9
Two-way radio courses . . . . .	2	4
Other (not specified) . . . . .	3	7

Company Attitudes Toward Education

A total of 42 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Thirty-eight percent (N=16) said the superior encouraged them; 60 percent (N=25) said he was noncommittal, and two percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 37

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=46)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses . . . . .	66	9	0	25
Attend professional meetings . . . . .	58	13	0	29
Attend seminars or workshops away from the company . . . . .	47	13	6	34
Hold office in professional societies . . . . .	43	14	0	43
Enroll for advanced work	41	14	6	39
Write technical and professional papers . . . . .	21	25	0	54
Educational leave of absence . . . . .	5	14	5	76

Forty-two percent of the supervisors were employed by companies which provided in-service training; 47 percent said their company did not provide it and 11 percent did not know. Nine percent said the training was completely on company time, 31 percent said it was partly on company time, 30 percent said it was entirely on the men's own time, and 30 percent did not know.

Thirty-eight percent reported that their company had an educational assistance plan; 42 percent said it did not, and 20 percent did not know. Forty-one percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 17 supervisors who answered this question, is shown in the table below:

TABLE 38

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	6
About 3/4. . . . .	1
About 2/3. . . . .	0
About 1/2. . . . .	3
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	7
 Total . . . . .	 17

The 16 supervisors who answered the question reported that they did not know the maximum amount of tuition paid by the company per year.

When asked what the effect of available financial assistance was on their motivation to undertake further education, 41 percent of the supervisors said it strongly encouraged them, 53 percent said it partially influenced them, and six percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 94 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only one of the 46 respondents was actually enrolled and one was planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN FABRICATED METAL PRODUCTS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Fabricated Metal Products as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied a good deal.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
		<u>Fabricated Metal Products</u> N=13
		<u>Total Report</u> N=705
Working Effectively with Individuals and Groups . . .	69	*
Management Development . . . . .	58	53
Communication in the Organization . . . . .	54	59
Effective Utilization of Manpower Resources and Allocation . . . . .	54	*
Human Aspect of Management . . . . .	54	*
Operations Planning and Control . . . . .	50	*
Policy Formation . . . . .	50	*
Effective Speaking . . . . .	*	50
Effective Written Communications . . . . .	*	50
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent



Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Fabricated Metal Products</u> N=13	<u>Total Report</u> N=705
Effective Written Communications . . . . .	75	74
Effective Speaking . . . . .	50	67
Working Effectively with Individuals and Groups. .	*	66
Communication in the Organization. . . . .	*	65
Effective Reading Skills . . . . .	*	62
Listening Skills . . . . .	*	62
Performance Appraisal and Counseling Techniques. .	*	57
Management Development . . . . .	*	56
Human Aspect of Management . . . . .	*	54
Improving Decision Making of Managers. . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Fabricated Metal Products and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Fabricated Metal Products</u> N=31	<u>Total Report</u> N=1,202
Effective Communication in the Organization. . . . .	75	64
Management Development . . . . .	71	66
Working Efficiently with Individuals . . . . .	69	65
Supervisory Training and Employee Development. . .	62	53
Performance Appraisal and Counseling Techniques. .	52	*
Listening Skills . . . . .	50	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Fabricated Metal Products</u> N=31	<u>Total Report</u> N=1,202
Supervisory Training and Employee Development. . .	55	61
Working Efficiently with Individuals . . . . .	52	62
Effective Communication in the Organization. . . .	*	56
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they needed the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Fabricated Metal Products</u> N=46	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	70	64
Decision Making. . . . .	60	54
The Tools and Techniques of Effective Supervision.	58	55
Communications . . . . .	57	51
Human Aspect of Management . . . . .	56	53
Leadership . . . . .	54	57
Safety . . . . .	54	*
Inter-Departmental Cooperation . . . . .	53	*
Grievance Procedure and Arbitration. . . . .	52	*

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
FOOD AND KINDRED PRODUCTS  
INDUSTRY IN PENNSYLVANIA

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
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M-69

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MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN  
THE FOOD AND KINDRED PRODUCTS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 274 managers and supervisors from 20 companies in the Food and Kindred Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, five were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 11 courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for four courses, in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need four of the listed courses. (Page 8)

The educational level was fairly high, with 37 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-20)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.



First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 12 out of 16 courses. (Page 21)

Eleven percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the industrial category of Food and Kindred Products, 59 top managers from 20 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	62
Human Aspect of Management. . . . .	55
Managerial Motivation . . . . .	55
Long-range Planning and Forecasting for Corporate Growth. . . . .	54
Effective Written Communications. . . . .	53





Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Working Effectively with Individuals and Groups . . . . .	72
Effective Speaking. . . . .	67
Effective Reading Skills. . . . .	65
Effective Written Communications. . . . .	63
Communication in the Organization . . . . .	62
Listening Skills. . . . .	62
Performance Appraisal and Counseling Techniques . . . . .	56
Improving Decision Making of Managers . . . . .	54
Management Development. . . . .	53
Human Aspect of Management. . . . .	50
Management Reporting Systems. . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=59)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Long-range Planning and Fore- casting for Corporate Growth . . . . .	54	74	27
Management Reporting Systems . . . . .	48	83	50
Overall Strategy and Goals . . . . .	48	71	32
Improving Decision Making of Managers . . . . .	46	85	54
Industrial Organization and Administration . . . . .	44	86	35
Policy Formation . . . . .	42	89	22
Effective Utilization of Man- power Resources and Allocation . . . . .	42	71	36
Impact of Computer Technology. . . . .	38	68	32
Ethical Considerations in Business . . . . .	31	64	29
Managing Major Change in Organizations. . . . .	29	58	27
Impact of Government Legislation and Controls on Business . . . . .	20	65	20
Management of Research and Development. . . . .	20	50	19
Impact of Science and Technology on Business Management . . . . .	17	76	28
Impact of Multinational Aspects of Planning and Control. . . . .	2	10	8

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=58)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Communication in the Organization . . . . .	62	81	62
Managerial Motivation . . . . .	55	91	43
Human Aspect of Management . . . . .	55	89	50
Working Effectively with Individuals and Groups . . . . .	48	88	72
Creativity and Innovation . . . . .	38	77	48
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	7	40	15

TABLE 3

COMMUNICATIONS TECHNIQUES  
(N=58)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications	53	72	63
Effective Reading Skills . . . . .	47	75	65
Effective Speaking . . . . .	43	76	67
Listening Skills . . . . .	43	72	62

TABLE 4

ECONOMICS  
(N=55)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economic Trends . . . . .	15	51	11
Comparative Economic Systems . . . . .	7	35	9

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=52)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	18	69	16
Statistical Decision Theory . . .	17	52	21

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=59)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	49	90	53
Performance Appraisal and Counseling Techniques . . . . .	49	83	56
Incentives . . . . .	41	84	38
Personnel Policy Affecting Labor-Management Relations . . .	30	70	33
Criteria and Selection of Personnel . . . . .	27	66	45
Personnel Policy Affecting Employment Practices . . . . .	25	65	32
Personnel Policy Affecting Wage and Salary Structure . . . . .	23	55	20

TABLE 7

FINANCIAL MANAGEMENT  
(N=56)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Fundamentals of Financial Reporting and Statement Analysis . . . . .	37	68	43
Managerial Accounting and Budgeting . . . . .	34	60	38
Capital Budgeting . . . . .	32	62	23
Financial Planning and Forecasting . . . . .	31	55	20

TABLE 8  
 MANUFACTURING AND PRODUCTION  
 (N=56)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning and Utilization of Physical Facilities. . . . .	39	66	39
Operations Planning and Control.	20	65	27
Operations Research Applied to Production . . . . .	19	55	25

TABLE 9  
 MARKETING  
 (N=56)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Pricing. . . . .	38	71	36
Product Planning . . . . .	35	64	33
Marketing Research . . . . .	32	62	38
Logistics Planning . . . . .	24	55	20

TABLE 10  
 INTERNATIONAL MANAGEMENT  
 (N=53)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . .	4	25	9
International Economic Analysis.	2	12	6

## MIDDLE MANAGEMENT

In the industrial category of Food and Kindred Products, 86 middle managers from 20 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

### Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)  
Behavioral Science and Management (7 subjects)  
Communication (7 subjects)  
Economics (8 subjects)  
Quantitative Methods Applied to Business and Industry (15 subjects)  
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development. . . . .	68
Working Efficiently with Individuals. . . . .	67
Effective Communication in the Organization . . . . .	65
Supervisory Training and Employee Development . . . . .	59

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Working Efficiently with Individuals. . . . .	60
Effective Communication in the Organization . . . . .	58
Supervisory Training and Employee Development . . . . .	56
Management Development. . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Food and Kindred Products industrial category.

TABLE 11

GENERAL MANAGEMENT  
(N=83)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	68	92	50
Working Efficiently with Individuals. . . . .	67	94	60
Supervisory Training and Employee Development . . . . .	59	85	56
Performance Appraisal and Counseling Techniques. . . . .	44	83	44
Criteria and Selection of Personnel for Promotion. . . . .	42	79	30
Analyzing Organizational Behavior . . . . .	40	73	25
Long-range Planning and Fore- casting for Corporate Growth . . . . .	27	63	11
Effective Utilization of Manpower Resources and Allocation . . . . .	27	55	25
Impact of Science and Technology on Business Management . . . . .	24	59	21
The Application of Information Technology on Decision Making. . . . .	18	46	9
Impact of Computer Technology. . . . .	16	40	9
Principles and Analysis of Office Systems . . . . .	15	53	14
Impact of Government Legislation and Controls on Business . . . . .	14	51	16

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=78)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Creativity and Innovation. . . . .	47	86	43
Human Aspect of Management . . . . .	42	78	42
Management Psychology. . . . .	36	83	31
Understanding Group Interaction and Behavior . . . . .	36	79	44
Industrial Sociology . . . . .	19	58	18
Social and Cultural Trends and Their Impact on Business Management . . . . .	19	47	14
Impact of Consumer Behavior on Management . . . . .	14	49	16



TABLE 13  
COMMUNICATION  
(N=80)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Communication in the Organization . . . . .	65	88	58
Effective Reading Skills . . . . .	45	78	38
Effective Report Writing . . . . .	44	70	39
Oral Presentation of Reports . . . . .	41	78	46
Listening Skills . . . . .	39	81	47
Business Letter Writing. . . . .	35	73	35

TABLE 14

ECONOMICS  
(N=80)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economics of Production and Cost . . . . .	34	71	23
Fundamentals of Economics. . . . .	27	56	19
The Price Mechanism. . . . .	26	66	15
Economic Trends. . . . .	21	56	9
The Economic Systems of the United States. . . . .	18	53	8
Economics of Technology and Innovation . . . . .	14	40	6
Comparative Economic Systems . . . . .	9	33	12
International Economics. . . . .	5	18	4

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=77)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	35	75	23
Inventory Management . . . . .	29	60	19
Review of Basic Mathematics. . .	26	47	32
Statistical Decision Theory. . .	25	62	11
Replacement Management . . . . .	22	54	10
Applying Program Evaluation and Review Techniques (PERT) . . .	19	53	12
Statistical Procedures and Methods. . . . .	17	45	16
Dynamic Programming. . . . .	12	29	8
Linear Programming . . . . .	11	39	11
Probability Theory . . . . .	9	29	9
Waiting Lines. . . . .	4	21	3
Analytic Geometry. . . . .	4	15	8
Matrix Algebra . . . . .	4	13	3
Calculus of Finite Differences .	0	13	3
Calculus of Infinite Series. . .	0	12	3

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Data Systems and Processing. . .	17	32	11
Applying the Computer to Problems of Business and Management . . . . .	14	36	10
Fundamentals of Programming for Computer Operations. . . . .	7	24	7
Mathematics for Digital Computers	4	14	6

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=39)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management and Labor Relations . . . . .	59	80	26
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . . .	49	77	31
Maintaining Efficient and Up-to- Date Personnel Records . . . . .	45	87	26
In-plant Training. . . . .	45	31	42
Job Analysis and Job Evaluation Methods. . . . .	45	80	29
Employee Benefit Plans . . . . .	35	64	16
Salary and Wage Administration . . . . .	30	66	9
Industrial Safety and Medical Services . . . . .	29	61	32

TABLE 18

FINANCIAL MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Budgets . . . . .	48	70	22
Managerial Accounting . . . . .	26	59	15
Fundamentals of Financial Reporting and Statement Analysis . . . . .	22	59	11
New Developments in Equipment Replacement Policy . . . . .	21	50	11
Taxes . . . . .	14	43	7
Financial Planning and Forecasting . . . . .	11	33	4

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Value Analysis . . . . .	47	76	31
Production Planning and Control Management . . . . .	44	77	25
Methods Analysis and Work Simplification . . . . .	44	71	33
Quality Control . . . . .	44	60	27
Maintenance Planning and Control	43	63	43
Automation . . . . .	41	71	20
Materials Handling . . . . .	40	64	38
Inventory Management . . . . .	36	76	27
Organization and Management of Purchasing Operations . . . . .	26	54	12
Engineering Economy . . . . .	18	52	16

TABLE 20

MARKETING  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Fundamentals of Pricing . . . . .	59	69	14
Product Planning . . . . .	57	84	23
Marketing Management . . . . .	55	69	10
Marketing Research . . . . .	54	72	7
Fundamentals of Marketing . . . . .	53	80	17
Physical Distribution Methods . . . . .	52	73	14
Packaging Design and Development . . . . .	50	63	7
Brand Marketing . . . . .	46	71	14
Application of Management Science and Computers to Marketing Problems . . . . .	28	49	0

TABLE 21

SALES MANAGEMENT  
(N=35)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Motivating Salesmen . . . . .	56	81	38
Training of Field Salesmen . . . . .	48	71	42
Supervision of Field Salesmen . . . . .	47	66	34
Compensation of Field Salesmen . . . . .	45	63	18
Selection and Evaluation of Field Salesmen . . . . .	43	69	20

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Monetary Exchange Problems . . .	13	13	6
International Understanding. . .	12	24	6
International Law. . . . .	12	18	6
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade . . . . .	12	18	6
United States Foreign Economic Policy . . . . .	12	18	0
Commercial Policy and Trade Control. . . . .	12	12	0
International Economic Analysis. . . . .	12	12	0
Appraising and Developing Foreign Markets. . . . .	12	12	0
Sources of Funds: Financing of Day-to-Day Transactions. . . . .	11	17	0
International Economic Organizations. . . . .	11	11	0

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning Budgeting and Control of Projects. . . . .	26	42	5
Guidelines for Selecting and Appraising New Projects. . . . .	21	42	5
Evaluation of the Research and Development Programs . . . . .	21	37	5
Supervision and Management of Research Services. . . . .	21	37	0
Building Research and Develop- ment Teams . . . . .	16	37	5



Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=35) of the 86 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Eighty-seven percent (N=74) had completed high school, 37 percent (N=32) had the bachelor's degree, and five percent (N=4) had the master's degree. No one had the doctorate. Seventeen percent (N=15) went to business school and seven percent (N=6) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Agriculture . . . . .	6	0
Business Administration . . . . .	13	1
Engineering . . . . .	4	0
Law . . . . .	0	1
Liberal Arts . . . . .	5	0
Psychology . . . . .	3	0
Other (not specified) . . . . .	1	2
 Total . . . . .	 32	 4

The major areas of work for the middle managers in the Food and Kindred Products industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	19	24
Engineering . . . . .	5	6
Finance . . . . .	2	2
Industrial Relations . . . . .	2	2
Maintenance . . . . .	2	2
Manufacturing . . . . .	11	14
Marketing and Sales . . . . .	22	28
Production Control - Records . . . . .	5	6
Purchasing and Procurement . . . . .	6	7
Research and Development . . . . .	1	1
Traffic and Transportation . . . . .	6	7
Other (not specified) . . . . .	1	1
 Total . . . . .	 82	 100

## Methods of Updating

Fifty-seven percent (N=47) of the middle managers would take a credit course and 68 percent (N=58) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the master's degree. Of those who indicated that they planned to enroll for a degree, one was planning to enroll for an associate degree, one for the bachelor's, and four for the master's. The major fields of study were: four in business administration, one in education, one in psychology, and one in another field which was not specified.

Seventy-eight percent had no plans for further degree work and their reasons are given below:

TABLE 26

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	24	37
Not a high school graduate. . . . .	10	15
Job demands no more education . . . . .	8	12
Cannot afford it. . . . .	6	9
Not interested. . . . .	5	7
Live too far from educational center. . . . .	4	6
Can do better on my own . . . . .	3	4
Other (not specified) . . . . .	7	10
 Total. . . . .	 67	 100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=86)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics. . . . .	37	43
Company in-service training courses . . . . .	27	31
Managerial development within company . . . . .	26	30
Attendance at regional or national meetings of professional societies . . . . .	23	27
Correspondence courses. . . . .	14	16
Short refresher courses at colleges or universities. . . . .	10	12
Workshops or seminars in liberal arts or humanities. . . . .	3	3
High school courses . . . . .	2	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=83)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	66	30	2	0	2
In-plant reports and bulletins . . . .	61	24	3	3	9
Subordinate-superior discussions or meetings. . . . .	51	42	1	0	6
Manufacturer's literature. . . . .	36	35	13	13	3
Management journals. . . . .	29	47	13	5	6
Business reports . . . . .	27	47	17	8	1
Scientific and technical journals. . .	24	36	19	20	1
Professional society meetings. . . . .	19	21	15	37	8
Technical books, reports, abstracts and indexes. . . . .	17	34	21	25	3
Lectures, conferences, workshops, and seminars . . . . .	13	28	34	9	16
Company in-service courses . . . . .	12	22	8	22	36
Use of consultants . . . . .	8	19	24	40	9
College and university evening courses. . . . .	7	5	9	66	13
College and university day courses . .	0	0	5	87	8

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=86)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction. . . . .	43	50
Correspondence courses. . . . .	35	41
Educational television. . . . .	22	26
Courses recorded on records . . . . .	12	14
Courses recorded on tapes . . . . .	11	13
Two-way telephone courses . . . . .	9	10
Two-way radio courses . . . . .	7	8

Company Attitudes Toward Education

Of the 85 managers responding to a question on the attitude of their immediate superior toward continuing their education, 46 percent (N=39) said the superior encouraged them and 53 percent (N=45) said the superior was noncommittal. One percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=80)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	80	9	0	11
Attend professional meetings . . . . .	70	26	0	4
Hold office in professional societies. . . . .	57	26	1	16
Enroll for advanced work . . . . .	54	24	1	21
Attend seminars or workshops away from the company. . . . .	50	21	7	22
Write technical and professional papers . . . . .	30	27	0	43
Educational leave of absence. . . . .	9	13	11	67

Forty-nine percent of the middle managers indicated that they were employed by companies which provided in-service training; 44 percent were not, and seven percent did not know. Forty-four percent said the training was entirely on company time, 36 percent said it was partly on company time, seven percent said it was not on company time, and 13 percent did not know.

Fifty-three percent reported that their company had an educational assistance plan. Thirty-eight percent said it did not and nine percent did not know. Forty-six percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 41 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	16
About 3/4 . . . . .	6
About 2/3 . . . . .	0
About 1/2 . . . . .	12
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	7
 Total. . . . .	 41

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	5
251 - 300 . . . . .	1
201 - 250 . . . . .	0
151 - 200 . . . . .	1
101 - 150 . . . . .	1
51 - 100 . . . . .	2
50 or less . . . . .	0
Don't know. . . . .	29
 Total. . . . .	 39

When asked about the effect of available company educational assistance in motivating them to undertake further education, 27 percent of the middle managers said it had strongly encouraged them, 34 percent said it had partially influenced them, and 39 percent said it had no effect. There is an inconsistency here: while 61 percent said the availability of financial aid motivated them to some extent, only one person was actually enrolled and six were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

## FIRST-LINE SUPERVISION

In the industrial category of Food and Kindred Products, 129 first-line supervisors from 20 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

### Educational Needs

The 129 first-line supervisors in the category of Food and Kindred Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	66
Leadership. . . . .	64
Communications. . . . .	59
Human Aspect of Management. . . . .	59
Inter-Departmental Cooperation. . . . .	55
The Tools and Techniques of Effective Supervision .	55
Decision Making . . . . .	54
Supervisor's Role in Company Economics. . . . .	53
Supervisor's Role in Employee Discipline. . . . .	52
Developing the Work Team. . . . .	51
Employee Training . . . . .	50
Evaluation of Employee Performance. . . . .	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=125)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . .	82	66	113	91
The Tools and Techniques of Effective Supervision. . . . .	68	55	114	92
Inter-Departmental Cooperation . . . . .	66	55	110	91
Decision Making. . . . .	65	54	110	91
Supervisor's Role in Company Economics . .	64	53	106	88
Supervisor's Role in Employee Discipline .	63	52	104	86
<u>Employee Training and Evaluation</u>				
Employee Training. . . . .	51	50	102	84
Evaluation of Employee Performance . . . .	50	50	101	84
Safety . . . . .	60	49	103	84
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . .	57	48	95	80
Labor Relations. . . . .	46	39	85	72
Labor Relations Legislation. . . . .	24	20	75	63
<u>Developing Those We Supervise</u>				
Leadership . . . . .	78	64	110	90
Human Aspect of Management . . . . .	73	59	114	92
Communications . . . . .	71	59	105	87
Developing the Work Team . . . . .	60	51	97	83

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty-nine percent (N=62) of the first-line supervisors were 40 years of age or younger. Sixty percent (N=77) were high school graduates, 11 percent (N=14) had the bachelor's degree, and no one had the master's degree or the doctorate. Nine percent (N=11) had gone to business school and 13 percent (N=17) to trade school. The major fields of degree study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>
Agriculture . . . . .	2
Business Administration . . . . .	10
Education . . . . .	1
Other (not specified) . . . . .	1
 Total. . . . .	 14

Below is a listing of the major areas of work for the first-line supervisors in the Food and Kindred Products industry:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration. . . . .	11	9
Engineering . . . . .	3	2
Finance . . . . .	3	2
Industrial Relations. . . . .	3	2
Maintenance . . . . .	10	8
Manufacturing . . . . .	38	31
Marketing and Sales . . . . .	21	17
Production Control - Records. . . . .	17	14
Purchasing and Procurement. . . . .	2	2
Service (yard and labor personnel, etc.)	9	7
Traffic and Transportation. . . . .	6	5
Other (not specified) . . . . .	1	1
 Total. . . . .	 124	 100

Methods of Updating

Forty-seven percent (N=57) of the first-line supervisors would take a credit course and 76 percent (N=97) would take a non-credit course if they were offered locally.

Three of the supervisors were currently enrolled for the bachelor's degree. Five were planning to enroll, three for the associate degree and two for the master's. The curriculum for those enrolled or planning to enroll was: four in business administration, two in liberal arts, one in agriculture, and one in another field which was not specified.

For the 111 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	33	29
Not a high school graduate. . . . .	25	23
Cannot afford it. . . . .	21	19
Job demands no more education . . . . .	12	11
Not interested. . . . .	6	5
Live too far from educational center. . . . .	4	4
Can do better on my own . . . . .	3	3
Other (not specified) . . . . .	7	6
Total, . . . . .	111	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=129)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses . . . . .	54	42
Managerial development within company . . . . .	48	37
Workshops or seminars on managerial topics. . . . .	22	17
Correspondence courses. . . . .	20	16
Attendance at regional or national meetings of professional societies. . . . .	16	12
Short refresher courses at colleges or universities . . . . .	10	8
Workshops or seminars in liberal arts or humanities. . . . .	4	3
High school courses to improve job performance . . . . .	4	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38  
SOURCES OF INFORMATION USED IN UPDATING  
(N=113)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins . . .	64	13	4	4	10
Discussion with company personnel (informal or formal) . . . . .	55	37	2	1	5
Subordinate-superior discussions or meetings. . . . .	44	38	8	6	4
Manufacturer's literature. . . . .	26	22	22	20	10
Management journals. . . . .	22	38	13	14	13
Business reports . . . . .	18	35	17	26	4
Company in-service courses . . . . .	17	27	6	12	38
Lectures, conferences, workshops, and seminars . . . . .	16	26	21	18	19
Scientific and technical journals. .	14	18	16	42	10
Use of consultants . . . . .	12	20	18	40	10
Technical books, reports, abstracts, and indexes. . . . .	11	28	19	34	8
Professional society meetings. . . .	8	15	22	50	5
College and university day courses .	1	2	5	84	8
College and university evening courses. . . . .	0	9	6	75	10

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=129)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses. . . . .	82	64
Programmed instruction. . . . .	60	47
Educational television. . . . .	28	22
Courses recorded on records . . . . .	21	16
Courses recorded on tapes . . . . .	19	15
Two-way telephone courses . . . . .	15	12
Two-way radio courses . . . . .	6	5
Other (not specified) . . . . .	3	2

Company Attitudes Toward Education

A total of 121 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty-two percent (N=63) said the superior encouraged them; 48 percent (N=58) said he was noncommittal; and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=115)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	83	3	1	13
Attend professional meetings . . . . .	62	12	1	25
Enroll for advanced work . . . . .	57	12	0	31
Attend seminars or workshops away from the company. . . . .	50	13	1	36
Hold office in professional societies . . . . .	45	0	0	36
Write technical and professional papers. . . . .	24	17	0	59
Educational leave of absence. . . . .	14	9	3	76

Fifty-two percent of the supervisors indicated that they were employed by companies which provided in-service training; 43 percent said their company did not provide it and five percent did not know. Forty-two percent said the training was completely on company time, 27 percent said it was partly on company time, 18 percent said it was entirely on the men's own time, and 13 percent did not know.

Forty-seven percent reported that their company had an educational assistance plan; 43 percent said it did not, and ten percent did not know. Fifty percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 54 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	24
About 3/4 . . . . .	5
About 2/3 . . . . .	0
About 1/2 . . . . .	14
About 1/3 . . . . .	1
Less than 1/3 . . . . .	0
Don't know. . . . .	10
 Total. . . . .	 54

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300. . . . .	4
251 - 300 . . . . .	1
201 - 250 . . . . .	1
151 - 200 . . . . .	1
101 - 150 . . . . .	1
51 - 100 . . . . .	1
50 or less . . . . .	0
Don't know. . . . .	42
 Total. . . . .	 51



When asked what the effect of available financial assistance was on their motivation to undertake further education, 38 percent of the supervisors said it strongly encouraged them, 32 percent said it partially influenced them, and 30 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 70 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only three of the 129 respondents were actually enrolled and five were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE FOOD AND KINDRED PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Food and Kindred Products were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." The results were quite similar.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Food and Kindred Products</u> N=59	<u>Total Report</u> N=705
Communication in the Organization. . . . .	62	59
Human Aspect of Management . . . . .	55	*
Managerial Motivation. . . . .	55	*
Long-range Planning and Forecasting for Corporate Growth . . . . .	54	50
Effective Written Communications . . . . .	53	50
Management Development . . . . .	*	53
Effective Speaking . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Food and Kindred Products</u> N=59	<u>Total Report</u> N=705
Working Effectively with Individuals and Groups . . . . .	72	66
Effective Speaking . . . . .	67	67
Effective Reading Skills . . . . .	65	62
Effective Written Communications . . . . .	63	74
Communication in the Organization . . . . .	62	65
Listening Skills . . . . .	62	62
Performance Appraisal and Counseling Techniques . . . . .	56	57
Improving Decision Making of Managers . . . . .	54	54
Management Development . . . . .	53	56
Human Aspect of Management . . . . .	50	54
Management Reporting Systems . . . . .	50	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Food and Kindred Products and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	Percent	
	<u>Food and Kindred Products</u> N=86	<u>Total Report</u> N=1,202
Management Development . . . . .	68	66
Working Efficiently with Individuals . . . . .	67	65
Effective Communication in the Organization . . . . .	65	64
Supervisory Training and Employee Development . . . . .	59	53

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Food and Kindred Products</u> N=86	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	60	62
Effective Communication in the Organization. . . . .	58	56
Supervisory Training and Employee Development. . . . .	56	61
Management Development . . . . .	50	*
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Food and Kindred Products</u> N=129	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	66	64
Leadership . . . . .	64	57
Communications . . . . .	59	51
Human Aspect of Management . . . . .	59	53
The Tools and Techniques of Effective Supervision. . . . .	55	55
Inter-Departmental Cooperation . . . . .	55	*
Decision Making. . . . .	54	54
Supervisor's Role in Company Economics . . . . .	53	*
Supervisor's Role in Employee Discipline . . . . .	52	*
Developing the Work Team . . . . .	51	*
Employee Training. . . . .	50	*
Evaluation of Employee Performance . . . . .	50	*

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent methods of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining



**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN  
INSURANCE COMPANIES

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN  
INSURANCE COMPANIES  
IN PENNSYLVANIA

M-70

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MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN INSURANCE COMPANIES IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 128 managers and supervisors from eight Insurance companies in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

None of the 48 courses listed was checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said six courses were needed. (Page 3)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for five courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need nine of the listed courses. (Page 8)

The educational level was high, with 48 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Page 16-19)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for four out of 16 courses. (Page 21)

Fifty-four percent of the supervisors had the bachelor's degree, showing a high level of education. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

TOP MANAGEMENT

In the category of Insurance, 30 top managers from eight companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

No course reached a "Should Have" need of 50 percent or more for the top managers. Effective Speaking was seen as needed by 43 percent and Communication in the Organization by 41 percent.

Fifty percent or more of the top managers indicated that those they supervise need the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Speaking. . . . .	73
Effective Written Communications. . . . .	70
Working Effectively with Individuals and Groups . . . . .	63
Effective Reading Skills. . . . .	60
Listening Skills. . . . .	55
Performance Appraisal and Counseling Techniques . . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT (N=30)			
	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Policy Formation . . . . .	37	80	33
Improving Decision Making of Managers . . . . .	34	72	45
Long-range Planning and Fore- casting for Corporate Growth .	31	83	21
Overall Strategy and Goals . . .	30	87	27
Effective Utilization of Man- power Resources and Allocation	30	73	27
Management Reporting Systems . .	23	63	27
Industrial Organization and Administration . . . . .	23	53	33
Managing Major Change in Organizations . . . . .	21	55	14
Impact of Computer Technology . .	17	47	20
Ethical Considerations in Business . . . . .	13	46	13
Impact of Government Legislation and Controls on Business . . . .	13	33	20
Impact of Science and Technology on Business Management . . . . .	7	40	10
Management of Research and Development . . . . .	4	36	7
Impact of Multinational Aspects of Planning and Control . . . . .	3	6	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	41	89	48
Working Effectively with Individuals and Groups . . . . .	33	76	63
Managerial Motivation . . . . .	30	90	43
Human Aspect of Management . . . . .	30	80	47
Creativity and Innovation . . . . .	7	43	14
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	3	44	14

TABLE 3

COMMUNICATIONS TECHNIQUES  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Speaking . . . . .	43	76	73
Listening Skills . . . . .	38	86	55
Effective Reading Skills . . . . .	37	87	60
Effective Written Communications	37	77	70

TABLE 4

ECONOMICS  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	3	48	10
Comparative Economic Systems . . . . .	0	21	7

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=29)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Statistical Decision Theory. . . . .	7	45	21
Survey Course on Quantitative Methods. . . . .	7	41	17

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	37	77	37
Performance Appraisal and Counseling Techniques. . . . .	36	79	50
Incentives . . . . .	31	65	24
Personnel Policy Affecting Wage and Salary Structure . . . . .	21	50	18
Criteria and Selection of Personnel. . . . .	21	49	28
Personnel Policy Affecting Employment Practices . . . . .	14	28	11
Personnel Policy Affecting Labor-Management Relations . . . . .	11	26	11

TABLE 7

FINANCIAL MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Managerial Accounting and Budgeting. . . . .	26	59	19
Fundamentals of Financial Reporting and Statement Analysis . . . . .	25	64	21
Financial Planning and Forecasting. . . . .	18	39	14
Capital Budgeting. . . . .	11	25	4



TABLE 8

MANUFACTURING AND PRODUCTION  
(N=25)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Operations Planning and Control.	4	24	4
Planning and Utilization of Physical Facilities. . . . .	4	21	8
Operations Research Applied to Production . . . . .	0	17	4

TABLE 9

MARKETING  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Marketing Research . . . . .	12	47	8
Pricing. . . . .	8	21	4
Product Planning . . . . .	4	36	8
Logistics Planning . . . . .	4	12	4

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=27)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . .	4	34	4
International Economic Analysis.	4	16	0

**MIDDLE MANAGEMENT**

In the category of Insurance, 52 middle managers from eight companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

**Educational Needs Within Areas of Managerial Responsibility**

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development. . . . .	67
Working Efficiently with Individuals. . . . .	65
Supervisory Training and Employee Development . . . . .	59
Effective Communication in the Organization . . . . .	58
Performance Appraisal and Counseling Techniques . . . . .	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Working Efficiently with Individuals. . . . .	79
Supervisory Training and Employee Development . . . . .	71
Business Letter Writing . . . . .	65
Effective Communication in the Organization . . . . .	60
Management Development. . . . .	58
Listening Skills. . . . .	58
Oral Presentation of Reports. . . . .	54
Performance Appraisal and Counseling Techniques . . . . .	52
Effective Reading Skills. . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Insurance category.

TABLE 11  
GENERAL MANAGEMENT  
(N=52)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	67	84	58
Working Efficiently with Individuals . . . . .	65	92	79
Supervisory Training and Employee Development . . . . .	59	79	71
Performance Appraisal and Counseling Techniques . . . . .	50	77	52
Criteria and Selection of Personnel for Promotion . . . . .	44	79	44
Analyzing Organizational Behavior . . . . .	30	74	32
Principles and Analysis of Office Systems . . . . .	27	70	35
Long-range Planning and Fore- casting for Corporate Growth . . . . .	24	55	20
Effective Utilization of Man- power Resources and Allocation . . . . .	18	49	25
Impact of Government Legislation and Controls on Business . . . . .	14	59	18
Impact of Computer Technology . . . . .	14	51	18
The Application of Information Technology on Decision Making . . . . .	12	36	14
Impact of Science and Technology on Business Management . . . . .	8	45	16

TABLE 12  
BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=50)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Psychology . . . . .	33	73	35
Human Aspect of Management . . . . .	24	72	34
Creativity and Innovation . . . . .	22	51	20
Understanding Group Interaction and Behavior . . . . .	20	71	35
Industrial Sociology . . . . .	12	32	8
Social and Cultural Trends and Their Impact on Business Management . . . . .	8	39	14
Impact of Consumer Behavior on Management . . . . .	8	26	8

TABLE 13

COMMUNICATION  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	58	91	60
Listening Skills . . . . .	38	76	58
Effective Reading Skills . . . . .	33	77	50
Oral Presentation of Reports . . . . .	33	73	54
Effective Report Writing . . . . .	31	73	48
Business Letter Writing . . . . .	29	74	65
Conference Leadership . . . . .	26	60	19

TABLE 14

ECONOMICS  
(N=50)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Economics . . . . .	12	39	18
Economics of Production and Cost . . . . .	12	22	10
The Price Mechanism . . . . .	10	22	2
Economic Trends . . . . .	6	38	10
The Economic Systems of the United States . . . . .	4	31	6
International Economics . . . . .	4	16	2
Comparative Economic Systems . . . . .	2	18	2
Economics of Technology and Innovation . . . . .	2	18	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	29	62	18
Review of Basic Mathematics. . .	15	30	25
Replacement Management . . . . .	8	18	8
Statistical Decision Theory. . .	6	39	4
Applying Program Evaluation and Review Techniques (PERT) . . .	6	25	2
Inventory Management . . . . .	4	12	13
Linear Programming . . . . .	4	6	2
Statistical Procedures and Methods. . . . .	2	20	2
Probability Theory . . . . .	2	14	2
Dynamic Programming. . . . .	2	10	0
Analytic Geometry. . . . .	2	2	2
Waiting Lines. . . . .	0	8	0
Matrix Algebra . . . . .	0	4	2
Calculus of Infinite Series. . .	0	4	0
Calculus of Finite Differences .	0	2	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=50)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Data Systems and Processing. . .	12	60	14
Applying the Computer to Problems of Business and Management . . . . .	8	55	10
Fundamentals of Programming for Computer Operations. . . . .	2	21	4
Mathematics for Digital Computers. . . . .	2	15	0

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=23)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	48	91	43
In-plant Training. . . . .	29	50	29
Salary and Wage Administration .	27	47	33
Job Analysis and Job Evaluation Methods. . . . .	21	50	36
Maintaining Efficient and Up- To-Date Personnel Records. . .	21	22	21
Employee Benefit Plans . . . . .	20	40	27
Industrial Safety and Medical Services . . . . .	7	21	7
Management and Labor Relations .	7	21	0



TABLE 18

**FINANCIAL MANAGEMENT**  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
<b>Fundamentals of Financial Reporting and Statement</b>			
Analysis . . . . .	50	50	8
Taxes . . . . .	38	46	8
Budgets . . . . .	25	42	25
Managerial Accounting . . . . .	23	46	15
<b>Financial Planning and Forecasting . . . . .</b>	8	25	0
<b>New Developments in Equipment Replacement Policy . . . . .</b>	0	36	0

TABLE 19

**MANUFACTURING AND PRODUCTION**  
(N=10)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
<b>Methods Analysis and Work</b>			
Simplification . . . . .	30	50	0
Quality Control . . . . .	14	14	0
<b>Organization and Management of</b>			
Purchasing Operations . . . . .	0	25	13
Value Analysis . . . . .	0	17	17
Materials Handling . . . . .	0	14	0

No need was indicated by middle managers for themselves or those they supervise for any of the other courses.

TABLE 20

MARKETING  
(N=10)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Fundamentals of Marketing. . . . .	40	50	10
Application of Management Science and Computers to Marketing Problems . . . . .	33	33	0
Physical Distribution Methods. . . . .	33	33	0
Marketing Management . . . . .	30	50	0
Product Planning . . . . .	20	50	10
Marketing Research . . . . .	20	40	10
Fundamentals of Pricing. . . . .	10	20	0
Packaging Design and Development	0	33	0
Brand Marketing. . . . .	0	30	0

TABLE 21

SALES MANAGEMENT  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Motivating Salesmen. . . . .	59	77	41
Supervision of Field Salesmen. . . . .	53	77	29
Selection and Evaluation of Field Salesmen . . . . .	50	81	38
Training of Field Salesmen . . . . .	47	82	41
Compensation of Field Salesmen . . . . .	24	48	24

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
United States Foreign Economic Policy . . . . .	20	20
Monetary Exchange Problems . . . . .	0	20
Sources of Funds: Financing of Day-to-Day Transactions . . . . .	0	20
International Economic Organizations . . . . .	0	17
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade . . . . .	0	17

Middle managers indicated no need on the part of those they supervise for any of the courses.

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Evaluation of the Research and Development Programs . . . . .	17	17	0
Supervision and Management of Research Services . . . . .	14	43	14
Building Research and Development Teams . . . . .	14	28	0
Guidelines for Selecting and Appraising New Projects . . . . .	14	14	0
Planning Budgeting and Control of Projects . . . . .	13	38	13

Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=21) of the 52 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-two percent (N=48) had completed high school, 48 percent (N=25) had the bachelor's degree, and 15 percent (N=8) had the master's degree. One person had the doctorate in a field which was not specified. Thirteen percent (N=7) went to business school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Architecture . . . . .	1	0
Business Administration. . . . .	7	2
Engineering. . . . .	3	0
Law. . . . .	0	4
Liberal Arts . . . . .	8	0
Mineral Industries . . . . .	1	0
Psychology . . . . .	2	0
Other (not specified). . . . .	3	2
<b>Total . . . . .</b>	<b>25</b>	<b>8</b>

The major areas of work for the middle managers in Insurance are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	27	52
Finance. . . . .	5	10
Industrial Relations . . . . .	1	2
Manufacturing. . . . .	1	2
Marketing and Sales. . . . .	6	12
Production Control — Records. . . . .	2	4
Purchasing and Procurement . . . . .	2	4
Research and Development . . . . .	1	2
Other (not specified). . . . .	6	12
<b>Total . . . . .</b>	<b>51</b>	<b>100</b>

## Methods of Updating

Forty-two percent (N=21) of the middle managers would take a credit course and 60 percent (N=31) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the bachelor's degree in business administration. No one was planning to enroll.

Eighty-eight percent had no plans for further degree work and their reasons are given below:

TABLE 26

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time. . . . .	13	28
Job demands no more education. . . . .	10	22
Not interested . . . . .	6	13
Can do better on my own. . . . .	3	7
Live too far from educational center . . . . .	1	2
Cannot afford it . . . . .	1	2
Not a high school graduate . . . . .	1	2
Other (not specified). . . . .	11	24
 Total . . . . .	 46	 100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=52)

	<u>Number Managers</u>	<u>Percent Managers</u>
Attendance at regional or national meetings of professional societies. . . . .	30	58
Workshops or seminars on managerial topics . . . . .	26	50
Company in-service training courses. . . . .	20	38
Managerial development within company. . . . .	16	31
Short refresher courses at colleges or universities . . . . .	8	15
Correspondence courses . . . . .	5	10
Workshops or seminars in liberal arts or humanities . . . . .	3	6
Television courses . . . . .	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=51)

	Use Frequently	Average Use	<u>Percent</u>			Would Use If Available
			Use Very Little	Do Not Use		
Discussion with company personnel (informal or formal) . . . . .	75	25	0	0	0	
In-plant reports and bulletins . .	64	24	6	4	2	
Subordinate-superior discussions or meetings. . . . .	60	34	6	0	0	
Business reports . . . . .	39	37	22	2	0	
Management journals. . . . .	27	45	20	4	4	
Lectures, conferences, workshops and seminars . . . . .	25	51	18	4	2	
Technical books, reports, abstracts and indexes. . . . .	18	48	18	16	0	
Company in-service courses . . . .	18	28	20	24	10	
Scientific and technical journals.	12	42	14	32	0	
Manufacturer's literature. . . . .	8	17	19	56	0	
Use of consultants . . . . .	6	8	18	68	0	
Professional society meetings. . .	4	44	24	24	4	
College and university evening courses. . . . .	2	4	8	80	6	
College and university day courses	0	2	0	98	0	



Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=52)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	18	35
Programmed instruction . . . . .	17	33
Educational television . . . . .	13	25
Courses recorded on records. . . . .	6	12
Courses recorded on tapes. . . . .	5	10

No managers reported a preference for two-way radio courses or two-way telephone courses.

Company Attitudes Toward Education

Of the 51 managers responding to a question on the attitude of their immediate superior toward continuing their education, 49 percent (N=25) said the superior encouraged them and 51 percent (N=26) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities as follows:

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=49)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	96	4	0	0
Attend professional meetings . . . . .	90	6	4	0
Hold office in professional societies . . . . .	86	10	2	2
Attend seminars or workshops away from the company. . . . .	78	12	2	8
Enroll for advanced work . . . . .	68	18	0	14
Write technical and professional papers. . . . .	48	28	0	24
Educational leave of absence. . . . .	6	10	27	57

Seventy-seven percent of the middle managers indicated that they were employed by companies which provided in-service training, and 23 percent were not. Forty-two percent said the training was entirely on company time, 54 percent said it was partly on company time, two percent said it was not on company time, and two percent did not know.

Eighty-one percent reported that their company had an educational assistance plan. Seventeen percent said it did not and two percent did not know. Sixty-five percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company as indicated by the 37 managers who responded to this question follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all, . . . . .	7
About 3/4. . . . .	10
About 2/3. . . . .	2
About 1/2. . . . .	12
About 1/3. . . . .	0
Less than 1/3. . . . .	2
Don't know . . . . .	4
 Total . . . . .	 37

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	1
251 - 300. . . . .	17
201 - 250. . . . .	0
151 - 200. . . . .	0
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	1
Don't know . . . . .	16
 Total . . . . .	 35

When asked about the effect of available company educational assistance in motivating them to undertake further education, five percent of the middle managers said it had strongly encouraged them, 11 percent said it had partially influenced them, and 84 percent said it had no effect. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

### FIRST-LINE SUPERVISION

In the category of Insurance, 46 first-line supervisors from eight companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 46 first-line supervisors in the category of Insurance were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Communications. . . . .	60
Fundamentals of the Supervisor's Job. . . . .	56
The Tools and Techniques of Effective Supervision . . . . .	51
Human Aspect of Management. . . . .	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=45)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . . .	25	56	36	80
The Tools and Techniques of Effective Supervision. . . . .	23	51	36	80
Inter-Departmental Cooperation . . . . .	20	44	36	80
Decision Making. . . . .	19	42	35	78
Supervisor's Role in Employee Discipline . . .	17	38	36	80
Supervisor's Role in Company Economics . . .	17	38	36	80
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . . .	21	47	35	78
Employee Training. . . . .	13	30	30	69
Safety . . . . .	1	2	6	13
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . . .	1	2	9	20
Labor Relations Legislation. . . . .	1	2	1	2
Labor Relations. . . . .	0	0	1	2
<u>Developing Those We Supervise</u>				
Communications . . . . .	27	60	38	84
Human Aspect of Management . . . . .	23	51	36	80
Leadership . . . . .	21	47	35	78
Developing the Work Team . . . . .	16	36	28	63

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Sixty-five percent (N=30) of the first-line supervisors were 40 years of age or younger. Eighty-nine percent (N=41) were high school graduates, 54 percent (N=25) had the bachelor's degree, and four percent (N=2) had the master's degree; no one had the doctorate. Twenty percent (N=9) had gone to business school. The major fields of study are indicated in the following table:

TABLE 34

## MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Architecture . . . . .	1	0
Business Administration. . . . .	16	2
Liberal Arts . . . . .	6	0
Psychology . . . . .	1	0
Other (not specified). . . . .	1	0
 Total . . . . .	 25	 2

Below is a listing of the major areas of work for the first-line supervisors in Insurance:

TABLE 35

## MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	27	59
Finance. . . . .	5	11
Marketing and Sales. . . . .	5	11
Production Control — Records. . . . .	1	2
Purchasing and Procurement . . . . .	1	2
Research and Development . . . . .	1	2
Service (yard and labor personnel, etc.)	1	2
Other (not specified). . . . .	5	11
 Total . . . . .	 46	 100

## Methods of Updating

Fifty-three percent (N=24) of the first-line supervisors would take a credit course and 61 percent (N=28) would take a non-credit course if they were offered locally.

One of the supervisors was currently enrolled for the bachelor's degree and one was planning to enroll for the master's degree. The major field of both was liberal arts.

For the 38 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time. . . . .	16	41
Job demands no more education. . . . .	6	16
Cannot afford it . . . . .	4	11
Not interested . . . . .	4	11
Live too far from educational center . .	3	8
Other (not specified). . . . .	5	13
 Total . . . . .	 38	 100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=46)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses. . .	23	50
Managerial development within company. .	16	35
Workshops or seminars on managerial topics . . . . .	15	33
Correspondence courses . . . . .	12	26
Attendance at regional or national meetings of professional societies . .	10	22
Short refresher courses at colleges or universities. . . . .	5	11
Workshops or seminars in liberal arts or humanities. . . . .	3	6



The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38  
 SOURCES OF INFORMATION USED IN UPDATING  
 (N=44)

		<u>Percent</u>			
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	63	30	7	0	0
In-plant reports and bulletins . .	49	41	0	5	5
Subordinate-superior discussions or meetings. . . . .	45	44	7	2	2
Business reports . . . . .	33	40	17	10	0
Management journals. . . . .	24	40	22	12	2
Technical books, reports, abstracts, and indexes . . . . .	22	29	27	15	7
Lectures, conferences, workshops, and seminars . . . . .	20	46	22	10	2
Company in-service courses . . . .	18	33	10	26	13
Use of consultants . . . . .	18	21	8	48	5
Scientific and technical journals.	16	24	31	24	5
Professional society meetings. . .	13	20	13	44	10
Manufacturer's literature. . . . .	8	8	18	63	3
College and university evening courses. . . . .	8	5	8	64	15
College and university day courses	0	3	3	81	13

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=46)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	22	48
Programmed instruction . . . . .	20	43
Educational television . . . . .	18	39
Courses recorded on tapes. . . . .	10	22
Courses recorded on records. . . . .	9	20
Two-way telephone courses. . . . .	6	13
Two-way radio courses. . . . .	3	7
Other (not specified). . . . .	1	2

Company Attitudes Toward Education

A total of 43 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-seven percent (N=20) said the superior encouraged them; 49 percent (N=21) said he was noncommittal, and four percent (N=2) said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in Table 40. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=42)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	97	3	0	0
Hold office in professional societies . . . . .	70	15	5	10
Attend professional meetings . . . . .	69	18	5	8
Enroll for advanced work . . . . .	59	35	3	3
Attend seminars or workshops away from the company. . . . .	47	27	8	18
Write technical and professional papers. . . . .	32	34	5	29
Educational leave of absence. . . . .	7	12	29	52

Seventy-two percent of the supervisors indicated that they were employed by companies which provided in-service training; 26 percent said their company did not provide it and two percent did not know. Thirty-five percent said the training was completely on company time, 49 percent said it was partly on company time, 11 percent said it was entirely on the men's own time, and five percent did not know.

Fifty-six percent reported that their company had an educational assistance plan; 37 percent said it did not, and seven percent did not know. Thirty-two percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 21 supervisors who answered this question, is shown in the table below:

TABLE 41  
PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	4
About 3/4 . . . . .	6
About 2/3 . . . . .	0
About 1/2 . . . . .	5
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	6
Total. . . . .	21

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42  
MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300. . . . .	1
251 - 300 . . . . .	1
201 - 250 . . . . .	0
151 - 200 . . . . .	1
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	18
Total. . . . .	21

When asked what the effect of available financial assistance was on their motivation to undertake further education, nine percent of the supervisors said it strongly encouraged them, 26 percent said it partially influenced them, and 65 percent said it had no effect.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN INSURANCE COMPANIES WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT.

The educational needs of managers and supervisors in the category of Insurance were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." The results were quite similar, with the exception of the educational needs of top management and those supervised by middle management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers.

	<u>"Should Have"</u> Percent	
	<u>Insurance</u> N=30	<u>Total Report</u> N=705
Communication in the Organization . . . . .	*	59
Management Development . . . . .	*	53
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Effective Speaking . . . . .	*	50
Effective Written Communications . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	<u>Insurance</u> N=30	<u>Total Report</u> N=705
Effective Speaking . . . . .	73	67
Effective Written Communications . . . . .	70	74
Working Effectively with Individuals and Groups. . . . .	63	66
Effective Reading Skills . . . . .	60	62
Listening Skills . . . . .	55	62
Performance Appraisal and Counseling Techniques. . . . .	50	57
Communication in the Organization. . . . .	*	65
Management Development . . . . .	*	56
Human Aspect of Management . . . . .	*	54
Improving Decision Making of Managers. . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Insurance and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	<u>Insurance</u> N=52	<u>Total Report</u> N=1,202
Management Development . . . . .	67	66
Working Efficiently with Individuals . . . . .	65	65
Supervisory Training and Employee Development. . . . .	59	53
Effective Communication in the Organization. . . . .	58	64
Performance Appraisal and Counseling Techniques. . . . .	50	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u>	
	<u>Insurance</u> N=52	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	79	62
Supervisory Training and Employee Development. . . . .	71	61
Business Letter Writing. . . . .	65	*
Effective Communication in the Organization. . . . .	60	56
Listening Skills . . . . .	58	50
Management Development . . . . .	58	*
Oral Presentation of Reports . . . . .	54	*
Performance Appraisal and Counseling Techniques. . . . .	52	*
Effective Reading Skills . . . . .	50	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u>	
	<u>Insurance</u> N=46	<u>Total Report</u> N=1,713
Communications . . . . .	60	51
Fundamentals of the Supervisor's Job . . . . .	56	64
The Tools and Techniques of Effective Supervision. . . . .	51	55
Human Aspect of Management . . . . .	51	53
Leadership . . . . .	*	57
Decision Making. . . . .	*	54

\* Less than 50 percent



## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
MACHINERY (EXCEPT ELECTRICAL)  
INDUSTRY IN PENNSYLVANIA

M-71

THE PENNSYLVANIA STATE UNIVERSITY  
HARRISBURG, PENNSYLVANIA

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
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M-71

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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE MACHINERY (EXCEPT ELECTRICAL) INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 231 managers and supervisors from 15 companies in the Machinery (Except Electrical) industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, 12 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said ten courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for three courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need two of the listed courses. (Page 8)

The educational level was good, with 48 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.



First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 11 out of 16 courses. (Page 20)

Seventeen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Machinery (Except Electrical), 42 top managers from 15 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	60
Management Development. . . . .	60
Performance Appraisal and Counseling Techniques . .	58
Effective Speaking. . . . .	56
Overall Strategy and Goals. . . . .	54
Improving Decision Making of Managers . . . . .	54
Working Effectively with Individuals and Groups . .	53
Managerial Motivation . . . . .	53
Long-range Planning and Forecasting for Corporate Growth. . . . .	51
Industrial Organization and Administration. . . . .	50
Listening Skills. . . . .	50
Effective Written Communications. . . . .	50





Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Communication in the Organization . . . . .	68
Effective Written Communications. . . . .	64
Effective Reading Skills. . . . .	63
Management Development. . . . .	63
Listening Skills. . . . .	60
Performance Appraisal and Counseling Techniques . .	60
Human Aspect of Management. . . . .	56
Working Effectively with Individuals and Groups . .	55
Improving Decision Making of Managers . . . . .	54
Effective Speaking. . . . .	54

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1  
GENERAL MANAGEMENT  
(N=41)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Improving Decision Making of Managers . . . . .	54	88	54
Overall Strategy and Goals . . . . .	54	82	31
Long-range Planning and Fore- casting for Corporate Growth . . . . .	51	75	24
Industrial Organization and Administration . . . . .	50	83	38
Effective Utilization of Man- power Resources and Allocation	48	76	35
Management Reporting Systems . . . . .	46	74	33
Impact of Computer Technology. . . . .	45	83	30
Policy Formation . . . . .	35	75	30
Impact of Science and Technology on Business Management . . . . .	33	73	10
Managing Major Change in Organizations. . . . .	33	69	18
Ethical Considerations in Business . . . . .	33	59	33
Management of Research and Development. . . . .	31	52	26
Impact of Government Legislation and Controls on Business . . . . .	21	59	8
Impact of Multinational Aspects of Planning and Control. . . . .	10	30	5

TABLE 2  
BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Communication in the Organization . . . . .	60	93	68
Working Effectively with Individuals and Groups . . . . .	53	86	55
Managerial Motivation . . . . .	53	82	47
Human Aspect of Management . . . . .	49	85	56
Creativity and Innovation . . . . .	43	73	45
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	8	34	8

TABLE 3  
COMMUNICATIONS TECHNIQUES  
(N=42)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Speaking . . . . .	56	71	54
Listening Skills . . . . .	50	83	60
Effective Written Communications	50	76	64
Effective Reading Skills . . . . .	45	83	63

TABLE 4  
ECONOMICS  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economic Trends . . . . .	23	58	13
Comparative Economic Systems . . . . .	13	39	5

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=41)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Statistical Decision Theory . . .	37	74	17
Survey Course on Quantitative Methods . . . . .	29	66	18

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=41)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	60	88	63
Performance Appraisal and Counseling Techniques . . . . .	58	93	60
Criteria and Selection of Personnel . . . . .	46	68	39
Incentives . . . . .	33	66	8
Personnel Policy Affecting Labor-Management Relations . .	30	63	30
Personnel Policy Affecting Wage and Salary Structure . . . . .	30	60	20
Personnel Policy Affecting Employment Practices . . . . .	25	53	28

TABLE 7

FINANCIAL MANAGEMENT  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Managerial Accounting and Budgeting . . . . .	33	64	28
Capital Budgeting . . . . .	26	52	28
Fundamentals of Financial Reporting and Statement Analysis . . . . .	25	63	23
Financial Planning and Forecasting . . . . .	23	48	10

TABLE 8

MANUFACTURING AND PRODUCTION  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	36	72	36
Operations Planning and Control.	23	51	23
Operations Research Applied to Production . . . . .	20	50	20

TABLE 9

MARKETING  
(N=41)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Product Planning . . . . .	46	68	41
Pricing . . . . .	33	58	30
Marketing Research . . . . .	25	50	18
Logistics Planning . . . . .	18	39	8

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding . . .	15	40	8
International Economic Analysis.	5	21	3

## MIDDLE MANAGEMENT

In the industrial category of Machinery (Except Electrical), 77 middle managers from 15 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

### Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

General Management (13 subjects)  
Behavioral Science and Management (7 subjects)  
Communication (7 subjects)  
Economics (8 subjects)  
Quantitative Methods Applied to Business and Industry (15 subjects)  
Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development . . . . .	68
Working Efficiently with Individuals . . . . .	67
Effective Communication in the Organization . . . . .	58

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Supervisory Training and Employee Development . . . . .	54
Effective Communication in the Organization . . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Machinery (Except Electrical) category.

TABLE 11

GENERAL MANAGEMENT  
(N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	68	96	38
Working Efficiently with Individuals . . . . .	67	93	49
Supervisory Training and Employee Development . . . . .	49	84	54
Performance Appraisal and Counseling Techniques . . . . .	45	87	37
Criteria and Selection of Personnel for Promotion . . . . .	43	85	23
Impact of Computer Technology . . . . .	32	62	18
Long-range Planning and Fore- casting for Corporate Growth . . . . .	32	51	19
Analyzing Organizational Behavior . . . . .	28	85	18
Effective Utilization of Man- power Resources and Allocation . . . . .	25	64	21
The Application of Information Technology on Decision Making . . . . .	25	52	18
Impact of Science and Technology on Business Management . . . . .	20	71	21
Principles and Analysis of Office Systems . . . . .	20	54	15
Impact of Government Legislation and Controls on Business . . . . .	8	42	10

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Creativity and Innovation . . . . .	46	84	40
Human Aspect of Management . . . . .	36	83	31
Understanding Group Interaction and Behavior . . . . .	31	73	20
Management Psychology . . . . .	23	72	20
Social and Cultural Trends and Their Impact on Business Management . . . . .	9	36	10
Industrial Sociology . . . . .	8	43	15
Impact of Consumer Behavior on Management . . . . .	6	22	10



TABLE 13  
COMMUNICATION  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	58	90	50
Effective Report Writing . . . . .	49	77	39
Oral Presentation of Reports . . . . .	47	86	43
Listening Skills . . . . .	40	70	39
Effective Reading Skills . . . . .	39	79	42
Conference Leadership . . . . .	39	75	23
Business Letter Writing . . . . .	37	70	31

TABLE 14

ECONOMICS  
(N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economics of Production and Costs . . . . .	30	60	14
The Price Mechanism . . . . .	24	56	12
Fundamentals of Economics . . . . .	14	44	13
Economic Trends . . . . .	13	39	9
Economics of Technology and Innovation . . . . .	11	43	8
International Economics . . . . .	6	26	9
The Economic Systems of the United States . . . . .	4	39	12
Comparative Economic Systems . . . . .	3	18	7

TABLE 13  
 COMMUNICATION  
 (N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	58	90	50
Effective Report Writing . . . . .	49	77	39
Oral Presentation of Reports . . . . .	47	86	43
Listening Skills . . . . .	40	70	39
Effective Reading Skills . . . . .	39	79	42
Conference Leadership . . . . .	39	75	23
Business Letter Writing . . . . .	37	70	31

TABLE 14  
 ECONOMICS  
 (N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economics of Production and Costs . . . . .	30	60	14
The Price Mechanism . . . . .	24	56	12
Fundamentals of Economics . . . . .	14	44	13
Economic Trends . . . . .	13	39	9
Economics of Technology and Innovation . . . . .	11	43	8
International Economics . . . . .	6	26	9
The Economic Systems of the United States . . . . .	4	39	12
Comparative Economic Systems . . . . .	3	18	7

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	29	75	14
Applying Program Evaluation and Review Techniques (PERT) . . .	24	62	16
Inventory Management . . . . .	23	62	18
Replacement Management . . . . .	21	61	11
Statistical Decision Theory . . .	21	51	9
Review of Basic Mathematics . . .	20	44	31
Statistical Procedures and Methods . . . . .	17	50	22
Linear Programming . . . . .	17	37	9
Probability Theory . . . . .	12	41	19
Dynamic Programming . . . . .	6	35	7
Matrix Algebra . . . . .	6	22	10
Calculus of Infinite Series . . .	6	16	13
Calculus of Finite Differences .	6	15	13
Waiting Lines . . . . .	4	30	7
Analytic Geometry . . . . .	4	20	17

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=69)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management . . . . .	29	65	25
Data Systems and Processing . . .	29	60	21
Fundamentals of Programming for Computer Operations . . . . .	22	50	24
Mathematics for Digital Computers	10	34	19

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=30)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management and Labor Relations . . . . .	35	65	17
In-plant Training. . . . .	33	54	21
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . . .	27	64	13
Job Analysis and Job Evaluation Methods. . . . .	25	63	4
Industrial Safety and Medical Services . . . . .	22	44	13
Employee Benefit Plans . . . . .	21	42	4
Salary and Wage Administration . . . . .	17	60	4
Maintaining Efficient and Up-To- Date Personnel Records . . . . .	17	43	4

TABLE 18

FINANCIAL MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Budgets. . . . .	50	72	33
Fundamentals of Financial Reporting and Statement Analysis . . . . .	50	69	31
Managerial Accounting. . . . .	47	65	18
Financial Planning and Forecasting. . . . .	39	72	11
New Developments in Equipment Replacement Policy . . . . .	35	82	24
Taxes. . . . .	25	50	19
	12		

TABLE 19  
MANUFACTURING AND PRODUCTION  
(N=46)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Production Planning and Control			
Management . . . . .	45	72	27
Value Analysis . . . . .	44	77	31
Materials Handling . . . . .	42	72	33
Methods Analysis and Work			
Simplification . . . . .	42	70	30
Maintenance Planning and Control	40	65	23
Inventory Management . . . . .	36	68	27
Engineering Economy . . . . .	33	70	15
Quality Control . . . . .	33	64	29
Organization and Management of			
Purchasing Operations . . . . .	32	66	20
Automation . . . . .	31	67	26

TABLE 20

MARKETING  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Pricing . . . . .	35	41	6
Marketing Management . . . . .	33	53	13
Fundamentals of Marketing . . . . .	31	56	6
Product Planning . . . . .	29	70	18
Marketing Research . . . . .	19	63	6
Physical Distribution Methods . . . . .	19	38	6
Packaging Design and Development	13	20	7
Application of Management			
Science and Computers to			
Marketing Problems . . . . .	12	30	6
Brand Marketing . . . . .	0	33	13

TABLE 21

SALES MANAGEMENT  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Motivating Salesmen. . . . .	33	40	0
Selection and Evaluation of Field Salesmen . . . . .	27	47	7
Supervision of Field Salesmen. .	27	40	7
Training of Field Salesmen . . .	27	40	7
Compensation of Field Salesmen .	20	47	7

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Monetary Exchange Problems . . .	9	45	9
Appraising and Developing Foreign Markets. . . . .	9	45	9
Sources of Funds: Financing of Day-to-Day Transactions. . . . .	9	36	9
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade. . . . .	9	27	9
Commercial Policy and Trade Control. . . . .	8	31	8
International Law. . . . .	8	23	8
International Economic Organizations. . . . .	0	42	8
International Understanding. . .	0	33	8
United States Foreign Economic Policy . . . . .	0	27	9
International Economic Analysis.	0	25	8



TABLE 23

RESEARCH AND DEVELOPMENT  
(N=16)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning Budgeting and Control of Projects . . . . .	50	81	6
Evaluation of the Research and Development Programs . . . . .	31	75	6
Guidelines for Selecting and Appraising New Projects . . . . .	31	62	0
Building Research and Develop- ment Teams . . . . .	19	50	0
Supervision and Management of Research Services . . . . .	13	51	0

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-five percent (N=27) of the 77 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-three percent (N=71) had completed high school, 48 percent (N=37) had the bachelor's degree, and five percent (N=4) had the master's degree. No one had the doctorate. Sixteen percent (N=12) went to business school and 14 percent (N=11) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number</u> <u>Bachelor's</u>	<u>Number</u> <u>Master's</u>
Agriculture . . . . .	2	0
Business Administration . . . . .	7	1
Engineering . . . . .	22	1
Law . . . . .	0	1
Liberal Arts . . . . .	4	1
Psychology . . . . .	1	0
Other (not specified) . . . . .	1	0
Total . . . . .	37	4

The major areas of work for the middle managers in the Machinery (Except Electrical) industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	14	18
Engineering . . . . .	11	15
Finance . . . . .	6	8
Industrial Relations . . . . .	3	4
Maintenance . . . . .	3	4
Manufacturing . . . . .	18	24
Marketing and Sales . . . . .	6	8
Production Control — Records . . . . .	5	7
Purchasing and Procurement . . . . .	6	8
Research and Development . . . . .	1	1
Other (not specified) . . . . .	2	3
Total . . . . .	75	100

Methods of Updating

Sixty-two percent (N=47) of the middle managers would take a credit course and 75 percent (N=56) would take a non-credit course if they were offered locally.

One manager was enrolled for the master's degree. One was planning to enroll for the bachelor's degree and five for the master's. Five of those enrolled or planning to enroll wanted to study business administration and two engineering.

Seventy-seven percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	20	34
Live too far from educational center . . . . .	16	27
Not a high school graduate . . . . .	5	8
Job demands no more education . . . . .	4	7
Cannot afford it . . . . .	4	7
Not interested . . . . .	4	7
Can do better on my own . . . . .	1	2
Other (not specified) . . . . .	5	8
Total . . . . .	59	100

The variety of educational methods used by middle managers for updating within the past four years is shown below:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=77)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics.	39	51
Attendance at regional or national meetings of professional societies. . . . .	37	48
Managerial development within company . . . . .	23	30
Company in-service training courses . . . . .	20	26
Correspondence courses. . . . .	16	21
Short refresher courses at colleges or universities. . . . .	12	16
Workshops or seminars in liberal arts or humanities. . . . .	6	8
Television courses. . . . .	3	4
High school courses . . . . .	2	3

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=74)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	59	32	8	0	1
Subordinate-superior discussions or meetings . . . . .	46	42	7	4	1
In-plant reports and bulletins . . . . .	43	38	8	3	8
Manufacturer's literature. . . . .	28	52	14	5	1
Scientific and technical journals. . . . .	20	45	27	5	3
Technical books, reports, abstracts and indexes. . . . .	15	52	26	4	3
Management journals. . . . .	15	51	26	5	3
Business reports . . . . .	15	44	32	10	0
Lectures, conferences, workshops and seminars . . . . .	14	43	26	10	6
Professional society meetings. . . . .	14	38	24	18	6
Company in-service courses . . . . .	8	23	14	20	35
Use of consultants . . . . .	3	13	46	33	6
College and university evening courses. . . . .	3	9	12	49	27
College and university day courses	0	1	6	87	6

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=77)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	34	44
Programmed instruction . . . . .	32	42
Educational television . . . . .	27	35
Courses recorded on records . . . . .	14	18
Courses recorded on tapes . . . . .	13	17
Two-way telephone courses . . . . .	7	9
Two-way radio courses . . . . .	4	5
Other (not specified) . . . . .	1	1

Company Attitudes Toward Education

Of the 76 managers responding to a question on the attitude of their immediate superior toward continuing their education, 49 percent (N=37) said the superior encouraged them and 50 percent (N=38) said the superior was noncommittal. One percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=74)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses . . . . .	71	9	0	20
Attend professional meetings . . . . .	66	22	5	7
Enroll for advanced work . . . . .	59	32	1	8
Hold office in professional societies . . . . .	55	26	1	18
Attend seminars or workshops away from the company . . . . .	53	31	5	11
Write technical and professional papers . . . . .	45	29	0	26
Educational leave of absence . . . . .	11	30	16	43

Fifty percent of the middle managers indicated that they were employed by companies which provided in-service training; 46 percent were not, and four percent did not know. Twenty-two percent said the training was entirely on company time, 46 percent said it was partly on company time, 19 percent said it was not on company time, and 13 percent did not know.

Eighty-one percent reported that their company had an educational assistance plan. Fourteen percent said it did not and five percent did not know. Seventy-three percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 59 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	21
About 3/4 . . . . .	8
About 2/3 . . . . .	0
About 1/2 . . . . .	25
About 1/3 . . . . .	2
Less than 1/3 . . . . .	0
Don't know. . . . .	3
 Total. . . . .	 59

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	13
251 - 300 . . . . .	1
201 - 250 . . . . .	1
151 - 200 . . . . .	1
101 - 150 . . . . .	0
51 - 100 . . . . .	5
50 or less . . . . .	1
Don't know. . . . .	35
 Total. . . . .	 57

When asked about the effect of available company educational assistance in motivating them to undertake further education, 25 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 50 percent said it had no effect. There is an inconsistency here: while 50 percent said the availability of financial aid motivated them to some extent, only one person was actually enrolled and six were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

#### FIRST-LINE SUPERVISION

In the industrial category of Machinery (Except Electrical), 112 first-line supervisors from 15 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 112 first-line supervisors in the category of Machinery (Except Electrical) were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	69
Leadership. . . . .	62
Human Aspect of Management. . . . .	61
The Tools and Techniques of Effective Supervision .	60
Decision Making . . . . .	58
Supervisor's Role in Employee Discipline. . . . .	55
Communications, . . . . .	54
Inter-Departmental Cooperation. . . . .	51
Safety. . . . .	51
Evaluation of Employee Performance. . . . .	50
Supervisor's Role in Company Economics. . . . .	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 33

**FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=111)**

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . .	74	69	98	91
The Tools and Techniques of Effective Supervision. . . . .	67	60	98	88
Decision Making. . . . .	63	58	97	89
Supervisor's Role in Employee Discipline . .	60	55	88	81
Inter-Departmental Cooperation . . . . .	55	51	95	88
Supervisor's Role in Company Economics . . .	54	50	89	82
<u>Employee Training and Evaluation</u>				
Safety . . . . .	56	51	86	78
Evaluation of Employee Performance . . . . .	55	50	91	83
Employee Training. . . . .	53	49	86	80
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . . .	51	47	82	76
Labor Relations. . . . .	47	44	78	73
Labor Relations Legislation. . . . .	20	19	54	50
<u>Developing Those We Supervise</u>				
Leadership . . . . .	67	62	96	89
Human Aspect of Management . . . . .	66	61	98	90
Communications . . . . .	58	54	93	86
Developing the Work Team . . . . .	49	45	92	84

Background Information of First-Line Supervisors

**Personal, Educational, and Professional Background**

Thirty-eight percent (N=42) of the first-line supervisors were 40 years of age or younger. Seventy-six percent (N=84) were high school graduates, 17 percent (N=19) had the bachelor's degree, and one percent (N=1) had the master's degree; no one had the doctorate. Four percent (N=4) had gone to business school and 15 percent (N=17) to trade school. The major fields of study for a degree are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	5	1
Education . . . . .	1	0
Engineering . . . . .	8	0
Liberal Arts . . . . .	2	0
Psychology . . . . .	1	0
Other (not specified) . . . . .	2	0
Total . . . . .	19	1

Below is a listing of the major areas of work for the first-line supervisors in the Machinery (Except Electrical) industry:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	5	5
Engineering . . . . .	8	7
Finance . . . . .	3	3
Industrial Relations . . . . .	5	5
Maintenance . . . . .	3	3
Manufacturing . . . . .	69	62
Marketing and Sales . . . . .	5	5
Production Control - Records . . . . .	3	3
Research and Development . . . . .	1	1
Service (yard and labor personnel, etc.) . . . . .	1	1
Traffic and Transportation . . . . .	2	2
Other (not specified) . . . . .	3	3
Total . . . . .	108	100

Methods of Updating

Forty-eight percent (N=52) of the first-line supervisors would take a credit course and 70 percent (N=73) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for the associate degree and one for the bachelor's. Ten planned to enroll: four for the associate degree, two for the bachelor's, and four for the master's. Major fields of study for those enrolled or planning to enroll were: six in business administration, five in engineering and one in education.

For the 87 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	18	22
Not a high school graduate. . . . .	15	18
Cannot afford it. . . . .	16	18
Job demands no more education . . . . .	12	14
Not interested. . . . .	8	9
Live too far from educational center. . . . .	6	7
Can do better on my own . . . . .	3	3
Other (not specified) . . . . .	8	9
Total. . . . .	87	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=112)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses . . . . .	56	50
Managerial development within company . . . . .	41	37
Workshops or seminars on managerial topics. . . . .	31	28
Correspondence courses. . . . .	22	20
Attendance at regional or national meetings of professional societies. . . . .	21	19
Short refresher courses at colleges or universities . . . . .	13	12
Workshops or seminars in liberal arts or humanities . . . . .	7	6
Television courses. . . . .	2	2
High school courses to improve job performance . . . . .	1	1

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING  
(N=103)

	Use Frequently	Average Use	<u>Percent</u>			Would Use If Available
			Use Very Little	Do Not Use		
In-plant reports and bulletins . . .	59	33	2	3	3	
Discussion with company personnel (informal or formal) . . . . .	55	39	4	2	0	
Subordinate-superior discussions or meetings. . . . .	38	49	9	4	0	
Manufacturer's literature. . . . .	22	48	18	8	4	
Company in-service courses . . . . .	18	30	11	17	24	
Management journals. . . . .	15	40	20	18	7	
Technical books, reports, abstracts, and indexes. . . . .	14	29	27	27	3	
Lectures, conferences, workshops, and seminars . . . . .	12	32	23	17	16	
Scientific and technical journals. .	10	29	21	39	1	
College and university evening courses. . . . .	7	7	9	64	13	
Business reports . . . . .	6	34	28	31	1	
Professional society meetings. . . .	6	17	21	53	3	
Use of consultants . . . . .	5	16	14	61	4	
College and university day courses .	0	2	2	88	8	

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=112)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	53	47
Programmed instruction . . . . .	52	46
Educational television . . . . .	22	20
Courses recorded on records . . . . .	11	10
Courses recorded on tapes . . . . .	10	9
Two-way telephone courses . . . . .	2	2
Two-way radio courses . . . . .	2	2
Other (not specified) . . . . .	2	2

Company Attitudes Toward Education

A total of 109 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty-three percent (N=58) said the superior encouraged them; 47 percent (N=51) said he was noncommittal; and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=100)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses . . . . .	88	6	0	6
Attend professional meetings . . . . .	70	11	3	16
Enroll for advanced work . . . . .	63	16	0	21
Hold office in professional societies . . . . .	59	16	0	25
Attend seminars or workshops away from the company . . . . .	59	12	2	27
Write technical and professional papers . . . . .	45	10	1	44
Educational leave of absence . . . . .	13	8	5	74

Sixty-five percent of the supervisors indicated that they were employed by companies which provided in-service training; 29 percent said their company did not provide it and six percent did not know. Forty-five percent said the training was completely on company time, 27 percent said it was partly on company time, 12 percent said it was entirely on the men's own time, and 16 percent did not know.

Seventy-four percent reported that their company had an educational assistance plan; 21 percent said it did not, and five percent did not know. Sixty-five percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 75 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	23
About 3/4 . . . . .	4
About 2/3 . . . . .	2
About 1/2 . . . . .	37
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	9
 Total. . . . .	 75

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300. . . . .	16
251 - 300 . . . . .	0
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	1
51 - 100 . . . . .	1
50 or less . . . . .	0
Don't know. . . . .	55
 Total. . . . .	 73



When asked what the effect of available financial assistance was on their motivation to undertake further education, 28 percent of the supervisors said it strongly encouraged them, 36 percent said it partially influenced them, and 36 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 64 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only three of the 112 respondents were actually enrolled and ten were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE MACHINERY (EXCEPT ELECTRICAL) INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN THE TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Machinery (Except Electrical) were compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania." Where the indicated needs were 50 percent or more, managers and supervisors in this category had educational needs similar to those of the group as a whole.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	Machinery (Except Electrical) N=42	Total Report N=705
Communication in the Organization. . . . .	60	59
Management Development . . . . .	60	53
Performance Appraisal and Counseling Techniques. . . . .	58	*
Effective Speaking . . . . .	56	50
Overall Strategy and Goals . . . . .	54	50
Improving Decision Making of Managers. . . . .	54	*
Working Effectively with Individuals and Groups. . . . .	53	*
Managerial Motivation. . . . .	53	*
Long-range Planning and Forecasting for Corporate Growth . . . . .	51	50
Effective Written Communications . . . . .	50	50
Industrial Organization and Administration . . . . .	50	*
Listening Skills . . . . .	50	*

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Machinery</u> (Except <u>Electrical</u> ) N=42	<u>Total Report</u> N=705
Communication in the Organization. . . . .	68	65
Effective Written Communications . . . . .	64	74
Effective Reading Skills . . . . .	63	62
Management Development . . . . .	63	56
Listening Skills . . . . .	60	62
Performance Appraisal and Counseling Techniques. . . . .	60	57
Human Aspect of Management . . . . .	56	54
Working Effectively with Individuals and Groups. . . . .	55	66
Effective Speaking . . . . .	54	67
Improving Decision Making of Managers. . . . .	54	54

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Machinery (Except Electrical) and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Machinery</u> (Except <u>Electrical</u> ) N=77	<u>Total Report</u> N=1,202
Management Development . . . . .	68	66
Working Efficiently with Individuals . . . . .	67	65
Effective Communication in the Organization. . . . .	58	64
Supervisory Training and Employee Development. . . . .	*	53

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	Machinery (Except Electrical) N=77	Total Report N=1,202
Supervisory Training and Employee Development. . . . .	54	61
Effective Communication in the Organization. . . . .	50	56
Working Efficiently with Individuals . . . . .	*	62
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	Machinery (Except Electrical) N=112	Total Report N=1,713
Fundamentals of the Supervisor's Job . . . . .	69	64
Leadership . . . . .	62	57
Human Aspect of Management . . . . .	61	53
The Tools and Techniques of Effective Supervision. . .	60	55
Decision Making. . . . .	58	54
Supervisor's role in Employee Discipline . . . . .	55	*
Communications . . . . .	54	51
Inter-Departmental Cooperation . . . . .	51	*
Safety . . . . .	51	*
Evaluation of Employee Performance . . . . .	50	*
Supervisor's Role in Company Economics . . . . .	50	*

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining



**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
PETROLEUM REFINING INDUSTRY

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
PETROLEUM REFINING INDUSTRY  
IN PENNSYLVANIA

M-72

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE PETROLEUM REFINING INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 81 managers and supervisors from six companies in the Petroleum Refining industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed 11 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said four courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need nine of the listed courses. (Page 8)

The educational level was quite high, with 64 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported general favorable attitudes toward education on the part of their companies. (Pages 15-18)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

### First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for two out of 16 courses. (Page 20)

Eleven percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

### TOP MANAGEMENT

In the industrial category of Petroleum Refining, 14 top managers from six companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

### Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Management Development. . . . .	67
Human Aspect of Management. . . . .	62
Impact of Science and Technology on Business Management. . . . .	62
Effective Utilization of Manpower Resources and Allocation. . . . .	58
Improving Decision Making of Managers . . . . .	58
Effective Speaking. . . . .	54
Management Reporting Systems. . . . .	54
Performance Appraisal and Counseling Techniques . . . . .	54
Communication in the Organization . . . . .	50
Managerial Motivation . . . . .	50
Working Effectively with Individuals and Groups . . . . .	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Management Development. . . . .	58
Effective Written Communications. . . . .	54
Impact of Science and Technology on Business Management. . . . .	54
Communication in the Organization . . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Impact of Science and Technology on Business Management . . . . .	62	93	54
Improving Decision Making of Managers . . . . .	58	100	25
Effective Utilization of Manpower Resources and Allocation . . . . .	58	83	42
Management Reporting Systems . . . . .	54	77	38
Industrial Organization and Administration . . . . .	46	92	31
Long-range Planning and Fore- casting for Corporate Growth . . . . .	46	92	23
Policy Formation . . . . .	46	77	8
Impact of Computer Technology. . . . .	43	79	36
Overall Strategy and Goals . . . . .	38	76	38
Ethical Considerations in Business . . . . .	38	61	23
Managing Major Change in Organizations. . . . .	23	77	15
Management of Research and Development. . . . .	18	54	18
Impact of Multinational Aspects of Planning and Control. . . . .	9	27	9
Impact of Government Legislation and Controls on Business . . . . .	8	62	15

TABLE 2  
 BEHAVIORAL SCIENCE AND MANAGEMENT  
 (N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Human Aspect of Management . . .	62	85	17
Communication in the Organization . . . . .	50	86	50
Working Effectively with Individuals and Groups . . . . .	50	83	42
Managerial Motivation. . . . .	50	75	31
Creativity and Innovation. . . . .	42	75	42
Political, Social, and Cultural Trends and Their Impact on Business Management. . . . .	8	50	8

TABLE 3  
 COMMUNICATIONS TECHNIQUES  
 (N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Speaking . . . . .	54	92	46
Effective Written Communications	46	100	54
Effective Reading Skills . . . . .	46	100	46
Listening Skills . . . . .	46	77	38

TABLE 4  
 ECONOMICS  
 (N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economic Trends. . . . .	15	69	8
Comparative Economic Systems . .	8	46	8



TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Statistical Decision Theory. . . . .	36	65	29
Survey Course on Quantitative Methods. . . . .	25	50	17

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	67	100	58
Performance Appraisal and Counseling Techniques. . . . .	54	85	38
Personnel Policy Affecting Wage and Salary Structure. . . . .	46	77	23
Incentives . . . . .	42	84	17
Criteria and Selection of Personnel. . . . .	38	84	31
Personnel Policy Affecting Labor-Management Relations . . . . .	31	69	31
Personnel Policy Affecting Employment Practices . . . . .	31	69	23

TABLE 7

FINANCIAL MANAGEMENT  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Managerial Accounting and Budgeting. . . . .	46	61	23
Fundamentals of Financial Reporting and Statement Analysis . . . . .	42	50	25
Capital Budgeting. . . . .	33	66	25
Financial Planning and Forecasting. . . . .	33	66	17



TABLE 8  
MANUFACTURING AND PRODUCTION  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning and Utilization of Physical Facilities. . . . .	46	69	23
Operations Planning and Control. . . . .	31	62	23
Operations Research Applied to Production . . . . .	9	64	9

TABLE 9

MARKETING  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Product Planning . . . . .	27	63	18
Logistics Planning . . . . .	27	54	9
Marketing Research . . . . .	25	50	25
Pricing. . . . .	18	45	18

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . . . .	9	27	0
International Economic Analysis. . . . .	0	27	0

**MIDDLE MANAGEMENT**

In the industrial category of Petroleum Refining, 22 middle managers from six companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

**Educational Needs Within Areas of Managerial Responsibility**

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Working Efficiently with Individuals. . . . .	67
Effective Communication in the Organization . . . .	65
Management Development. . . . .	56
Effective Report Writing. . . . .	53
Supervisory Training and Employee Development . . .	53
Listening Skills. . . . .	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Supervisory Training and Employee Development . . .	67
Effective Communication in the Organization . . . .	65
Effective Reading Skills. . . . .	56
Listening Skills. . . . .	56
Management Development. . . . .	56
Review of Basic Mathematics . . . . .	56
Effective Report Writing. . . . .	53
Oral Presentation of Reports. . . . .	50
Working Efficiently with Individuals. . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Petroleum Refining category.

TABLE 11  
GENERAL MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Working Efficiently with Individuals . . . . .	67	95	50
Management Development . . . . .	56	81	56
Supervisory Training and Employee Development . . . . .	53	93	67
Performance Appraisal and Counseling Techniques . . . . .	44	88	38
Impact of Computer Technology . . . . .	35	64	35
Effective Utilization of Manpower Resources and Allocations . . . . .	29	70	29
The Application of Information Technology on Decision Making . . . . .	29	70	29
Criteria and Selection of Personnel for Promotion . . . . .	25	75	13
Long-range Planning and Fore- casting for Corporate Growth . . . . .	24	59	12
Impact of Science and Technology on Business Management . . . . .	18	65	35
Impact of Government Legislation and Controls on Business . . . . .	18	65	18
Analyzing Organizational Behavior . . . . .	17	73	33
Principles and Analysis of Office Systems . . . . .	7	47	7

TABLE 12  
BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Creativity and Innovation . . . . .	19	88	31
Understanding Group Interaction and Behavior . . . . .	19	63	19
Management Psychology . . . . .	19	57	13
Human Aspect of Management . . . . .	18	77	29
Social and Cultural Trends and Their Impact on Business Management . . . . .	13	32	19
Industrial Sociology . . . . .	6	44	13
Impact of Consumer Behavior on Management . . . . .	0	25	6

TABLE 13

COMMUNICATION  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	65	100	65
Effective Report Writing . . . . .	53	94	53
Listening Skills . . . . .	50	94	56
Effective Reading Skills . . . . .	44	75	56
Conference Leadership . . . . .	41	76	35
Oral Presentation of Reports . . . . .	38	88	50
Business Letter Writing . . . . .	31	81	44

TABLE 14

ECONOMICS  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	41	65	29
The Price Mechanism . . . . .	19	57	6
Fundamentals of Economics . . . . .	13	69	25
Economics of Technology and Innovation . . . . .	13	38	6
Economic Trends . . . . .	0	38	6
The Economic Systems of the United States . . . . .	0	19	0
International Economics . . . . .	0	13	0
Comparative Economic Systems . . . . .	0	13	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	19	63	19
Review of Basic Mathematics. . .	17	50	56
Replacement Management . . . . .	13	63	6
Matrix Algebra . . . . .	13	44	13
Analytic Geometry. . . . .	13	32	13
Calculus of Finite Differences .	13	26	6
Applying Program Evaluation and Review Techniques (PERT) . . .	12	53	0
Statistical Procedures and Methods. . . . .	6	62	6
Inventory Management . . . . .	6	44	13
Probability Theory . . . . .	6	44	0
Linear Programming . . . . .	6	31	6
Calculus of Infinite Series. . .	6	25	6
Statistical Decision Theory. . .	0	44	0
Waiting Lines. . . . .	0	19	0
Dynamic Programming. . . . .	0	13	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management . . . . .	41	76	35
Data Systems and Processing. . .	33	77	33
Fundamentals of Programming for Computer Operations. . . . .	25	50	38
Mathematics for Digital Computers. . . . .	18	47	35

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Management and Labor Relations . . . . .	50	80	30
In-plant Training . . . . .	30	80	60
Industrial Safety and Medical Services . . . . .	30	80	40
Salary and Wage Administration . . . . .	30	70	10
Job Analysis and Job Evaluation Methods . . . . .	27	100	18
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . . . . .	27	72	45
Employee Benefit Plans . . . . .	22	55	11
Maintaining Efficient and Up-To- Date Personnel Records . . . . .	10	60	20

TABLE 18

FINANCIAL MANAGEMENT  
(N=8)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Managerial Accounting . . . . .	40	60	20
New Developments in Equipment Replacement Policy . . . . .	38	88	25
Budgets . . . . .	38	88	13
Fundamentals of Financial Reporting and Statement Analysis . . . . .	29	72	14
Financial Planning and Forecasting . . . . .	13	51	13
Taxes . . . . .	0	43	14



TABLE 19

MANUFACTURING AND PRODUCTION  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Maintenance Planning and Control . . . . .	63	88	63
Automation . . . . .	60	90	50
Engineering Economy . . . . .	45	81	36
Production Planning and Control Management . . . . .	40	80	40
Materials Handling . . . . .	30	60	40
Organization and Management of Purchasing Operations . . . . .	30	50	30
Quality Control . . . . .	22	66	33
Value Analysis . . . . .	20	90	20
Inventory Management . . . . .	10	60	50
Methods Analysis and Work Simplification . . . . .	10	60	20

TABLE 20

MARKETING  
(N=5)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Product Planning . . . . .	80	80	40
Marketing Management . . . . .	25	50	0
Fundamentals of Marketing . . . . .	25	50	0
Fundamentals of Pricing . . . . .	25	25	0
Marketing Research . . . . .	25	25	0
Packaging Design and Development . . . . .	20	40	0
Physical Distribution Methods . . . . .	0	25	0

TABLE 21

SALES MANAGEMENT  
(N=4)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Training of Field Salesmen . . .	50	50	25
Motivating Salesmen. . . . .	50	50	0
Selection and Evaluation of Field Salesmen . . . . .	50	50	0
Supervision of Field Salesmen. .	25	50	0
Compensation of Field Salesmen .	0	50	0

INTERNATIONAL MANAGEMENT  
(N=3)

None of the middle managers indicated that they "Should Have" any of the ten courses listed, nor was there any need reported for these courses on the part of those supervised by middle management. One person indicated he "Could Use" each of four courses: Monetary Exchange Problems; International Law; Sources of Funds; Financing of Day-to-Day Transactions; and Appraising and Developing Foreign Markets.

TABLE 22

RESEARCH AND DEVELOPMENT  
(N=7)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
Evaluation of the Research and Development Programs . . . . .	17	84
Supervision and Management of Research Services . . . . .	17	67
Guidelines for Selecting and Appraising New Projects . . . . .	14	85
Building Research and Development Teams . . . . .	14	57
Planning Budgeting and Control of Projects . . . . .	0	60

None of the managers reported a need for any of the five courses on the part of those they supervise.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-two percent (N=7) of the 22 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-five percent (N=21) had completed high school, 64 percent (N=14) had the bachelor's degree, and 14 percent (N=3) had the master's degree. No one had the doctorate. Nine percent (N=2) went to business school and 14 percent (N=3) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 23

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number</u> <u>Bachelor's</u>	<u>Number</u> <u>Master's</u>
Business Administration . . . . .	4	1
Education . . . . .	1	0
Engineering . . . . .	5	1
Liberal Arts . . . . .	1	0
Mineral Industries . . . . .	2	0
Other (not specified) . . . . .	1	1
Total . . . . .	14	3

The major areas of work for the middle managers in Petroleum Refining are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	3	14
Engineering . . . . .	6	24
Finance . . . . .	1	5
Industrial Relations . . . . .	2	9
Maintenance . . . . .	1	5
Manufacturing . . . . .	5	23
Marketing and Sales . . . . .	1	5
Production Control -- Records . . . . .	1	5
Research and Development . . . . .	1	5
Service (yard and labor personnel, etc.) . . . . .	1	5
Total . . . . .	22	100

Methods of Updating

Fifty-seven percent (N=12) of the middle managers would take a credit course and 67 percent (N=14) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. Two planned to enroll for the master's degree.

Sixty-four percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Job demands no more education . . . . .	4	30
Don't have the time . . . . .	3	21
Live too far from educational center . . . . .	3	21
Not interested . . . . .	2	14
Other (not specified) . . . . .	2	14
Total . . . . .	14	100

The variety of educational methods used by middle managers for updating within the past four years is shown in Table 27.

TABLE 27  
EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=22)

	<u>Number Managers</u>	<u>Percent Managers</u>
Attendance at regional or national meetings of professional societies . . . . .	9	41
Company in-service training courses . . . . .	8	36
Workshops or seminars on managerial topics. . . . .	6	27
Short refresher courses at colleges or universities. . . . .	5	23
Managerial development within company . . . . .	4	18

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28  
SOURCES OF INFORMATION USED IN UPDATING  
(N=20)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	75	20	5	0	0
Subordinate-superior discussions or meetings . . . . .	47	32	11	5	5
In-plant reports and bulletins . . . . .	44	44	6	0	6
Scientific and technical journals. . . . .	44	33	17	6	0
Technical books, reports, abstracts and indexes. . . . .	39	33	17	11	0
Business reports . . . . .	31	32	32	0	5
Manufacturer's literature. . . . .	27	44	17	6	6
Use of consultants . . . . .	24	12	24	40	0
Management journals. . . . .	16	52	16	5	11
Company in-service courses . . . . .	13	19	13	25	30
Professional society meetings. . . . .	12	29	29	24	6
Lectures, conferences, workshops and seminars . . . . .	11	42	37	5	5
College and university evening courses. . . . .	6	6	13	56	19
College and university day courses . . . . .	0	0	0	87	13

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29  
PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=22)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction. . . . .	10	45
Correspondence courses. . . . .	10	45
Educational television. . . . .	5	23
Courses recorded on tapes . . . . .	1	5
Courses recorded on records . . . . .	1	5
Two-way radio courses . . . . .	1	5
Two-way telephone courses . . . . .	1	5
Other (not specified) . . . . .	2	9

Company Attitudes Toward Education

Of the 22 managers responding to a question on the attitude of their immediate superior toward continuing their education, 59 percent (N=13) said the superior encouraged them and 36 percent (N=8) said the superior was noncommittal. Five percent (N=1) said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30  
MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=20)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	81	0	0	19
Attend professional meetings . . . . .	78	22	0	0
Enroll for advanced work . . . . .	67	0	0	33
Attend seminars or work-shops away from the company. . . . .	64	18	6	12
Hold office in professional societies . . . . .	55	39	0	6
Write technical and professional papers. . . . .	42	29	0	29
Educational leave of absence. . . . .	5	0	0	95



Fifty percent of the middle managers indicated that they were employed by companies which provided in-service training; 50 percent were not. Thirty-seven percent said the training was entirely on company time, 25 percent said it was partly on company time, 13 percent said it was not on company time, and 25 percent did not know.

Fifty percent reported that their company had an educational assistance plan. Eighteen percent said it did not and 32 percent did not know. Twenty-one percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company as indicated by the 13 managers who responded to the question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	2
About 3/4 . . . . .	0
About 2/3 . . . . .	7
About 1/2 . . . . .	4
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	0
 Total. . . . .	 13

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	6
251 - 300 . . . . .	1
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	6
 Total. . . . .	 13

When asked about the effect of available company educational assistance in motivating them to undertake further education, eight percent of the middle managers said it had strongly encouraged them, 38 percent said it had partially influenced them, and 54 percent said it had no effect. There is an inconsistency here: while 46 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and two were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

**FIRST-LINE SUPERVISION**

In the industrial category of Petroleum Refining, 45 first-line supervisors from six companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 45 first-line supervisors in the category of Petroleum Refining were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	57
Safety. . . . .	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=44)

	<u>"Should Have"</u>		<u>"Should Have"</u> <u>and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . . .	25	57	38	87
The Tools and Techniques of Effective Supervision. . . . .	20	48	37	88
Decision Making. . . . .	16	38	32	76
Supervisor's Role in Employee Discipline . . .	16	38	31	74
Supervisor's Role in Company Economics . . .	15	36	33	79
Inter-Departmental Cooperation . . . . .	15	35	33	77
<u>Employee Training and Evaluation</u>				
Safety . . . . .	22	51	40	93
Employee Training. . . . .	15	37	33	81
Evaluation of Employee Performance . . . . .	15	36	32	76
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . . .	20	47	35	82
Labor Relations. . . . .	16	38	27	64
Labor Relations Legislation. . . . .	5	12	19	45
<u>Developing Those We Supervise</u>				
Leadership . . . . .	21	49	37	86
Human Aspect of Management . . . . .	19	44	34	79
Communications . . . . .	16	38	30	71
Developing the Work Team . . . . .	7	17	28	67

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Eighteen percent (N=8) of the first-line supervisors were 40 years of age or younger. Sixty percent (N=27) were high school graduates, 11 percent (N=5) had the bachelor's degree, and no one had the master's degree or the doctorate. Seven percent (N=3) had gone to business school and seven percent (N=3) to trade school. The major fields of study for the bachelor's degree are indicated at the top of page 22.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>
Business Administration . . . . .	1
Engineering . . . . .	3
Psychology . . . . .	1
Total . . . . .	5

Below is a listing of the major areas of work for the first-line supervisors in the Petroleum Refining industry:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	4	9
Engineering . . . . .	2	5
Industrial Relations . . . . .	1	2
Maintenance . . . . .	9	21
Manufacturing . . . . .	8	19
Production Control - Records . . . . .	11	25
Service (yard and labor personnel, etc.) . . . . .	3	7
Traffic and Transportation . . . . .	2	5
Other (not specified) . . . . .	3	7
Total . . . . .	43	100

Methods of Updating

Twenty-nine percent (N=12) of the first-line supervisors would take a credit course and 64 percent (N=28) would take a non-credit course if they were offered locally.

No supervisors were currently enrolled and no one was planning to enroll in a degree program.

For the 37 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Not a high school graduate. . . . .	12	31
Live too far from educational center. .	11	30
Don't have the time . . . . .	5	14
Cannot afford it. . . . .	3	8
Job demands no more education . . . . .	1	3
Not interested. . . . .	1	3
Can do better on my own . . . . .	1	3
Other (not specified) . . . . .	3	8
 Total. . . . .	 37	 100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=45)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Workshops or seminars on managerial topics. . . . .	9	20
Attendance at regional or national meetings of professional societies. .	8	18
Company in-service training courses . .	7	16
Correspondence courses. . . . .	4	9
Managerial development within company .	3	7
High school courses to improve job performance . . . . .	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING  
(N=40)

	Use Frequently	Average Use	<u>Percent</u>			Would Use If Available
			Use Very Little	Do Not Use		
Discussion with company personnel (informal or formal) . . . . .	56	36	5	0	3	
Subordinate-superior discussions or meetings . . . . .	38	38	18	3	3	
In-plant reports and bulletins . . .	38	36	8	5	13	
Manufacturer's literature . . . . .	18	48	18	8	8	
Technical books, reports, abstracts, and indexes . . . . .	14	36	25	19	6	
Scientific and technical journals . .	11	43	14	26	6	
Lectures, conferences, workshops, and seminars . . . . .	10	29	23	23	15	
Business reports . . . . .	8	37	13	42	0	
Use of consultants . . . . .	8	16	16	60	0	
Professional society meetings . . . .	8	11	24	54	3	
Management journals . . . . .	5	39	16	16	24	
Company in-service courses . . . . .	3	22	6	36	33	
College and university evening courses . . . . .	0	3	3	72	22	
College and university day courses .	0	0	3	94	3	

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.



TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=45)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Programmed instruction . . . . .	18	40
Correspondence courses . . . . .	15	33
Educational television . . . . .	8	18
Courses recorded on tapes. . . . .	6	13
Courses recorded on records. . . . .	4	9
Two-way telephone courses. . . . .	1	2
Two-way radio courses. . . . .	1	2
Other (not specified). . . . .	2	4

Company Attitudes Toward Education

A total of 41 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-six percent (N=19) said the superior encouraged them; 51 percent (N=21) said he was noncommittal, and three percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=41)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	72	6	0	22
Attend professional meetings . . . . .	54	20	0	26
Attend seminars or workshops away from the company. . . . .	52	5	0	43
Enroll for advanced work . . . . .	49	19	0	32
Hold office in professional societies . . . . .	46	24	3	27
Write technical and professional papers. . . . .	29	18	0	53
Educational leave of absence. . . . .	12	2	2	84

Twenty percent of the supervisors indicated that they were employed by companies which provided in-service training; 66 percent said their company did not provide it and 14 percent did not know. Thirty-one percent said the training was completely on company time, 18 percent said it was partly on company time, 18 percent said it was entirely on the men's own time, and 33 percent did not know.

Forty-four percent reported that their company had an educational assistance plan; 37 percent said it did not, and 19 percent did not know. Thirty-six percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 20 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	5
About 3/4 . . . . .	0
About 2/3 . . . . .	8
About 1/2 . . . . .	4
About 1/3 . . . . .	1
Less than 1/3 . . . . .	0
Don't know. . . . .	2
 Total. . . . .	 20

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300. . . . .	4
251 - 300 . . . . .	2
201 - 250 . . . . .	1
151 - 200 . . . . .	0
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	13
 Total. . . . .	 20

When asked what the effect of available financial assistance was on their motivation to undertake further education, 24 percent of the supervisors said it strongly encouraged them, 43 percent said it partially influenced them, and 33 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 67 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, none of the 45 respondents was actually enrolled and none planned to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PETROLEUM REFINING INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Petroleum Refining as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied a good deal. They were higher for top and middle management and those supervised by middle management, and lower for those supervised by top management and for first-line supervision.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Petroleum Refining</u> N=14	<u>Total Report</u> N=705
Management Development . . . . .	67	53
Human Aspect of Management . . . . .	62	*
Impact of Science and Technology on Business Management . . . . .	62	*
Effective Utilization of Manpower Resources and Allocation . . . . .	58	*
Improving Decision Making of Managers . . . . .	58	*
Effective Speaking . . . . .	54	50
Management Reporting Systems . . . . .	54	*
Performance Appraisal and Counseling Techniques . . . . .	54	*
Communication in the Organization . . . . .	50	59
Managerial Motivation . . . . .	50	*
Working Effectively with Individuals and Groups . . . . .	50	*
Effective Written Communications . . . . .	*	50
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Petroleum Refining</u> N=14	<u>Total Report</u> N=705
Management Development . . . . .	58	56
Effective Written Communications . . . . .	54	74
Impact of Science and Technology on Business Management . . . . .	54	*
Communication in the Organization. . . . .	50	65
Effective Speaking . . . . .	*	67
Working Effectively with Individuals and Groups. . . . .	*	66
Effective Reading Skills . . . . .	*	62
Listening Skills . . . . .	*	62
Performance Appraisal and Counseling Techniques. . . . .	*	57
Human Aspect of Management . . . . .	*	54
Improving Decision Making of Managers. . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Petroleum Refining and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Petroleum Refining</u> N=22	<u>Total Report</u> N=1,202
Working Efficiently with Individuals . . . . .	67	65
Effective Communication in the Organization. . . . .	65	64
Management Development . . . . .	56	66
Supervisory Training and Employee Development. . . . .	53	53
Effective Report Writing . . . . .	53	*
Listening Skills . . . . .	50	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Petroleum Refining</u> N=22	<u>Total Report</u> N=1,202
Supervisory Training and Employee Development. . . . .	67	61
Effective Communication in the Organization. . . . .	65	56
Listening Skills . . . . .	56	50
Effective Reading Skills . . . . .	56	*
Management Development . . . . .	56	*
Review of Basic Mathematics. . . . .	56	*
Effective Report Writing . . . . .	53	*
Working Efficiently with Individuals . . . . .	50	62
Oral Presentation of Reports . . . . .	50	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Petroleum Refining</u> N=45	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	57	64
Safety . . . . .	51	*
Leadership . . . . .	*	57
The Tools and Techniques of Effective Supervision. . . . .	*	55
Decision Making. . . . .	*	54
Human Aspect of Management . . . . .	*	53
Communications . . . . .	*	51

\* Less than 50 percent



## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.



4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
PRIMARY METALS INDUSTRY  
IN PENNSYLVANIA

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M-73

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MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE PRIMARY METALS INDUSTRY IN PENNSYLVANIA

INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 221 managers and supervisors from 13 companies in the Primary Metals industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed, nine were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 14 courses were needed. (Page 4)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for ten of 54 listed courses, in the areas of general management, behavioral science and management, and communication. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need three of the listed courses. (Page 9)

The educational level was high, with 48 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 17-20)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

## First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for seven out of 16 courses. (Page 22)

Nine percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-27)

## TOP MANAGEMENT

In the industrial category of Primary Metals, 55 top managers from 13 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

## Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	67
Effective Written Communications . . . . .	55
Human Aspect of Management . . . . .	54
Industrial Organization and Administration. . . . .	52
Managerial Motivation . . . . .	52
Effective Reading Skills. . . . .	52
Effective Speaking . . . . .	51
Working Effectively with Individuals and Groups . . . . .	51
Planning and Utilization of Physical Facilities . . . . .	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Speaking . . . . .	83
Effective Written Communications. . . . .	81
Working Effectively with Individuals and Groups . . . . .	78
Communication in the Organization . . . . .	73
Effective Reading Skills. . . . .	71
Listening Skills . . . . .	71
Performance Appraisal and Counseling Techniques . . . . .	67
Creativity and Innovation . . . . .	65
Management Development. . . . .	61
Human Aspect of Management. . . . .	60
Industrial Organization and Administration. . . . .	59
Management Reporting Systems. . . . .	59
Operations Planning and Control . . . . .	53
Managerial Motivation . . . . .	52

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.



TABLE 1

GENERAL MANAGEMENT  
(N=54)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Industrial Organization and Administration . . . . .	52	87	59
Management Reporting Systems . . . . .	49	84	59
Long-range Planning and Forecasting for Corporate Growth . . . . .	49	82	16
Overall Strategy and Goals . . . . .	49	75	40
Improving Decision Making of Managers . . . . .	46	88	46
Policy Formation . . . . .	40	89	23
Managing Major Change in Organizations . . . . .	31	76	29
Effective Utilization of Manpower Resources and Allocation . . . . .	31	71	31
Impact of Computer Technology. . . . .	25	67	23
Management of Research and Development. . . . .	23	52	25
Impact of Science and Technology on Business Management. . . . .	19	69	23
Ethical Considerations in Business . . . . .	14	53	20
Impact of Government Legislation and Controls on Business . . . . .	12	50	13
Impact of Multinational Aspects of Planning and Control . . . . .	4	20	6

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=51)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	67	91	73
Human Aspect of Management . . . . .	54	84	60
Managerial Motivation. . . . .	52	90	52
Working Effectively with Individuals and Groups . . . . .	51	86	78
Creativity and Innovation. . . . .	33	79	65
Political, Social, and Cultural Trends and Their Impact on Business Management. . . . .	6	36	19

TABLE 3  
COMMUNICATIONS TECHNIQUES  
(N=53)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Written Communications . . . . .	55	85	81
Effective Reading Skills . . .	52	89	71
Effective Speaking . . . . .	51	83	83
Listening Skills . . . . .	46	81	71

TABLE 4

ECONOMICS  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economic Trends . . . . .	22	59	16
Comparative Economic Systems .	13	36	17

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=48)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Statistical Decision Theory. .	22	57	33
Survey Course on Quantitative Methods . . . . .	15	59	23

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=52)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	45	94	61
Incentives . . . . .	44	88	40
Performance Appraisal and Counseling Techniques . . . . .	42	88	67
Criteria and Selection of Personnel . . . . .	40	74	48
Personnel Policy Affecting Wage and Salary Structure . . . . .	37	72	27
Personnel Policy Affecting Labor-Management Relations . . . . .	33	71	40
Personnel Policy Affecting Employment Practices . . . . .	23	63	36

TABLE 7

FINANCIAL MANAGEMENT  
(N=50)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Capital Budgeting . . . . .	46	68	30
Managerial Accounting and Budgeting . . . . .	45	86	29
Fundamentals of Financial Reporting and Statement Analysis . . . . .	43	71	23
Financial Planning and Fore- casting . . . . .	24	72	15

TABLE 8

MANUFACTURING AND PRODUCTION  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	51	72	47
Operations Planning and Control . . . . .	41	68	53
Operations Research Applied to Production . . . . .	15	52	35

TABLE 9

MARKETING  
(N=50)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Product Planning . . . . .	30	60	32
Pricing . . . . .	26	60	26
Marketing Research . . . . .	22	51	20
Logistics Planning . . . . .	15	36	11

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=47)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding . .	4	34	6
International Economic Analysis . . . . .	0	24	2

## MIDDLE MANAGEMENT

In the industrial category of Primary Metals, 79 middle managers from 13 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," and "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Effective Communication in the Organization . . . . .	80
Working Efficiently with Individuals . . . . .	70
Management Development . . . . .	67
Supervisory Training and Employee Development . . . . .	55
Listening Skills . . . . .	55
Oral Presentation of Reports . . . . .	54
Effective Reading Skills . . . . .	54
Creativity and Innovation . . . . .	52
Effective Report Writing . . . . .	51
Business Letter Writing . . . . .	50

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Communication in the Organization . . . . .	57
Supervisory Training and Employee Development . . . . .	55
Working Efficiently with Individuals . . . . .	51

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Primary Metals industry.

TABLE 11

GENERAL MANAGEMENT  
(N=73)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Working Efficiently with Individuals . . . . .	70	95	51
Management Development . . . . .	67	97	37
Supervisory Training and Employee Development . . . . .	55	89	55
Performance Appraisal and Counseling Techniques . . . . .	49	87	36
Criteria and Selection of Personnel for Promotion . . . . .	46	82	29
Effective Utilization of Man- power Resources and Allocation . . . . .	38	70	31
Analyzing Organizational Behavior . . . . .	36	75	17
Principles and Analysis of Office Systems . . . . .	29	59	6
Impact of Science and Tech- nology on Business Management . . . . .	27	71	26
Long-range Planning and Fore- casting for Corporate Growth	26	61	9
The Application of Information Technology on Decision Making . . . . .	23	49	15
Impact of Computer Technology.	21	49	12
Impact of Government Legis- lation and Controls on Business . . . . .	21	45	7

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Creativity and Innovation. . . . .	52	82	34
Human Aspect of Management . . . . .	46	85	31
Understanding Group Inter- action and Behavior . . . . .	43	75	39
Management Psychology . . . . .	38	77	20
Industrial Sociology . . . . .	26	58	19
Impact of Consumer Behavior on Management . . . . .	10	35	6
Social and Cultural Trends and Their Impact on Business Management . . . . .	9	37	10



TABLE 13

COMMUNICATION  
(N=74)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	80	98	57
Listening Skills . . . . .	55	87	42
Effective Reading Skills . . . .	54	83	40
Oral Presentation of Reports . .	54	82	48
Effective Report Writing . . . .	51	83	46
Business Letter Writing . . . . .	50	80	44
Conference Leadership . . . . .	47	83	25

TABLE 14

ECONOMICS  
(N=69)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	38	83	30
The Price Mechanism. . . . .	19	68	13
Fundamentals of Economics. . . .	15	44	21
The Economic Systems of the United States. . . . .	12	38	11
Economic Trends. . . . .	10	52	9
Economics of Technology and Innovation . . . . .	9	40	10
Comparative Economic Systems . .	8	29	12
International Economics. . . . .	4	20	4

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=68)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	38	78	18
Replacement Management . . . . .	35	67	21
Inventory Management . . . . .	33	57	18
Statistical Decision Theory. . . . .	32	66	10
Statistical Procedures and Methods. . . . .	24	58	24
Review of Basic Mathematics. . . . .	24	45	31
Applying Program Evaluation and Review Techniques (PERT)	21	49	10
Linear Programming . . . . .	18	34	9
Probability Theory . . . . .	16	41	15
Dynamic Programming. . . . .	14	34	8
Analytic Geometry. . . . .	12	21	18
Matrix Algebra . . . . .	11	17	6
Waiting Lines. . . . .	9	27	5
Calculus of Infinite Series. . . . .	8	22	12
Calculus of Finite Differences	5	20	11

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=64)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Data Systems and Processing . . . . .	33	56	13
Applying the Computer to Problems of Business and Management . . . . .	28	51	13
Fundamentals of Programming for Computer Operations. . . . .	23	48	11
Mathematics for Digital Computers. . . . .	16	31	13

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
In-plant Training. . . . .	54	73	38
Industrial Safety and Medical Services . . . . .	50	55	9
Salary and Wage Administration . . . . .	48	67	0
Management and Labor Relations . . . . .	45	59	14
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	40	64	16
Maintaining Efficient and Up- To-Date Personnel Records. .	40	55	5
Job Analysis and Job Evaluation Methods . . . . .	38	80	21
Employee Benefit Plans . . . .	37	48	11

TABLE 18  
FINANCIAL MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets . . . . .	50	50	28
Managerial Accounting . . . . .	31	50	6
Fundamentals of Financial Reporting and Statement Analysis . . . . .	31	37	19
New Developments in Equipment Replacement Policy . . . . .	29	58	18
Financial Planning and Fore- casting . . . . .	25	44	13
Taxes . . . . .	15	38	15

TABLE 19  
MANUFACTURING AND PRODUCTION  
(N=52)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Value Analysis . . . . .	56	80	36
Quality Control . . . . .	56	76	38
Maintenance Planning and Control . . . . .	53	69	37
Engineering Economy . . . . .	48	78	30
Automation . . . . .	48	74	26
Methods Analysis and Work Simplification . . . . .	47	74	39
Materials Handling . . . . .	46	77	38
Production Planning and Control Management . . . . .	46	71	27
Inventory Management . . . . .	34	62	19
Organization and Management of Purchasing Operations . . . . .	28	56	15

TABLE 20

MARKETING  
(N=20)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Marketing Management . . . . .	25	55	10
Product Planning . . . . .	21	68	11
Application of Management Science and Computers to Marketing Problems . . . . .	16	37	5
Marketing Research . . . . .	15	50	5
Fundamentals of Marketing. . .	11	64	11
Fundamentals of Pricing. . . .	11	50	11
Physical Distribution Methods.	11	37	5
Brand Marketing. . . . .	5	16	11
Packaging Design and Development. . . . .	0	11	11

TABLE 21

SALES MANAGEMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Training of Field Salesmen . .	22	55	6
Selection and Evaluation of Field Salesmen . . . . .	22	44	6
Supervision of Field Salesmen.	17	56	6
Compensation of Field Salesmen	17	50	6
Motivating Salesmen. . . . .	16	58	5

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=13)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Monetary Exchange Problems . .	8	8	15
International Understanding. . .	0	8	8
Commercial Policy and Trade Control. . . . .	0	8	8
International Law. . . . .	0	8	8
Sources of Funds: Financing of Day-to-Day Transactions. . .	0	8	8
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade . . . . .	0	0	8
United States Foreign Economic Policy . . . . .	0	0	8
International Economic Analysis . . . . .	0	0	8
Appraising and Developing Foreign Markets. . . . .	0	0	8

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=20)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Guidelines for Selecting and Appraising New Projects. . .	30	40	20
Planning Budgeting and Control of Projects. . . . .	26	31	16
Evaluation of the Research and Development Programs . . . .	22	39	17
Supervision and Management of Research Services. . . . .	11	37	21
Building Research and Development Teams. . . . .	11	32	21



Background Information of Middle Managers

Personal, Educational, and Professional Background

Thirty-four percent (N=26) of the 79 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-one percent (N=72) had completed high school, 48 percent (N=38) had the bachelor's degree, and four percent (N=3) had the master's degree. No one had the doctorate. Four percent (N=3) went to business school and ten percent (N=8) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	6	1
Education . . . . .	2	1
Engineering . . . . .	21	1
Liberal Arts . . . . .	5	0
Mineral Industries . . . . .	2	0
Psychology . . . . .	1	0
Other (not specified) . . . . .	1	0
Total . . . . .	38	3

The major areas of work for the middle managers in the Primary Metals industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	16	21
Engineering . . . . .	15	19
Finance . . . . .	4	5
Industrial Relations . . . . .	4	5
Maintenance . . . . .	5	6
Manufacturing . . . . .	20	26
Marketing and Sales . . . . .	9	12
Production Control -- Records . . . . .	4	5
Other (not specified) . . . . .	1	1
Total . . . . .	78	100

Methods of Updating

Sixty-five percent (N=51) of the middle managers would take a credit course and 81 percent (N=63) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree. Six managers planned to enroll: two for the associate degree, three for the master's, and one for the doctorate. Of the eight who were enrolled or planned to enroll, the major fields of study were three in business administration, two in engineering, and one in another field which was not specified.

Seventy-five percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	22	37
Live too far from educational center. . . . .	8	14
Not interested. . . . .	7	12
Job demands no more education . . . . .	3	5
Cannot afford it. . . . .	3	5
Can do better on my own . . . . .	3	5
Not a high school graduate. . . . .	3	5
Other (not specified) . . . . .	10	17
Total. . . . .	59	100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=79)

	<u>Number Managers</u>	<u>Percent Managers</u>
Attendance at regional or national meetings of professional societies. . . . .	39	49
Workshops or seminars on managerial topics . . . . .	29	37
Company in-service training courses. . . . .	23	29
Managerial development within company. . . . .	21	27
Short refresher courses at colleges or universities . . . . .	9	11
Correspondence courses . . . . .	7	9
Television courses . . . . .	6	8
Workshops or seminars in liberal arts or humanities. . . . .	3	4

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=78)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	74	24	1	0	1
In-plant reports and bulletins . .	58	31	0	7	4
Subordinate-superior discussions or meetings . . . . .	58	31	6	1	4
Manufacturer's literature . . . . .	44	37	10	8	1
Management journals . . . . .	37	46	9	5	3
Technical books, reports, abstracts, and indexes . . . . .	34	30	26	9	1
Scientific and technical journals . . . . .	32	46	17	4	1
Business reports . . . . .	27	47	15	8	3
Lectures, conferences, work- shops, and seminars . . . . .	21	27	23	13	16
Professional society meetings . . .	17	45	21	13	4
Company in-service courses . . . . .	17	19	19	21	38
Use of consultants . . . . .	4	21	33	36	6
College and university evening courses . . . . .	1	6	6	56	31
College and university day courses . . . . .	0	3	3	84	10

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=79)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	41	52
Programmed instruction . . . . .	34	43
Educational television . . . . .	29	37
Courses recorded on tapes. . . . .	10	13
Courses recorded on records. . . . .	9	11
Two-way radio courses. . . . .	7	9
Two-way telephone courses. . . . .	5	6
Other (not specified). . . . .	6	8

Company Attitudes Toward Education

Of the 76 managers responding to a question on the attitude of their immediate superior toward continuing their education, 42 percent (N=32) said the superior encouraged them and 55 percent (N=42) said the superior was noncommittal. Three percent (N=2) said the superior discouraged them.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities, as noted below:

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=73)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses . . . . .	82	3	1	14
Attend professional meetings. . . . .	81	14	1	4
Hold office in professional societies. . . . .	67	23	0	10
Attend seminars and workshops away from the company . . . . .	64	21	1	14
Write technical and professional papers. . . . .	55	25	1	19
Enroll for advanced work. . . . .	53	22	3	22
Educational leave of absence . . . . .	4	14	21	61

Forty-five percent of the middle managers indicated that they were employed by companies which provided in-service training; 50 percent were not, and five percent did not know. Forty-two percent said the training was entirely on company time, 30 percent said it was partly on company time, ten percent said it was not on company time, and 18 percent did not know.

Sixty-five percent reported that their company had an educational assistance plan. Twenty-two percent said it did not and 13 percent did not know. Sixty-two percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 47 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	9
About 3/4. . . . .	5
About 2/3. . . . .	5
About 1/2. . . . .	20
About 1/3. . . . .	1
Less than 1/3. . . . .	1
Don't know . . . . .	6
 Total . . . . .	 47

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	11
251 - 300. . . . .	2
201 - 250. . . . .	0
151 - 200. . . . .	2
101 - 150. . . . .	2
51 - 100. . . . .	3
50 or less. . . . .	0
Don't know . . . . .	26
 Total	 46

When asked about the effect of available company educational assistance in motivating them to undertake further education, 26 percent of the middle managers said it had strongly encouraged them, 23 percent said it had partially influenced them, and 51 percent said it had no effect. There is an inconsistency here: while 49 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and six were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

**FIRST-LINE SUPERVISION**

In the industrial category of Primary Metals, 87 first-line supervisors from 13 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Educational Needs

The 87 first-line supervisors in the category of Primary Metals were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job . . . . .	70
Leadership . . . . .	63
Communications . . . . .	57
Inter-Departmental Cooperation . . . . .	54
Decision Making. . . . .	54
Human Aspect of Management . . . . .	53
The Tools and Techniques of Effective Supervision. . . . .	51

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.





TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=87)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job. . .	61	70	79	91
Decision Making. . . . .	46	54	74	87
Inter-Departmental Cooperation . . . . .	45	54	71	85
The Tools and Techniques of Effective Supervision . . . . .	43	51	69	82
Supervisor's Role in Employee Discipline	39	47	69	83
Supervisor's Role in Company Economics .	37	45	68	82
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . .	36	43	67	80
Safety . . . . .	35	42	68	81
Employee Training. . . . .	23	27	61	72
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration . .	31	37	64	77
Labor Relations. . . . .	25	30	59	71
Labor Relations Legislation. . . . .	12	15	39	48
<u>Developing Those We Supervise</u>				
Leadership . . . . .	53	63	73	87
Communications . . . . .	48	57	73	87
Human Aspect of Management . . . . .	45	53	76	89
Developing the Work Team . . . . .	30	35	67	79

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty percent (N=35) of the first-line supervisors were 40 years of age or younger. Seventy-six percent (N=65) were high school graduates, nine percent (N=8) had the bachelor's degree, and no one had the master's degree or the doctorate. Ten percent (N=9) had gone to business school and 13 percent (N=11) to trade school. The major fields of study are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>
Architecture. . . . .	1
Business Administration . . . . .	1
Education . . . . .	1
Engineering . . . . .	4
Mineral Industries. . . . .	1
 Total. . . . .	 8

Below is a listing of the major areas of work for the first-line supervisors in the Primary Metals industry:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration. . . . .	6	7
Engineering . . . . .	8	10
Finance . . . . .	1	1
Industrial Relations. . . . .	1	1
Maintenance . . . . .	9	11
Manufacturing . . . . .	33	39
Marketing and Sales . . . . .	2	2
Production Control -- Records . . . . .	9	11
Purchasing and Procurement. . . . .	2	2
Service (yard and labor personnel, etc.)	7	8
Traffic and Transportation. . . . .	3	4
Other (not specified) . . . . .	3	4
 Total. . . . .	 84	 100

Methods of Updating

Fifty-seven percent (N=49) of the first-line supervisors would take a credit course and 81 percent (N=70) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for the bachelor's degree. Six planned to enroll: two for the associate degree, three for the bachelor's, and one for the master's. The major fields of study were: six in business administration, one in education, one in engineering, one in law, and one in another field which was not specified.

For the 68 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	22	33
Cannot afford it . . . . .	13	19
Live too far from educational center . . . . .	8	12
Not a high school graduate . . . . .	7	10
Job demands no more education. . . . .	3	4
Not interested . . . . .	2	3
Can do better on my own. . . . .	1	1
Other (not specified). . . . .	12	18
 Total . . . . .	 68	 100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=87)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Managerial development within company . . . . .	23	26
Company in-service training courses . . . . .	22	25
Workshops or seminars on managerial topics . . . . .	18	21
Correspondence courses. . . . .	18	21
Attendance at regional or national meetings of professional societies. . . . .	15	17
Television courses. . . . .	6	7
High school courses to improve job performance . . . . .	2	2
Short refresher courses at colleges or universities . . . . .	1	1

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38  
SOURCES OF INFORMATION USED IN UPDATING  
(N=80)

	Use Frequently	Average Use	Percent		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	53	41	4	1	1
In-plant reports and bulletins . .	49	39	5	1	6
Subordinate-superior discussions or meetings . . . . .	48	41	4	4	3
Manufacturer's literature . . . . .	26	41	15	9	9
Management journals . . . . .	22	38	13	13	14
Use of consultants . . . . .	15	21	13	45	6
Scientific and technical journals.	14	35	22	21	8
Technical books, reports, abstracts, and indexes . . . . .	11	42	21	15	11
Lectures, conferences, workshops, and seminars . . . . .	11	27	26	19	17
Professional society meetings . . .	8	14	19	55	4
Company in-service courses . . . .	8	11	15	21	45
Business reports . . . . .	5	37	30	20	8
College and university evening courses . . . . .	1	4	7	66	22
College and university day courses . . . . .	0	1	4	84	11

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=87)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	52	60
Programmed instruction . . . . .	47	54
Educational television . . . . .	28	32
Courses recorded on tapes. . . . .	15	17
Courses recorded on records. . . . .	14	16
Two-way radio courses. . . . .	4	5
Two-way telephone courses. . . . .	1	1
Other (not specified). . . . .	3	3

Company Attitudes Toward Education

A total of 81 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-seven percent (N=38) said the superior encouraged them; 53 percent (N=43) said he was noncommittal, and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=82)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	77	5	0	18
Attend professional meetings . . . . .	67	6	0	27
Enroll for advanced work	60	10	1	29
Hold office in professional societies. .	49	11	0	40
Attend seminars or workshops away from the company. . . . .	43	10	0	47
Write technical and professional papers . . .	38	7	0	55
Educational leave of absence. . . . .	4	4	5	87

Thirty-one percent of the supervisors indicated that they were employed by companies which provided in-service training; 57 percent said their company did not provide it and 12 percent did not know. Twenty-nine percent said the training was completely on company time, 35 percent said it was partly on company time, two percent said it was entirely on the men's own time, and 34 percent did not know.

Forty-four percent reported that their company had an educational assistance plan; 36 percent said it did not, and 20 percent did not know. Forty-three percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 33 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	5
About 3/4. . . . .	3
About 2/3. . . . .	0
About 1/2. . . . .	9
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	16
 Total . . . . .	 33

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	3
251 - 300. . . . .	0
201 - 250. . . . .	0
151 - 200. . . . .	1
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	27
 Total . . . . .	 31



When asked what the effect of available financial assistance was on their motivation to undertake further education, 29 percent of the supervisors said it strongly encouraged them, 42 percent said it partially influenced them, and 29 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 71 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 87 respondents were actually enrolled and six were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PRIMARY METALS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Primary Metals as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were relatively higher and more numerous, except for those supervised by middle management.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Primary</u> <u>Metals</u> N=55	<u>Total</u> <u>Report</u> N=705
Communication in the Organization. . . . .	67	59
Effective Written Communications . . . . .	55	50
Human Aspect of Management . . . . .	54	*
Industrial Organization and Administration . . . . .	52	*
Managerial Motivation. . . . .	52	*
Effective Reading Skills . . . . .	52	*
Effective Speaking . . . . .	51	50
Working Effectively with Individuals and Groups. . .	51	*
Planning and Utilization of Physical Facilities. . .	51	*
Management Development . . . . .	*	53
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Primary Metals</u> N=55	<u>Total Report</u> N=705
Effective Speaking . . . . .	83	67
Effective Written Communications . . . . .	81	74
Working Effectively with Individuals and Groups. .	78	66
Communication in the Organization. . . . .	73	65
Effective Reading Skills . . . . .	71	62
Listening Skills . . . . .	71	62
Performance Appraisal and Counseling Techniques. .	67	57
Creativity and Innovation. . . . .	65	*
Management Development . . . . .	61	56
Human Aspect of Management . . . . .	60	54
Management Reporting Systems . . . . .	59	*
Industrial Organization and Administration . . . .	59	*
Operations Planning and Control. . . . .	53	*
Managerial Motivation. . . . .	52	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Primary Metals and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Primary Metals</u> N=79	<u>Total Report</u> N=1,202
Effective Communication in the Organization. . . .	80	64
Working Efficiently with Individuals . . . . .	70	65
Management Development . . . . .	67	66
Supervisory Training and Employee Development. . .	55	53
Listening Skills . . . . .	55	*
Oral Presentation of Reports . . . . .	54	*
Effective Reading Skills . . . . .	54	*
Creativity and Innovation. . . . .	52	*
Effective Report Writing . . . . .	51	*
Business Letter Writing. . . . .	50	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Primary Metals</u> N=79	<u>Total Report</u> N=1,202
Effective Communication in the Organization . . .	57	56
Supervisory Training and Employee Development. . .	55	61
Working Efficiently with Individuals . . . . .	51	62
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Primary Metals</u> N=87	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	70	64
Leadership . . . . .	63	57
Communications . . . . .	57	51
Decision Making. . . . .	54	54
Inter-Departmental Cooperation . . . . .	54	*
Human Aspect of Management . . . . .	53	53
The Tools and Techniques of Effective Supervision.	51	55

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications -- such subjects as report writing, effective speaking, conference leadership -- was strong for all three level of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

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MANAGERIAL AND SUPERVISORY EDUCATIONAL  
NEEDS IN THE PROFESSIONAL, SCIENTIFIC,  
AND CONTROLLING INSTRUMENTS INDUSTRY

IN PENNSYLVANIA



MANAGERIAL AND SUPERVISORY EDUCATIONAL  
NEEDS IN THE PROFESSIONAL, SCIENTIFIC,  
AND CONTROLLING INSTRUMENTS INDUSTRY  
IN PENNSYLVANIA

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16.	Middle Management — Computer Operations and Data Processing . . . . .	11
17.	Middle Management — Industrial Relations and Personnel Management . . . . .	11
18.	Middle Management — Financial Management. . . . .	12
19.	Middle Management — Manufacturing and Production. . . . .	12
20.	Middle Management — Marketing . . . . .	13
21.	Middle Management — Sales Management. . . . .	13
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23. Middle Management — Research and Development . . . . .	14
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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE  
PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS  
INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 127 managers and supervisors from seven companies in the Professional, Scientific, and Controlling Instruments industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### SUMMARY

#### Top Management

Of 48 courses listed three were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said four courses were needed. (Page 3)

#### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management, behavioral science and management, and communication, out of 54 courses listed in six areas. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need only one of the listed courses. (Page 8)

The educational level was very high, with 76 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 15-18)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in this study.



First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for two of 16 courses. (Page 20)

Fourteen percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 21-25)

TOP MANAGEMENT

In the industrial category of Professional, Scientific, and Controlling Instruments, 12 top managers from seven companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Product Planning. . . . .	58
Effective Reading Skills. . . . .	58
Improving Decision Making of Managers . . . . .	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses;

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Written Communications. . . . .	58
Working Effectively with Individuals and Groups . . . . .	55
Creativity and Innovation . . . . .	55
Management Development. . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Improving Decision Making of Managers . . . . .	50	67	33
Industrial Organization and Administration . . . . .	45	81	36
Impact of Computer Technology. .	42	67	8
Management of Research and Development. . . . .	40	50	40
Long-range Planning and Fore- casting for Corporate Growth .	33	75	25
Effective Utilization of Man- power Resources and Allocation	33	58	17
Policy Formation . . . . .	25	75	42
Management Reporting Systems . .	25	75	33
Overall Strategy and Goals . . .	25	75	8
Ethical Considerations in Business . . . . .	25	58	17
Impact of Government Legislation and Controls on Business . . .	25	50	25
Impact of Science and Technology on Business Management . . . .	17	67	25
Managing Major Change in Organizations. . . . .	17	42	17
Impact of Multinational Aspects of Planning and Control. . . .	17	34	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Communication in the Organization . . . . .	42	67	33
Creativity and Innovation. . . .	36	81	55
Working Effectively with Individuals and Groups . . . .	36	72	55
Managerial Motivation. . . . .	33	66	8
Human Aspect of Management . . .	33	50	25
Political, Social, and Cultural Trends and Their Impact on Business Management. . . . .	9	18	0

TABLE 3  
COMMUNICATIONS TECHNIQUES  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Effective Reading Skills . . . . .	58	91	42
Effective Written Communications . . . . .	33	66	58
Listening Skills . . . . .	25	58	33
Effective Speaking . . . . .	17	59	33

TABLE 4  
ECONOMICS  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Economic Trends . . . . .	25	50	8
Comparative Economic Systems . . . . .	17	25	0

TABLE 5  
QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	33	58	25
Statistical Decision Theory . . . . .	17	59	17

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Incentives . . . . .	42	75	0
Personnel Policy Affecting Wage and Salary Structure . . . . .	42	67	25
Management Development . . . . .	33	66	50
Performance Appraisal and Counseling Techniques . . . . .	33	66	42
Criteria and Selection of Personnel . . . . .	25	50	25
Personnel Policy Affecting Employment Practices . . . . .	18	54	36
Personnel Policy Affecting Labor-Management Relations . . . . .	18	54	27

TABLE 7

FINANCIAL MANAGEMENT  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Financial Planning and Forecasting . . . . .	36	72	9
Fundamentals of Financial Reporting and Statement Analysis . . . . .	27	54	36
Capital Budgeting . . . . .	27	54	18
Managerial Accounting and Budgeting . . . . .	18	82	45

TABLE 8

MANUFACTURING AND PRODUCTION  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Operations Planning and Control.	36	63	27
Planning and Utilization of Physical Facilities . . . . .	36	63	18
Operations Research Applied to Production . . . . .	18	36	27

TABLE 9

MARKETING  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Product Planning . . . . .	58	91	25
Pricing. . . . .	33	66	25
Marketing Research . . . . .	25	67	0
Logistics Planning . . . . .	0	25	0

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
International Understanding. . .	0	33	8
International Economic Analysis.	0	25	0

MIDDLE MANAGEMENT

In the industrial category of Professional, Scientific, and Controlling Instruments, 46 middle managers from seven companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development . . . . .	77
Effective Communication in the Organization .	73
Creativity and Innovation . . . . .	67
Working Efficiently with Individuals . . . . .	60
Oral Presentation of Reports . . . . .	55
Performance Appraisal and Counseling Techniques . . . . .	51

The only course which 50 percent or more of the middle managers thought those they supervise needed was Effective Communication in the Organization at 52 percent.

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Professional, Scientific, and Controlling Instruments category.

TABLE 11

GENERAL MANAGEMENT  
(N=45)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinate"</u> <u>Needs"</u> Percent
Management Development . . . . .	77	96	33
Working Efficiently with Individuals . . . . .	60	100	49
Performance Appraisal and Counseling Techniques . . . . .	51	81	30
Supervisory Training and Employee Development . . . . .	45	83	45
Criteria and Selection of Personnel for Promotion . . . . .	45	74	33
Effective Utilization of Manpower Resources and Allocation . . . . .	36	65	27
Analyzing Organizational Behavior . . . . .	34	70	27
Long-range Planning and Fore- casting for Corporate Growth .	32	64	16
Impact of Science and Technology on Business Management . . . . .	29	79	17
The Application of Information Technology on Decision Making.	24	62	17
Impact of Computer Technology .	23	65	23
Principles and Analysis of Office Systems . . . . .	19	56	21
Impact of Government Legislation and Controls on Business . . . . .	18	52	14



TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Creativity and Innovation. . . . .	67	91	40
Human Aspect of Management . . . . .	40	77	28
Management Psychology. . . . .	30	74	16
Understanding Group Interaction and Behavior . . . . .	26	74	19
Industrial Sociology . . . . .	9	51	14
Social and Cultural Trends and Their Impact on Business Management . . . . .	7	31	12
Impact of Consumer Behavior on Management . . . . .	5	26	10

TABLE 13

COMMUNICATION  
(N=45)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	73	96	52
Oral Presentation of Reports . . . . .	55	82	41
Conference Leadership. . . . .	47	84	16
Effective Reading Skills . . . . .	44	81	42
Listening Skills . . . . .	42	77	37
Effective Report Writing . . . . .	38	78	40
Business Letter Writing. . . . .	30	71	41

TABLE 14

ECONOMICS  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
The Price Mechanism. . . . .	40	66	16
Economics of Production and Cost . . . . .	37	77	19
Fundamentals of Economics. . . . .	19	52	28
Economics of Technology and Innovation . . . . .	14	51	5
The Economic Systems of the United States. . . . .	12	47	14
Economic Trends. . . . .	9	46	9
Comparative Economic Systems . . . . .	7	33	9
International Economics. . . . .	7	28	5

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Improving Decision Making of Managers . . . . .	49	79	14
Applying Program Evaluation and Review Techniques (PERT) . . . . .	38	81	29
Statistical Procedures and Methods. . . . .	38	76	19
Statistical Decision Theory. . . . .	24	64	7
Inventory Management . . . . .	23	53	14
Replacement Management . . . . .	21	54	19
Probability Theory . . . . .	21	43	12
Matrix Algebra . . . . .	17	43	17
Review of Basic Mathematics. . . . .	17	29	26
Calculus of Finite Differences . . . . .	16	39	12
Linear Programming . . . . .	14	43	12
Calculus of Infinite Series. . . . .	14	28	14
Waiting Lines. . . . .	12	31	7
Dynamic Programming. . . . .	10	39	10
Analytic Geometry. . . . .	5	20	7

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management . . . . .	33	56	23
Data Systems and Processing. . .	23	60	21
Mathematics of Digital Computers	15	48	18
Fundamentals of Programming for Computer Operations. . . . .	14	59	21

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Job Analysis and Job Evaluation Methods. . . . .	54	92	15
Management and Labor Relations .	54	85	15
Employee Benefit Plans . . . . .	42	67	8
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	36	86	21
In-plant Training. . . . .	31	69	31
Salary and Wage Administration .	29	72	7
Maintaining Efficient and Up-To- Date Personnel Records . . . .	15	53	15
Industrial Safety and Medical Services . . . . .	8	70	38

TABLE 18

**FINANCIAL MANAGEMENT  
(N=12)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Financial Reporting and Statement Analysis . . . . .	64	91	18
Managerial Accounting . . . . .	55	73	27
Budgets . . . . .	50	75	25
Taxes . . . . .	40	80	40
New Developments in Equipment Replacement Policy . . . . .	40	80	30
Financial Planning and Forecasting . . . . .	36	63	9

TABLE 19

**MANUFACTURING AND PRODUCTION  
(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Automation . . . . .	69	88	38
Methods Analysis and Work Simplification . . . . .	56	87	44
Value Analysis . . . . .	50	88	38
Materials Handling . . . . .	50	81	50
Maintenance Planning and Control Engineering Economy . . . . .	50	75	31
	44	83	28
Organization and Management of Purchasing Operations . . . . .	41	88	29
Quality Control . . . . .	39	78	22
Production Planning and Control Management . . . . .	31	94	38
Inventory Management . . . . .	29	82	24

TABLE 20

MARKETING  
(N=13)

	<u>"Should Have"</u>	<u>"Should Have" and "Could Use"</u>	<u>"Subordinates' Needs"</u>
Product Planning . . . . .	54	77	15
Fundamentals of Pricing . . . . .	46	77	23
Marketing Management . . . . .	46	69	15
Fundamentals of Marketing . . . . .	38	76	15
Marketing Research . . . . .	31	77	15
Physical Distribution Methods . . . . .	31	54	23
Brand Marketing . . . . .	15	38	8
Packaging Design and Development . . . . .	8	46	8
Application of Management Science and Computers to Marketing Problems . . . . .	8	31	15

TABLE 21

SALES MANAGEMENT  
(N=9)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Selection and Evaluation of Field Salesmen . . . . .	44	55	11
Training of Field Salesmen . . . . .	33	55	11
Motivating Salesmen . . . . .	22	55	11
Supervision of Field Salesmen . . . . .	22	44	11
Compensation of Field Salesmen . . . . .	22	44	11

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=9)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
Appraising and Developing Foreign Markets. . . . .	33	44
International Law. . . . .	22	55
Monetary Exchange Problems . . . . .	22	44
International Economic Organizations . . . . .	22	44
International Understanding. . . . .	11	44
United States Foreign Economic Policy. . . . .	11	44
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade. . . . .	11	33
Commercial Policy and Trade Control. . . . .	11	22
Sources of Funds: Financing of Day-to-Day Transactions . . . . .	11	22
International Economic Analysis. . . . .	11	11

None of the middle managers thought their subordinates needed any of the courses in International Management.

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Guidelines for Selecting and Appraising New Projects. . . . .	35	64	18
Planning Budgeting and Control of Projects. . . . .	33	77	22
Evaluation of the Research and Development Programs . . . . .	33	61	17
Building Research and Development Teams. . . . .	27	54	13
Supervision and Management of Research Services. . . . .	24	71	12



Background Information of Middle Managers

Personal, Educational, and Professional Background

Forty-one percent (N=19) of the 46 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-one percent (N=42) had completed high school, 76 percent (N=35) had the bachelor's degree, and 17 percent (N=8) had the master's degree. No one had the doctorate. Two percent (N=1) went to business school and nine percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	8	2
Engineering . . . . .	18	2
Liberal Arts . . . . .	6	0
Psychology . . . . .	2	1
Other (not specified) . . . . .	1	3
Total . . . . .	35	8

The major areas of work for the middle managers in the Professional, Scientific, and Controlling Instruments industry are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	6	13
Engineering . . . . .	8	17
Finance . . . . .	4	9
Industrial Relations . . . . .	4	9
Maintenance . . . . .	1	2
Manufacturing . . . . .	6	13
Marketing and Sales . . . . .	6	13
Production Control — Records . . . . .	1	2
Purchasing and Procurement . . . . .	1	2
Research and Development . . . . .	6	13
Other (not specified) . . . . .	3	7
Total . . . . .	46	100

Methods of Updating

Sixty-four percent (N=28) of the middle managers would take a credit course and 67 percent (N=31) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree. Six were planning to enroll: two for the associate degree, three for the master's degree, and one for the doctorate. The major fields of study were: three in business administration, two in engineering, and one in another field which was not specified.

Sixty-seven percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	10	32
Live too far from educational center. . . . .	7	23
Cannot afford it. . . . .	3	10
Not interested. . . . .	3	10
Job demands no more education . . . . .	2	6
Can do better on my own . . . . .	1	3
Not a high school graduate. . . . .	1	3
Other (not specified) . . . . .	4	13
Total. . . . .	31	100

Middle managers had used a variety of educational methods for updating within the past four years, as listed below:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=46)

	<u>Number Managers</u>	<u>Percent Managers</u>
Attendance at regional or national meetings of professional societies. . . . .	29	63
Workshops or seminars on managerial topics. . . . .	23	50
Company in-service training courses . . . . .	13	28
Managerial development within company . . . . .	5	11
Short refresher courses at colleges or universities. . . . .	4	9
Correspondence courses. . . . .	4	9
Workshops or seminars in liberal arts or humanities. . . . .	2	4
High school courses . . . . .	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=46)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	57	34	7	2	0
In-plant reports and bulletins . . .	46	30	12	5	7
Subordinate-superior discussions or meetings. . . . .	42	47	9	2	0
Manufacturer's literature. . . . .	40	49	9	2	0
Scientific and technical journals. . .	30	50	18	2	0
Business reports . . . . .	28	35	15	15	7
Technical books, reports, abstracts and indexes. . . . .	27	39	32	2	0
Management journals. . . . .	25	37	11	20	7
Professional society meetings. . . .	18	41	27	14	0
Lectures, conferences, workshops and seminars . . . . .	10	45	26	12	7
Use of consultants . . . . .	7	9	42	37	5
Company in-service courses . . . . .	2	19	12	26	41
College and university evening courses. . . . .	2	0	14	74	10
College and university day courses .	0	0	5	90	5

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=46)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	23	50
Programmed instruction . . . . .	20	43
Educational television . . . . .	18	39
Courses recorded on records . . . . .	15	33
Courses recorded on tapes . . . . .	13	28
Two-way telephone courses . . . . .	7	15
Two-way radio courses . . . . .	5	11
Other (not specified) . . . . .	1	2

Company Attitudes Toward Education

Of the 45 managers responding to a question on the attitude of their immediate superior toward continuing their education, 33 percent (N=15) said the superior encouraged them and 67 percent (N=30) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities. (Table 30)

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=46)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend professional meetings . . . . .	75	23	0	2
Hold office in professional societies . . . . .	62	18	0	20
Attend company training courses . . . . .	59	12	0	29
Attend seminars or workshops away from the company . . .	56	21	7	16
Write technical and professional papers . . . . .	55	20	2	23
Enroll for advanced work . . . . .	46	36	0	18
Educational leave of absence . . . . .	4	17	15	64

Thirty-one percent of the middle managers indicated that they were employed by companies which provided in-service training; 65 percent were not, and four percent did not know. Forty-eight percent said the training was entirely on company time, 21 percent said it was partly on company time, three percent said it was not on company time, and 28 percent did not know.

Eighty-two percent reported that their company had an educational assistance plan. Seven percent said it did not and 11 percent did not know. Fifty percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 35 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	14
About 3/4 . . . . .	0
About 2/3 . . . . .	0
About 1/2 . . . . .	14
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	7
 Total. . . . .	 35

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	8
251 - 300 . . . . .	0
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	1
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	25
 Total. . . . .	 34

When asked about the effect of available company educational assistance in motivating them to undertake further education, 11 percent of the middle managers said it had strongly encouraged them, 25 percent said it had partially influenced them, and 64 percent said it had no effect. There is an inconsistency here: while 36 percent said the availability of financial aid motivated them to some extent, only one person was actually enrolled and eight were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

### FIRST-LINE SUPERVISION

In the industrial category of Professional, Scientific, and Controlling Instruments, 69 first-line supervisors from seven companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 69 first-line supervisors in the category of Professional, Scientific, and Controlling Instruments were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Communications . . . . .	54
Decision Making . . . . .	54

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=68)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Decision Making. . . . .	37	54	59	86
Fundamentals of the Supervisor's Job . . . . .	33	49	53	79
Inter-Departmental Cooperation . . . . .	33	49	55	82
The Tools and Techniques of Effective Supervision. . . . .	33	49	60	89
Supervisor's Role in Company Economics . . . . .	30	44	58	85
Supervisor's Role in Employee Discipline . . . . .	26	39	53	79
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . . .	28	42	51	76
Safety . . . . .	25	38	43	65
Employee Training. . . . .	22	32	44	64
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . . .	21	31	44	65
Labor Relations. . . . .	20	29	41	60
Labor Relations Legislation. . . . .	12	18	27	40
<u>Developing Those We Supervise</u>				
Communications . . . . .	37	54	60	88
Human Aspect of Management . . . . .	28	42	55	82
Leadership . . . . .	28	42	54	81
Developing the Work Team . . . . .	21	31	48	71

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Thirty-three percent (N=23) of the first-line supervisors were 40 years of age or younger. Eighty percent (N=55) were high school graduates, 14 percent (N=10) had the bachelor's degree, and one percent (N=1) had the master's degree; no one had the doctorate. Seven percent (N=5) had gone to business school and 23 percent (N=16) to trade school. The major fields of study are indicated in the following table:

TABLE 34

## MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	7	1
Education . . . . .	1	0
Engineering . . . . .	1	0
Liberal Arts . . . . .	1	0
Total . . . . .	10	1

Below is a listing of major areas of work for the first-line supervisors in the Professional, Scientific, and Controlling Instruments industry:

TABLE 35

## MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	7	11
Engineering . . . . .	5	8
Finance . . . . .	3	5
Industrial Relations . . . . .	1	2
Maintenance . . . . .	4	6
Manufacturing . . . . .	25	35
Marketing and Sales . . . . .	7	11
Production Control - Records . . . . .	3	5
Purchasing and Procurement . . . . .	2	3
Research and Development . . . . .	2	3
Traffic and Transportation . . . . .	3	5
Other (not specified) . . . . .	4	6
Total . . . . .	66	100

Methods of Updating

Fifty-eight percent (N=38) of the first-line supervisors would take a credit course and 79 percent (N=54) would take a non-credit course if they were offered locally.

Two supervisors were currently enrolled for the bachelor's degree. Three were planning to enroll, one for the associate degree and two for the bachelor's. The major fields of study were: three in engineering, one in business administration, and one in law.

For the 47 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	11	23
Cannot afford it. . . . .	11	23
Job demands no more education . . . . .	8	18
Not a high school graduate. . . . .	7	15
Not interested. . . . .	5	11
Live too far from educational center. . . . .	3	6
Can do better on my own . . . . .	2	4
 Total. . . . .	 47	 100

The variety of educational methods used by first-line supervisors for updating within the past four years follows:

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=69)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses . . . . .	27	39
Workshops or seminars on managerial topics. . . . .	24	35
Managerial development within company . . . . .	22	32
Attendance at regional or national meetings of professional societies. . . . .	19	28
Correspondence courses. . . . .	10	14
Short refresher courses at colleges or universities . . . . .	6	9
High school courses to improve job performance . . . . .	4	6
Workshops or seminars in liberal arts or humanities . . . . .	2	3
Television courses. . . . .	2	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38  
SOURCES OF INFORMATION USED IN UPDATING  
(N=63)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	56	34	5	2	3
In-plant reports and bulletins . . .	51	28	5	6	10
Subordinate-superior discussions or meetings. . . . .	38	46	9	2	5
Manufacturer's literature. . . . .	38	29	8	19	6
Technical books, reports, abstracts, and indexes. . . . .	32	27	20	19	2
Scientific and technical journals. .	26	21	18	31	4
Professional society meetings. . . .	20	13	9	56	2
Business reports . . . . .	19	29	17	33	2
Management journals. . . . .	16	38	11	24	11
Lectures, conferences, workshops, and seminars . . . . .	14	25	17	20	24
Use of consultants . . . . .	11	13	21	50	5
Company in-service courses . . . . .	8	19	8	25	40
College and university evening courses. . . . .	4	9	4	70	13
College and university day courses .	0	0	2	94	4

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=69)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Programmed instruction. . . . .	38	55
Correspondence courses. . . . .	34	49
Educational television. . . . .	16	23
Courses recorded on tapes . . . . .	10	14
Courses recorded on records . . . . .	7	10
Two-way radio courses . . . . .	4	6
Two-way telephone courses . . . . .	3	4
Other (not specified) . . . . .	3	4

Company Attitudes Toward Education

A total of 64 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-seven percent (N=30) said the superior encouraged them; 50 percent (N=32) said he was noncommittal, and three percent (N=2) said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent of those who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=61)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend company training courses. . . . .	76	4	0	20
Attend professional meetings . . . . .	70	13	2	15
Enroll for advanced work . . . . .	63	11	0	26
Attend seminars or workshops away from the company. . . . .	54	15	2	29
Hold office in professional societies. . . . .	50	17	2	31
Write technical and professional papers. . . . .	31	17	0	52
Educational leave of absence. . . . .	5	10	7	78

Thirty-seven percent of the supervisors indicated that they were employed by companies which provided in-service training; 54 percent said their company did not provide it and nine percent did not know. Twenty-two percent said the training was completely on company time, 25 percent said it was partly on company time, 28 percent said it was entirely on the men's own time, and 25 percent did not know.

Seventy-one percent reported that their company had an educational assistance plan; 22 percent said it did not, and seven percent did not know. Fifty-six percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 40 supervisors who answered the question, is shown below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	23
About 3/4 . . . . .	1
About 2/3 . . . . .	1
About 1/2 . . . . .	9
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	6
 Total. . . . .	 40

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300. . . . .	10
251 - 300 . . . . .	0
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	1
51 - 100 . . . . .	1
50 or less . . . . .	0
Don't know. . . . .	28
 Total. . . . .	 40



When asked what the effect of available financial assistance was on their motivation to undertake further education, 30 percent of the supervisors said it strongly encouraged them, 20 percent said it partially influenced them, and 50 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 50 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 69 respondents were actually enrolled and three were planning to enroll.

COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE PROFESSIONAL, SCIENTIFIC, AND CONTROLLING INSTRUMENTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT

The educational needs of managers and supervisors in the industrial category of Professional, Scientific, and Controlling Instruments as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were not similar. Managers and supervisors in this category showed both lower and different educational needs than did the group as a whole.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	Professional, Scientific, and Controlling <u>Instruments</u> N=12	<u>Total Report</u> N=705
Product Planning . . . . .	58	*
Effective Reading Skills . . . . .	58	*
Improving Decision Making of Managers. . . . .	50	*
Communication in the Organization. . . . .	*	59
Management Development . . . . .	*	53
Long-range Planning and Forecasting for Corporate Growth	*	50
Effective Speaking . . . . .	*	50
Effective Written Communications . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Professional, Scientific, and Controlling Instruments</u> N=12	<u>Total Report</u> N=705
Effective Written Communications . . . . .	58	74
Working Effectively with Individuals and Groups. . . . .	55	66
Creativity and Innovation. . . . .	55	*
Management Development . . . . .	50	56
Effective Speaking . . . . .	*	67
Communication in the Organization. . . . .	*	65
Effective Reading Skills . . . . .	*	62
Listening Skills . . . . .	*	62
Performance Appraisal and Counseling Techniques. . . . .	*	57
Human Aspect of Management . . . . .	*	54
Improving Decision Making of Managers. . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in the Professional, Scientific, and Controlling Instruments industry and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Professional, Scientific, and Controlling Instruments</u> N=46	<u>Total Report</u> N=1,202
Management Development . . . . .	77	66
Effective Communication in the Organization. . . . .	73	64
Creativity and Innovation. . . . .	67	*
Working Efficiently with Individuals . . . . .	60	65
Oral Presentation of Reports . . . . .	55	*
Performance Appraisal and Counseling Techniques. . . . .	51	*
Supervisory Training and Employee Development. . . . .	*	53

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Professional, Scientific, and Controlling Instruments</u> N=46	<u>Total Report</u> N=1,202
Effective Communication in the Organization. . . . .	52	56
Supervisory Training and Employee Development. . . . .	*	61
Working Efficiently with Individuals . . . . .	*	62
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following selected from a list of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Professional, Scientific, and Controlling Instruments</u> N=69	<u>Total Report</u> N=1,713
Decision Making. . . . .	54	54
Communications . . . . .	54	51
Fundamentals of the Supervisor's Job . . . . .	*	64
Leadership . . . . .	*	57
The Tools and Techniques of Effective Supervision. . . . .	*	55
Human Aspect of Management . . . . .	*	53

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.



PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

Engineering Fields:

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining



**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)

Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
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MANAGERIAL AND SUPERVISORY  
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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE RAILROAD INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 267 managers and supervisors from seven companies in the Railroad industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their education background, methods of updating, and company attitudes toward education; this was not asked of top management.

## SUMMARY

### Top Management

Of 48 courses listed, seven were checked by 50 percent or more of top managers as "Should Have". (Page 3)

For those they supervise, 50 percent or more of top managers said eight courses were needed. (Page 4)

### Middle Management

Fifty percent or more of the middle managers expressed a need for five of 54 listed courses, in areas of communication, general management, and behavioral science and management. (Page 8)

Those supervised by middle management were thought by 50 percent or more of the managers to need ten of the listed courses. (Page 8)

The educational level was high, with 52 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

### First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for four out of 16 courses. (Page 21)

Thirty-two percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

### TOP MANAGEMENT

In the industrial category of Railroads, 52 top managers from seven companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

### Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses with a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	65
Overall Strategy and Goals . . . . .	62
Management Development . . . . .	60
Industrial Organization and Administration . . . . .	59
Effective Written Communications . . . . .	54
Policy Formation . . . . .	53
Managerial Motivation . . . . .	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>'Subordinates' Needs'</u> Percent
Effective Written Communications . . . . .	83
Effective Reading Skills . . . . .	72
Listening Skills . . . . .	72
Effective Speaking . . . . .	67
Communication in the Organization. . . . .	67
Working Effectively with Individuals and Groups. . . . .	67
Creativity and Innovation. . . . .	55
Management Development . . . . .	55

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=51)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Overall Strategy and Goals . . . . .	62	84	29
Industrial Organization and Administration . . . . .	59	86	33
Policy Formation . . . . .	53	83	30
Management Reporting Systems . . . . .	46	81	43
Improving Decision Making of Managers . . . . .	43	69	30
Long-range Planning and Fore- casting for Corporate Growth . . . . .	41	80	20
Managing Major Change in Organizations. . . . .	40	73	20
Impact of Computer Technology. . . . .	39	76	41
Effective Utilization of Man- power Resources and Allocation . . . . .	38	74	40
Impact of Science and Technology on Business Management . . . . .	30	75	18
Management of Research and Development. . . . .	30	45	35
Impact of Government Legislation and Controls on Business . . . . .	21	63	19
Ethical Considerations in Business . . . . .	18	58	28
Impact of Multinational Aspects of Planning and Control. . . . .	8	16	3

TABLE 2  
BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=48)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	65	91	67
Managerial Motivation . . . . .	51	84	29
Human Aspect of Management . . . . .	48	80	48
Working Effectively with Individuals and Groups . . . . .	46	77	67
Creativity and Innovation . . . . .	45	78	55
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	3	35	5

TABLE 3  
COMMUNICATIONS TECHNIQUES  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Written Communications . . . . .	54	78	83
Effective Speaking . . . . .	47	71	67
Effective Reading Skills . . . . .	44	77	72
Listening Skills . . . . .	30	77	72

TABLE 4  
ECONOMICS  
(N=43)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economic Trends . . . . .	12	49	16
Comparative Economic Systems . . . . .	5	28	10

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=40)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Statistical Decision Theory. . . . .	28	54	38
Survey Course on Quantitative Methods. . . . .	25	55	25

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=47)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	60	21	55
Performance Appraisal and Counseling Techniques. . . . .	41	75	41
Incentives . . . . .	35	65	23
Criteria and Selection of Personnel. . . . .	21	61	33
Personnel Policy Affecting Wage and Salary Structure . . . . .	19	47	23
Personnel Policy Affecting Labor-Management Relations . . . . .	17	46	27
Personnel Policy Affecting Employment Practices . . . . .	14	48	20

TABLE 7

FINANCIAL MANAGEMENT  
(N=42)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Managerial Accounting and Budgeting. . . . .	43	62	31
Fundamentals of Financial Reporting and Statement Analysis . . . . .	41	62	33
Capital Budgeting. . . . .	30	55	25
Financial Planning and Fore- casting. . . . .	18	46	15



TABLE 8  
 MANUFACTURING AND PRODUCTION  
 (N=38)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities. . . . .	34	47	37
Operations Research Applied to Production. . . . .	22	44	19
Operations Planning and Control.	17	42	33

TABLE 9

MARKETING  
 (N=38)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Logistics Planning . . . . .	31	37	14
Product Planning . . . . .	26	35	17
Pricing. . . . .	22	36	11
Marketing Research . . . . .	18	44	21

TABLE 10

INTERNATIONAL MANAGEMENT  
 (N=37)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
International Understanding. . .	3	22	3
International Economic Analysis.	0	11	6

**MIDDLE MANAGEMENT**

In the industrial category of Railroads, 87 middle managers from seven companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

**Educational Needs Within Areas of Managerial Responsibility**

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development . . . . .	68
Effective Communication in the Organization . . . . .	65
Working Efficiently with Individuals . . . . .	61
Business Letter Writing . . . . .	58
Supervisory Training and Employee Development . . . . .	51

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Business Letter Writing . . . . .	77
Supervisory Training and Employee Development . . . . .	69
Working Efficiently with Individuals . . . . .	68
Effective Report Writing . . . . .	68
Effective Reading Skills . . . . .	67
Effective Communication in the Organization . . . . .	64
Oral Presentation of Reports . . . . .	60
Management Development . . . . .	58
Listening Skills . . . . .	51
Creativity and Innovation . . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Railroad category.

TABLE 11

GENERAL MANAGEMENT (N=81)			
	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates" Needs"</u> Percent
Management Development . . . . .	68	92	58
Working Efficiently with Individuals . . . . .	61	92	63
Supervisory Training and Employee Development . . . . .	51	82	69
Criteria and Selection of Personnel for Promotion . . . . .	46	88	42
Performance Appraisal and Counseling Techniques . . . . .	44	86	47
Effective Utilization of Manpower Resources and Allocation . . . . .	41	71	42
Analyzing Organizational Behavior . . . . .	38	77	34
The Application of Information Technology on Decision Making . . . . .	28	62	32
Long-range Planning and Fore- casting for Corporate Growth . . . . .	24	60	27
Impact of Computer Technology . . . . .	24	55	30
Principles and Analysis of Office Systems . . . . .	22	65	44
Impact of Science and Technology on Business Management . . . . .	12	55	17
Impact of Government Legislation and Controls on Business . . . . .	11	36	21

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT (N=74)			
	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates" Needs"</u> Percent
Creativity and Innovation . . . . .	41	77	50
Understanding Group Interaction and Behavior . . . . .	31	59	34
Management Psychology . . . . .	28	64	28
Human Aspect of Management . . . . .	20	68	38
Industrial Sociology . . . . .	9	36	16
Social and Cultural Trends and Their Impact on Business Management . . . . .	4	30	13
Impact of Consumer Behavior on Management . . . . .	4	15	8

TABLE 13

COMMUNICATION  
(N=77)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	65	92	64
Business Letter Writing . . . . .	58	90	77
Effective Report Writing . . . . .	49	83	68
Effective Reading Skills . . . . .	42	83	67
Oral Presentation of Reports . . . . .	42	71	60
Conference Leadership . . . . .	39	71	39
Listening Skills . . . . .	38	80	51

TABLE 14

ECONOMICS  
(N=72)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	19	36	25
The Price Mechanism . . . . .	17	30	17
Economics of Technology and Innovation . . . . .	10	26	11
Fundamentals of Economics . . . . .	7	31	21
Economic Trends . . . . .	6	36	16
International Economics . . . . .	4	11	6
The Economic Systems of the United States . . . . .	3	16	8
Comparative Economic Systems . . . . .	3	10	6

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=71)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	37	67	24
Statistical Decision Theory . . . . .	30	53	20
Linear Programming . . . . .	23	44	23
Statistical Procedures and Methods	22	39	26
Applying Program Evaluation and Review Techniques (PERT) . . . . .	22	32	19
Replacement Management . . . . .	17	53	23
Inventory Management . . . . .	16	29	17
Dynamic Programming . . . . .	12	27	12
Review of Basic Mathematics . . . . .	12	25	31
Waiting Lines . . . . .	12	22	14
Probability Theory . . . . .	10	26	15
Matrix Algebra . . . . .	4	14	12
Calculus of Finite Differences . . . . .	3	12	9
Analytic Geometry . . . . .	2	13	9
Calculus of Infinite Series . . . . .	2	11	8

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=70)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Data Systems and Processing . . . . .	23	56	34
Applying the Computer to Problems of Business and Management . . . . .	19	55	27
Fundamentals of Programming for Computer Operations . . . . .	14	37	22
Mathematics for Digital Computers . . . . .	10	23	15

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=38)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	45	79	29
Management and Labor Relations	38	54	38
In-plant Training. . . . .	32	67	35
Maintaining Efficient and Up- To-Date Personnel Records. . .	25	59	34
Job Analysis and Job Evaluation Methods . . . . .	24	63	33
Industrial Safety and Medical Services . . . . .	21	39	33
Salary and Wage Administration	13	32	19
Employee Benefit Plans . . . . .	10	33	19



TABLE 18

FINANCIAL MANAGEMENT  
(N=25)

	<u>'Should Have'</u> Percent	<u>'Should Have'</u> and <u>'Could Use'</u> Percent	<u>'Subordinates'</u> <u>'Needs'</u> Percent
Budgets. . . . .	52	76	44
New Developments in Equipment Replacement Policy . . . . .	27	50	23
Managerial Accounting. . . . .	24	52	16
Fundamentals of Financial Reporting and Statement Analysis . . . . .	19	43	14
Taxes. . . . .	9	32	14
Financial Planning and Forecasting. . . . .	8	41	13

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=27)

	<u>'Should Have'</u> Percent	<u>'Should Have'</u> and <u>'Could Use'</u> Percent	<u>'Subordinates'</u> <u>'Needs'</u> Percent
Automation . . . . .	56	75	52
Value Analysis . . . . .	50	63	42
Production Planning and Control Management . . . . .	46	58	46
Methods Analysis and Work Simplification . . . . .	44	72	56
Maintenance Planning and Control. . . . .	44	64	60
Engineering Economy. . . . .	42	57	31
Quality Control. . . . .	32	64	40
Inventory Management . . . . .	32	56	40
Materials Handling . . . . .	32	40	36
Organization and Management of Purchasing Operations. . . . .	4	46	17

TABLE 20

MARKETING  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Marketing Management . . . . .	17	28	6
Marketing Research . . . . .	11	43	5
Fundamentals of Marketing . . . . .	6	45	6
Fundamentals of Pricing . . . . .	5	26	5
Product Planning . . . . .	0	33	6
Physical Distribution Methods . . . . .	0	24	0
Application of Management Science and Computers to Marketing Problems . . . . .	0	21	5
Packaging Design and Development . . . . .	0	19	0
Brand Marketing . . . . .	0	12	0

TABLE 21

SALES MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Motivating Salesmen . . . . .	48	52	22
Selection and Evaluation of Field Salesmen . . . . .	46	57	21
Supervision of Field Salesmen . . . . .	46	50	27
Training of Field Salesmen . . . . .	43	50	32
Compensation of Field Salesmen . . . . .	38	46	23

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=15)

	<u>Should Have</u> Percent	<u>'Should Have' and 'Could Use'</u> Percent	<u>'Subordinates' Needs'</u> Percent
Commercial Policy and Trade Control . . . . .	13	20	7
Monetary Exchange Problems . . . . .	7	14	7
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade. . . . .	7	14	7
International Economic Organization . . . . .	7	14	7
International Understanding. . . . .	7	7	7
United States Foreign Economic Policy . . . . .	7	7	7
Sources of Funds: Financing of Day-to-Day Transactions . . . . .	7	7	7
Appraising and Developing Foreign Markets. . . . .	7	7	7
International Economic Analysis. . . . .	0	7	0

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=16)

	<u>'Should Have'</u> Percent	<u>'Should Have' and 'Could Use'</u> Percent	<u>'Subordinates' Needs'</u> Percent
Planning Budgeting and Control of Projects. . . . .	38	57	25
Building Research and Development Teams. . . . .	25	50	13
Guidelines for Selecting and Appraising New Projects. . . . .	25	31	6
Evaluation of the Research and Development Programs . . . . .	19	44	6
Supervision and Management of Research Services. . . . .	19	44	6

Background Information of Middle Managers

**Personal, Educational, and Professional Background**

Twenty-three percent (N=20) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-two percent (N=78) had completed high school, 52 percent (N=45) had the bachelor's degree, and six percent (N=5) had the master's degree. No one had the doctorate. Fourteen percent (N=12) went to business school and five percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below.

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	8	3
Education . . . . .	2	0
Engineering . . . . .	29	1
Liberal Arts . . . . .	5	0
Other (not specified) . . . . .	1	1
<b>Total . . . . .</b>	<b>45</b>	<b>5</b>

The major areas of work for the middle managers in the railroad industry are shown below.

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	19	22
Engineering . . . . .	7	8
Finance . . . . .	6	7
Industrial Relations . . . . .	6	7
Maintenance . . . . .	5	6
Manufacturing . . . . .	1	1
Marketing and Sales . . . . .	6	7
Production Control — Records . . . . .	1	1
Purchasing and Procurement . . . . .	1	1
Research and Development . . . . .	1	1
Service (yard and labor personnel, etc.)	3	5
Traffic and Transportation . . . . .	24	28
Other (not specified) . . . . .	5	6
<b>Total . . . . .</b>	<b>85</b>	<b>100</b>

## Methods of Updating

Fifty-five percent (N=46) of the middle managers would take a credit course and 73 percent (N=62) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the associate degree. Five planned to enroll, one for the associate degree, two for the bachelor's, and two for the master's. Major fields of study indicated were: four in business administration, one in engineering, and one in law.

Eighty percent had no plans for further degree work and their reasons are given below:

TABLE 26

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	36	51
Job demands no more education . . . . .	7	10
Not interested. . . . .	5	7
Live too far from educational center. . . . .	4	6
Not a high school graduate. . . . .	4	6
Cannot afford it. . . . .	2	3
Can do better on my own . . . . .	2	3
Other (not specified) . . . . .	10	14
Total. . . . .	70	100

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=87)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics . . . . .	40	46
Attendance at regional or national meetings of professional societies. . . . .	32	37
Company in-service training courses. . . . .	24	28
Managerial development within company. . . . .	16	18
Short refresher courses at colleges or universities . . . . .	12	14
Correspondence courses . . . . .	5	6
Workshops or seminars in liberal arts or humanities . . . . .	3	3

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28  
SOURCES OF INFORMATION USED IN UPDATING  
(N=80)

	Use Frequently	Average Use	Percent		Do Not Use	Would Use If Available
			Use Very Little			
Discussion with company personnel (informal or formal) . . . . .	70	28	1		0	1
In-plant reports and bulletins . . . .	62	36	1		1	0
Subordinate-superior discussions or meetings . . . . .	57	37	3		0	3
Management journals . . . . .	36	50	9		4	1
Business reports . . . . .	35	42	18		4	1
Manufacturer's literature . . . . .	29	32	21		17	1
Scientific and technical journals . . .	26	33	20		20	1
Technical books, reports, abstracts and indexes . . . . .	22	35	30		12	1
Lectures, conferences, workshops and seminars . . . . .	21	34	29		7	9
Professional society meetings . . . .	20	41	24		12	3
Company in-service courses . . . . .	7	36	18		10	29
Use of consultants . . . . .	4	11	31		43	11
College-university evening courses . .	1	6	7		78	8
College-university day courses . . . .	0	1	3		90	6



Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow.

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=87)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	35	40
Programmed instruction . . . . .	29	33
Educational television . . . . .	25	29
Courses recorded on records . . . . .	13	15
Courses recorded on tapes . . . . .	12	14
Two-way telephone courses . . . . .	6	7
Two-way radio courses . . . . .	4	5
Other (not specified) . . . . .	6	7

Company Attitudes Toward Education

Of the 76 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 37 percent (N=28) said the superior encouraged them and 63 percent (N=48) said the superior was noncommittal. No one said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=80)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses . . . . .	90	3	0	7
Attend professional meetings . . . . .	81	12	3	4
Hold office in professional societies . . . . .	71	13	3	13
Attend workshops or seminars away from the company . . . . .	67	18	3	12
Write technical and professional papers . . . . .	41	22	1	36
Enroll for advanced work . . . . .	38	28	4	28
Educational leave of absence . . . . .	21	14	6	59

Fifty percent of the middle managers were employed by companies which provided in-service training 45 percent were not, and five percent did not know. Forty percent said the training was entirely on company time, 35 percent said it was partly on company time, nine percent said it was not on company time, and 16 percent did not know.

Twenty percent reported that their company had an educational assistance plan. Sixty-five percent said it did not and 15 percent did not know. Twenty-five percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	4
About 3/4 . . . . .	1
About 2/3 . . . . .	0
About 1/2 . . . . .	0
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know. . . . .	6
 Total. . . . .	 11*

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	2
251 - 300 . . . . .	0
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	8
 Total. . . . .	 10*

\* Only a few of the 87 middle managers in the railroad companies replied to these two questions.

When asked about the effect of available company educational assistance in motivating them to undertake further education, 33 percent of the middle managers said it had strongly encouraged them, 27 percent said it had partially influenced them, and 40 percent said it had no effect. There is an inconsistency here: while 60 percent said the availability of aid motivated them to some extent, only one person was actually enrolled and five were planning to enroll.

**FIRST-LINE SUPERVISION**

In the industrial category of Railroads, 128 first-line supervisors from seven companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

**Educational Needs**

The 128 first-line supervisors in the category of Railroads were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job . . . . .	54
Safety . . . . .	54
Inter-Departmental Cooperation . . . . .	53
Decision Making . . . . .	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=125)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . . .	68	54	113	90
Inter-Departmental Cooperation . . . . .	64	53	107	89
Decision Making . . . . .	61	50	103	84
Supervisor's Role in Company Economics . . . . .	57	47	95	78
The Tools and Techniques of Effective Supervision . . . . .	53	43	104	85
Supervisor's Role in Employee Discipline . . . . .	49	40	94	77
<u>Employee Training and Evaluation</u>				
Safety . . . . .	66	54	100	82
Evaluation of Employee Performance . . . . .	54	44	104	85
Employee Training . . . . .	52	42	92	75
<u>The Supervisor and the Union</u>				
Labor Relations . . . . .	51	41	91	74
Grievance Procedure and Arbitration . . . . .	45	37	89	73
Labor Relations Legislation . . . . .	27	22	71	58
<u>Developing Those We Supervise</u>				
Leadership . . . . .	59	48	102	83
Communications . . . . .	55	45	106	87
Human Aspect of Management . . . . .	54	44	100	82
Developing the Work Team . . . . .	48	40	99	82

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Twenty-seven percent (N=35) of the first-line supervisors were 40 years of age or younger. Eighty-seven percent (N=111) were high school graduates, and 32 percent (N=41) had the bachelor's degree. One person had the master's degree; no one had the doctorate. Sixteen percent (N=21) had gone to business school and 12 percent (N=15) to trade school. The major fields of study are indicated in the following table.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	6	1
Engineering . . . . .	29	0
Law . . . . .	1	0
Liberal Arts . . . . .	4	0
Other (not specified) . . . . .	1	0
<b>Total . . . . .</b>	<b>41</b>	<b>1</b>

The major areas of work for the first-line supervisors in the railroad industry are shown in the following table:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	15	12
Engineering . . . . .	9	7
Finance . . . . .	2	2
Industrial Relations . . . . .	4	3
Maintenance . . . . .	29	23
Manufacturing . . . . .	3	2
Marketing and Sales . . . . .	4	3
Production Control - Records . . . . .	0	0
Purchasing and Procurement . . . . .	2	2
Research and Development . . . . .	2	2
Service (yard and labor personnel, etc) . . . . .	10	8
Traffic and Transportation . . . . .	42	33
Other (not specified). . . . .	4	3
<b>Total . . . . .</b>	<b>126</b>	<b>100</b>

## Methods of Updating

Fifty-six percent (N=71) of the first-line supervisors would take a credit course and 76 percent (N=96) would take a non-credit course if they were offered locally.

No supervisors were currently enrolled in a degree program. Three were planning to enroll, one for the bachelor's and two for the master's degrees. One planned to enroll in business administration, one in education, and one in engineering.

For the 108 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	44	41
Job demands no more education . . . . .	10	9
Cannot afford it. . . . .	8	7
Not interested. . . . .	8	7
Live too far from educational center. . . . .	6	6
Not a high school graduate. . . . .	5	5
Can do better on my own . . . . .	1	1
Other (not specified) . . . . .	26	24
Total. . . . .	108	100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=128)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Workshops or seminars on managerial topics . . . . .	35	27
Attendance at regional or national meetings of professional societies. . . . .	29	23
Company in-service training courses . . . . .	25	20
Managerial development within company . . . . .	18	14
Correspondence courses. . . . .	10	8
Short refresher courses at colleges or universities . . . . .	9	7
High school courses to improve job performance . . . . .	7	5
Workshops or seminars in liberal arts or humanities. . . . .	2	2
Television courses. . . . .	1	1



The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38

SOURCES OF INFORMATION USED IN UPDATING  
(N=117)

	Use Frequently	<u>Percent</u>				Would Use If Available
		Average Use	Use Very Little	Do Not Use		
Discussions with company personnel (informal or formal) . . . . .	71	27	1	1	0	
In-plant reports and bulletins. . . . .	68	27	0	3	2	
Subordinate-superior discussions or meetings. . . . .	57	35	4	1	3	
Management journals . . . . .	29	43	13	8	7	
Business reports. . . . .	23	41	18	17	1	
Manufacturer's literature . . . . .	22	43	16	17	2	
Scientific and technical journals. . . . .	20	33	20	22	5	
Technical books, reports, abstracts and indexes . . . . .	18	40	17	21	4	
Lectures, conferences, workshops, and seminars . . . . .	11	36	28	14	11	
Company in-service courses. . . . .	11	25	5	29	30	
Professional society meetings . . . . .	11	21	28	36	4	
Use of consultants. . . . .	5	17	21	51	6	
College-university evening courses . . . . .	1	4	7	77	11	
College-university day courses. . . . .	0	2	1	94	3	

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=128)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	64	50
Programmed instruction . . . . .	58	45
Educational television . . . . .	26	20
Courses recorded on records . . . . .	21	16
Courses recorded on tapes . . . . .	20	16
Two-way telephone courses . . . . .	11	9
Two-way radio courses . . . . .	11	9
Other (not specified) . . . . .	9	7

Company Attitudes Toward Education

A total of 117 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Thirty-two percent (N=38) said the superior encouraged him; 67 percent said he was noncommittal, and one individual said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=122)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses . . . . .	81	4	2	13
Attend professional meetings . . . . .	73	8	1	18
Hold office in professional societies . . . . .	61	19	0	20
Attend seminars or workshops away from the company . . . . .	45	16	6	33
Enroll for advanced work . . . . .	38	27	2	33
Write technical and professional papers . . . . .	33	20	2	45
Educational leave of absence . . . . .	12	11	11	66

Forty-eight percent of the supervisors were employed by companies which provided in-service training; 38 percent said their company did not provide it and 14 percent did not know. Thirty-nine percent said the training was completely on company time, 21 percent said it was partly on company time, nine percent said it was entirely on the men's own time, and 31 percent did not know.

Twenty-six percent reported that their company had an educational assistance plan; 49 percent said it did not, and 26 percent did not know. Thirty-three percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below.

TABLE 41  
PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	12
About 3/4 . . . . .	0
About 2/3 . . . . .	0
About 1/2 . . . . .	0
About 1/3 . . . . .	0
Less than 1/3 . . . . .	0
Don't know . . . . .	20
 Total . . . . .	 32

Table 42 shows the maximum amount of tuition paid by the company per year as shown by the two out of a total of 32 first-line supervisors who indicated this knowledge.

TABLE 42  
MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	2
251 - 300 . . . . .	0
201 - 250 . . . . .	0
151 - 200 . . . . .	0
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know . . . . .	30
 Total . . . . .	 32

When asked what the effect of available financial assistance was on their motivation to undertake further education, 29 percent of the supervisors said it strongly encouraged them, 20 percent said it partially influenced them, and 51 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 49 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, no one was actually enrolled and only three were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN RAILROADS WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Railroads as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar.

**Top Management**

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Railroads</u> N=52	<u>Total Report</u> N=705
Communication in the Organization . . . . .	65	59
Overall Strategy and Goals . . . . .	62	50
Management Development . . . . .	60	53
Industrial Organization and Administration . .	59	*
Effective Written Communications . . . . .	54	50
Policy Formation . . . . .	53	*
Managerial Motivation . . . . .	51	*
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Effective Speaking . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	<u>Total Report</u> N=705
	<u>Railroads</u> N=52	
Effective Written Communications . . . . .	83	74
Effective Reading Skills . . . . .	72	62
Listening Skills . . . . .	72	62
Effective Speaking . . . . .	67	67
Working Effectively with Individuals and Groups . . . . .	67	66
Communication in the Organization . . . . .	67	65
Management Development . . . . .	55	56
Creativity and Innovation . . . . .	55	*
Performance Appraisal and Counseling Techniques . . . . .	*	57
Human Aspect of Management . . . . .	*	54
Improving Decision Making of Managers . . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Railroads and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	<u>Total Report</u> N=1202
	<u>Railroads</u> N=87	
Management Development . . . . .	68	66
Effective Communication in the Organization . . . . .	65	64
Working Efficiently with Individuals . . . . .	61	65
Business Letter Writing . . . . .	58	*
Supervisory Training and Employee Development . . . . .	51	53

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	<u>Total Report</u> N=1202
	<u>Railroads</u> N=87	
Business Letter Writing . . . . .	77	*
Supervisory Training and Employee Development	69	61
Working Efficiently with Individuals . . . . .	68	62
Effective Report Writing . . . . .	68	*
Effective Reading Skills . . . . .	67	*
Effective Communication in the Organization .	64	56
Oral Presentation of Reports . . . . .	60	*
Management Development . . . . .	58	*
Listening Skills . . . . .	51	50
Creativity and Innovation . . . . .	50	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	<u>Total Report</u> N=1713
	<u>Railroads</u> N=128	
Fundamentals of the Supervisor's Job . . . . .	54	64
Safety . . . . .	54	*
Inter-Departmental Cooperation . . . . .	53	*
Decision Making. . . . .	50	54
Leadership . . . . .	*	57
The Tools and Techniques of Effective Supervision. . . . .	*	55
Human Aspect of Management . . . . .	*	53
Communications . . . . .	*	51

\* Less than 50 percent



## RECOMMENDATIONS

For the total report, *Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania*, the following recommendations were made:

### For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership - was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

**"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)**

**"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)**

**"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)**

**Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):**

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

**"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)**

**"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)**

**Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):**

**Engineering Fields:**

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

**"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)**

**Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):**

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

**The above publications may be purchased from:**

**Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802**

**Information about the above publications may be secured from:**

**Department of Planning Studies  
One Shields Building  
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University Park, Pennsylvania 16802**

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**MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE STONE,  
CLAY, AND GLASS PRODUCTS INDUSTRY  
IN PENNSYLVANIA**

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**M-76**

**Samuel S. Dubin, Ph.D.**

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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## **SURVEY PROCEDURES**

This report is a specific segment of a larger study,\* and is based on responses from 125 managers and supervisors from nine companies in the Stone, Clay, and Glass Products industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### **SUMMARY**

#### **Top Management**

Of 48 courses listed, 15 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 13 courses were needed. (Page 4)

#### **Middle Management**

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in the areas of general management, behavioral science and management, and communication, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need five of the listed courses. (Page 9)

The educational level was good, with 44 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.



**First-Line Supervision**

Fifty percent or more of the first-line supervisors reported a "Should Have" need for two out of 16 courses. (Page 21)

Twenty-two percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-26)

**TOP MANAGEMENT**

In the industrial category of Stone, Clay, and Glass Products, 21 top managers from nine companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

**Educational Needs Within Areas of Managerial Responsibility**

The questionnaire for top management consisted of 48 courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	76
Managerial Motivation . . . . .	72
Management Development. . . . .	68
Effective Written Communications. . . . .	62
Working Effectively with Individuals and Groups . . . . .	61
Performance Appraisal and Counseling Techniques . . . . .	58
Improving Decision Making of Managers . . . . .	57
Industrial Organization and Administration. . . . .	56
Human Aspect of Management. . . . .	56
Criteria and Selection of Personnel . . . . .	53
Effective Speaking. . . . .	53
Creativity and Innovation . . . . .	50
Listening Skills. . . . .	50
Incentives . . . . .	50
Personnel Policy Affecting Labor-Management Relations . . . . .	50



Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Communication in the Organization. . . . .	88
Effective Reading Skills . . . . .	79
Working Effectively with Individuals and Groups. . . . .	78
Effective Speaking . . . . .	76
Listening Skills . . . . .	72
Effective Written Communications . . . . .	71
Managerial Motivation. . . . .	67
Improving Decision Making of Managers. . . . .	62
Human Aspect of Management . . . . .	61
Performance Appraisal and Counseling Techniques. . . . .	58
Managerial Accounting and Budgeting. . . . .	56
Planning and Utilization of Physical Facilities. . . . .	53
Operations Planning and Control. . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.



TABLE 1

GENERAL MANAGEMENT  
(N=21)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	57	81	62
Industrial Organization and Administration . . . . .	56	100	44
Long-range Planning and Fore- casting for Corporate Growth	48	77	29
Management Reporting Systems .	38	71	43
Overall Strategy and Goals . .	38	67	38
Effective Utilization of Man- power Resources and Allocation . . . . .	32	69	21
Management of Research and Development. . . . .	31	62	19
Managing Major Change in Organizations. . . . .	31	50	19
Impact of Computer Technology.	26	58	21
Policy Formation . . . . .	24	67	24
Impact of Science and Techno- logy on Business Management.	24	65	24
Impact of Government Legis- lation and Controls on Business . . . . .	13	26	19
Ethical Considerations in Business . . . . .	12	41	12
Impact of Multinational Aspects of Planning and Control. . . . .	0	24	18

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	76	100	88
Managerial Motivation. . . . .	72	94	67
Working Effectively with Individuals and Groups . . .	61	83	78
Human Aspect of Management . .	56	100	61
Creativity and Innovation. . .	50	67	39
Political, Social, and Cultural Trends and Their Impact on Business Management. . . . .	18	36	24

TABLE 3

COMMUNICATIONS TECHNIQUES  
(N=21)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Written Communications . . . . .	62	86	71
Effective Speaking . . . . .	53	88	76
Listening Skills . . . . .	50	94	72
Effective Reading Skills . . . . .	47	89	79

TABLE 4

ECONOMICS  
(N=16)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Comparative Economic Systems . . . . .	13	20	27
Economic Trends . . . . .	6	56	13

TABLE 5

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Statistical Decision Theory . . . . .	20	53	33
Survey Course on Quantitative Methods . . . . .	14	57	21

**TABLE 6**  
**INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	68	94	47 <sup>a</sup>
Performance Appraisal and Counseling Techniques . . . . .	58	90	58
Criteria and Selection of Personnel . . . . .	53	90	47
Personnel Policy Affecting Labor-Management Relations . . . . .	50	78	44
Incentives . . . . .	50	72	39
Personnel Policy Affecting Wage and Salary Structure . . . . .	44	61	39
Personnel Policy Affecting Employment Practices . . . . .	28	61	33

**TABLE 7**  
**FINANCIAL MANAGEMENT**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Managerial Accounting and Budgeting . . . . .	33	55	56
Fundamentals of Financial Reporting and Statement Analysis . . . . .	12	59	35
Capital Budgeting . . . . .	6	50	28
Financial Planning and Forecasting . . . . .	6	41	24

**TABLE 8**  
**MANUFACTURING AND PRODUCTION**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Operations Planning and Control . . . . .	44	69	50
Planning and Utilization of Physical Facilities . . . . .	35	70	53
Operations Research Applied to Production . . . . .	22	55	22

TABLE 9

MARKETING  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Logistics Planning . . . . .	44	57	25
Pricing. . . . .	41	70	35
Product Planning . . . . .	39	61	44
Marketing Research . . . . .	12	41	29

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
International Understanding. .	20	40	20
International Economic Analysis . . . . .	7	20	0

MIDDLE MANAGEMENT

In the industrial category of Stone, Clay, and Glass Products, 39 middle managers from nine companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development . . . . .	71
Performance Appraisal and Counseling Techniques . . . . .	65
Working Efficiently with Individuals . . . . .	62
Effective Communication in the Organization . . . . .	61
Supervisory Training and Employee Development . . . . .	55
Creativity and Innovation . . . . .	51

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Communication in the Organization . . . . .	64
Supervisory Training and Employee Development . . . . .	63
Working Efficiently with Individuals . . . . .	59
Management Development . . . . .	50
Listening Skills . . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Stone, Clay, and Glass Products industrial category.



TABLE 11

GENERAL MANAGEMENT  
(N=39)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	71	95	50
Performance Appraisal and Counseling Techniques . . . . .	65	84	49
Working Efficiently with Individuals . . . . .	62	92	59
Supervisory Training and Employee Development . . . . .	55	79	63
Criteria and Selection of Personnel for Promotion . . . . .	45	74	29
Effective Utilization of Man- power Resources and Allocation . . . . .	41	69	33
Analyzing Organizational Behavior . . . . .	31	67	31
Principles and Analysis of Office Systems . . . . .	29	66	11
The Application of Information Technology on Decision Making . . . . .	14	49	5
Impact of Science and Techno- logy on Business Management . . . . .	11	54	11
Long-range Planning and Fore- casting for Corporate Growth . . . . .	11	54	5
Impact of Government Legis- lation and Controls on Business . . . . .	11	38	3
Impact of Computer Technology . . . . .	11	33	8

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=38)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Creativity and Innovation . . . . .	51	75	46
Understanding Group Inter- action and Behavior . . . . .	38	76	38
Human Aspect of Management . . . . .	37	69	32
Management Psychology . . . . .	30	71	22
Industrial Sociology . . . . .	19	54	30
Impact of Consumer Behavior on Management . . . . .	11	43	8
Social and Cultural Trends and Their Impact on Business Management . . . . .	5	40	8

**TABLE 13**

**COMMUNICATION  
(N=37)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	61	97	64
Effective Reading Skills . . . . .	49	84	35
Effective Report Writing . . . . .	46	87	43
Listening Skills . . . . .	42	75	50
Oral Presentation of Reports . . . . .	41	87	38
Conference Leadership. . . . .	32	62	22
Business Letter Writing. . . . .	31	64	36

**TABLE 14**

**ECONOMICS  
(N=35)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	29	60	17
The Price Mechanism. . . . .	14	57	9
Fundamentals of Economics. . . . .	9	40	11
Economic Trends. . . . .	9	40	3
Economics of Technology and Innovation . . . . .	6	37	3
The Economic Systems of the United States. . . . .	3	23	3
International Economics. . . . .	3	14	3
Comparative Economic Systems . . . . .	0	14	6

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=36)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	43	83	17
Review of Basic Mathematics. .	26	52	37
Applying Program Evaluation and Review Techniques (PERT)	26	52	6
Statistical Decision Theory. .	17	63	9
Replacement Management . . . .	17	54	6
Inventory Management . . . . .	17	53	17
Statistical Procedures and Methods . . . . .	17	48	6
Probability Theory . . . . .	17	34	11
Linear Programming . . . . .	9	32	3
Dynamic Programming. . . . .	9	32	0
Waiting Lines. . . . .	6	23	6
Analytic Geometry. . . . .	6	23	6
Calculus of Finite Differences	6	21	3
Matrix Algebra . . . . .	6	15	3
Calculus of Infinite Series. .	3	18	6

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=35)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Data Systems and Processing. .	20	54	11
Applying the Computer to Problems of Business and Management . . . . .	17	54	11
Fundamentals of Programming for Computer Operations. . .	9	24	9
Mathematics for Digital Computers. . . . .	3	18	6

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	71	92	29
Job Analysis and Job Evaluation Methods . . . . .	69	92	69
Maintaining Efficient and Up- To-Date Personnel Records. .	64	78	50
Industrial Safety and Medical Services . . . . .	50	71	43
Management and Labor Relations	46	84	54
In-plant Training. . . . .	40	73	27
Employee Benefit Plans . . . .	25	58	17

TABLE 18

FINANCIAL MANAGEMENT  
(N=7)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Budgets. . . . .	29	58	14
Managerial Accounting. . . . .	14	28	0
Financial Planning and Fore- casting. . . . .	0	17	0
Taxes. . . . .	0	17	0
Fundamentals of Financial Reporting and Statement Analysis . . . . .	0	14	0
New Developments in Equipment Replacement Policy . . . . .	0	14	0

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Value Analysis . . . . .	65	95	48
Maintenance Planning and Control . . . . .	56	84	48
Production Planning and Control Management . . . . .	54	89	27
Quality Control . . . . .	48	80	36
Automation . . . . .	48	76	20
Materials Handling . . . . .	43	78	57
Methods Analysis and Work Simplification . . . . .	39	91	52
Inventory Management . . . . .	35	70	26
Engineering Economy . . . . .	32	68	18
Organization and Management of Purchasing Operations . . . . .	25	67	17

TABLE 20

MARKETING  
(N=10)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Product Planning . . . . .	40	90	40
Fundamentals of Pricing . . . . .	38	51	0
Marketing Management . . . . .	29	29	14
Marketing Research . . . . .	29	29	14
Physical Distribution Methods. Application of Management Science and Computers to Marketing Problems . . . . .	25	50	0
Brand Marketing . . . . .	25	38	0
Packaging Design and Development . . . . .	14	25	0
Fundamentals of Marketing . . . . .	14	71	29
		43	14

TABLE 21

SALES MANAGEMENT  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Motivating Salesmen . . . . .	20	40	0
Training of Field Salesmen . .	0	20	20
Compensation of Field Salesmen	0	20	0
Selection and Evaluation of Field Salesmen . . . . .	0	17	17

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=4)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Appraising and Developing Foreign Markets . . . . .	0	25	0
International Law . . . . .	0	0	25
International Understanding . .	0	0	25

Seven other courses were listed, and no managers reported a need for themselves or for those they supervise.

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Evaluation of the Research and Development Programs . . . . .	17	50	0
Planning Budgeting and Control of Projects . . . . .	17	50	0
Guidelines for Selecting and Appraising New Projects . . .	17	50	0
Building Research and Develop- ment Teams . . . . .	0	50	17
Supervision and Management of Research Services . . . . .	0	33	17



Background Information of Middle Managers

**Personal, Educational, and Professional Background**

Sixty-six percent (N=26) of the 39 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-two percent (N=35) had completed high school, 44 percent (N=17) had the bachelor's degree, and eight percent (N=3) had the master's degree. No one had the doctorate. Thirteen percent (N=5) went to business school and 13 percent (N=5) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

**MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES**

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Architecture . . . . .	1	0
Business Administration. . . . .	5	2
Engineering. . . . .	3	0
Liberal Arts . . . . .	5	0
Mineral Industries . . . . .	2	0
Psychology . . . . .	1	0
Other (not specified). . . . .	0	1
<b>Total . . . . .</b>	<b>17</b>	<b>3</b>

The major areas of work for the middle managers in the Stone, Clay, and Glass Products industry are shown below:

TABLE 25

**MAJOR AREAS OF WORK**

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	9	23
Engineering. . . . .	3	8
Finance. . . . .	2	5
Industrial Relations . . . . .	2	5
Manufacturing. . . . .	15	37
Marketing and Sales. . . . .	1	3
Production Control — Records. . . . .	3	8
Purchasing and Procurement . . . . .	2	5
Traffic and Transportation . . . . .	1	3
Other (not specified). . . . .	1	3
<b>Total . . . . .</b>	<b>39</b>	<b>100</b>

**Methods of Updating**

Sixty-two percent (N=23) of the middle managers would take a credit course and 74 percent (N=29) would take a non-credit course if they were offered locally.

Two managers were currently enrolled for the bachelor's degree, and one for the master's. Four managers planned to enroll, two for the bachelor's and two for the master's degrees. The curriculum of four managers was business administration.

Eighty-two percent had no plans for further degree work and their reasons are given below:

**TABLE 26**

**REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION**

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	10	31
Live too far from educational center. . . . .	4	13
Cannot afford it. . . . .	4	13
Job demands no more education . . . . .	3	9
Not interested. . . . .	3	9
Not a high school graduate. . . . .	2	6
Other (not specified) . . . . .	6	19
<b>Total. . . . .</b>	<b>32</b>	<b>100</b>

The variety of educational methods used by middle managers for updating within the past four years follows:

**TABLE 27**

**EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=39)**

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics	21	54
Managerial development within company . . . . .	19	49
Company in-service training courses . . . . .	15	38
Attendance at regional or national meetings of professional societies . . . . .	12	31
Correspondence courses. . . . .	5	13
Short refresher courses at colleges or universities. . . . .	4	10
Workshops or seminars in liberal arts or humanities. . . . .	1	3
High school courses . . . . .	1	3

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources:

TABLE 28  
SOURCES OF INFORMATION USED IN UPDATING  
(N=39)

	Use Frequently	Average Use	Percent		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	59	38	3	0	0
Subordinate-superior discussions or meetings. . . . .	50	45	5	0	0
In-plant reports and bulletins . .	48	41	8	0	3
Manufacturer's literature. . . . .	30	43	24	3	0
Business reports . . . . .	28	41	28	3	0
Company in-service courses . . . . .	16	19	19	19	27
Professional society meetings. . .	14	27	19	35	5
Management journals. . . . .	11	57	22	5	5
Technical books, reports, abstracts, and indexes . . . . .	8	40	38	14	0
Scientific and technical journals.	8	38	32	19	3
Lectures, conferences, workshops, and seminars . . . . .	3	62	16	11	8
Use of consultants . . . . .	3	24	35	30	8
College and university evening courses. . . . .	3	8	19	59	11
College and university day courses. . . . .	0	8	11	75	6

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 29)

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=39)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	15	38
Programmed instruction . . . . .	14	36
Educational television . . . . .	13	33
Courses recorded on tapes . . . . .	6	15
Courses recorded on records . . . . .	6	15
Two-way telephone courses . . . . .	4	10
Two-way radio courses . . . . .	2	5

Company Attitudes Toward Education

Of the 39 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 56 percent (N=22) said the superior encouraged them and 44 percent (N=17) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=38)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend professional meetings . . . . .	83	11	3	3
Attend company training courses . . . . .	81	0	3	16
Hold office in professional societies . .	78	11	3	8
Attend seminars or workshops away from the company . . . . .	78	5	3	14
Enroll for advanced work	64	14	0	22
Write technical and professional papers . .	60	17	3	20
Educational leave of absence . . . . .	9	17	17	57

Sixty-five percent of the middle managers indicated that they were employed by companies which provided in-service training; 32 percent were not, and three percent did not know. Sixty-two percent said the training was entirely on company time, 19 percent said it was partly on company time, three percent said it was not on company time, and 16 percent did not know.

Seventy-four percent reported that their company had an educational assistance plan. Eighteen percent said it did not and eight percent did not know. Fifty-six percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 29 managers who responded to this question, follows:

TABLE 31

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	21
About 3/4. . . . .	5
About 2/3. . . . .	0
About 1/2. . . . .	3
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	0
 Total . . . . .	 29

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 32

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	10
251 - 300. . . . .	0
201 - 250. . . . .	0
151 - 200. . . . .	2
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	15
 Total . . . . .	 27

When asked about the effect of available company educational assistance in motivating them to undertake further education, 31 percent of the middle managers said it had strongly encouraged them, 45 percent said it had partially influenced them, and 24 percent said it had no effect. There is an inconsistency here: while 76 percent said the availability of financial aid motivated them to some extent to take further education, only three persons were actually enrolled and four were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

**FIRST-LINE SUPERVISION**

In the industrial category of Stone, Clay, and Glass Products, 65 first-line supervisors from nine companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

Education<sup>al</sup> Needs

The 65 first-line supervisors in the category of Stone, Clay, and Glass Products were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job . . . . .	56
Safety . . . . .	53

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=63)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . .	35	56	57	91
Supervisor's Role in Employee Discipline	27	46	48	82
Decision Making . . . . .	27	45	51	85
The Tools and Techniques of Effective Supervision . . . . .	27	45	49	82
Supervisor's Role in Company Economics .	25	42	50	84
Inter-Departmental Cooperation . . . . .	23	38	48	80
<u>Employee Training and Evaluation</u>				
Safety . . . . .	32	53	55	91
Employee Training . . . . .	28	46	48	79
Evaluation of Employee Performance . . .	24	41	45	77
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration . .	25	42	45	76
Labor Relations . . . . .	25	40	44	71
Labor Relations Legislation . . . . .	10	18	30	53
<u>Developing Those We Supervise</u>				
Leadership . . . . .	30	49	54	88
Communications . . . . .	27	44	50	82
Human Aspect of Management . . . . .	25	41	52	85
Developing the Work Team . . . . .	20	33	43	71

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Fifty-four percent (N=31) of the first-line supervisors were 40 years of age or younger. Sixty-one percent (N=39) were high school graduates, 22 percent (N=14) had the bachelor's degree, and no one had the master's degree or the doctorate. Two percent (N=1) had gone to business school and 17 percent (N=11) to trade school. The major fields of study for the bachelor's degree are indicated in the following table:

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE STUDENTS

	<u>Number Bachelor's</u>
Business Administration . . . . .	3
Engineering . . . . .	6
Liberal Arts . . . . .	1
Psychology . . . . .	2
Other (not specified) . . . . .	2
 Total . . . . .	 14

Below is a listing of the major areas of work for the first-line supervisors in the Stone, Clay, and Glass Products industry:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	3	5
Engineering . . . . .	4	6
Industrial Relations . . . . .	3	5
Maintenance . . . . .	10	16
Manufacturing . . . . .	23	36
Production Control — Records . . . . .	8	13
Service (yard and labor personnel, etc.) . . . . .	10	16
Other (not specified) . . . . .	2	3
 Total . . . . .	 63	 100

Methods of Updating

Fifty percent (N=32) of the first-line supervisors would take a credit course and 71 percent (N=45) would take a non-credit course if they were offered locally.

One supervisor was enrolled for the associate degree. Twelve supervisors planned to enroll: three for the bachelor's degree and nine for the master's. Major fields of study were: seven in business administration, three in engineering, and two in other fields which were not specified.

For the eighty percent (N=52) of the supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Not a high school graduate . . . . .	14	27
Don't have the time. . . . .	11	21
Cannot afford it . . . . .	10	19
Job demands no more education. . . . .	8	15
Live too far from educational center . . . . .	4	8
Not interested . . . . .	3	6
Other (not specified). . . . .	2	4
<b>Total . . . . .</b>	<b>52</b>	<b>100</b>

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=65)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Managerial development within company	24	37
Company in-service training courses . . . . .	23	35
Workshops or seminars on managerial topics . . . . .	21	32
Attendance at regional or national meetings of professional societies . . . . .	10	15
Correspondence courses. . . . .	10	15
Short refresher courses at colleges or universities. . . . .	2	3
Workshops or seminars in liberal arts or humanities. . . . .	1	2
High school courses to improve job performance . . . . .	1	2
Television courses. . . . .	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

**TABLE 38**  
**SOURCES OF INFORMATION USED IN UPDATING**  
**(N=55)**

	Use Frequently	Average Use	Percent		Would Use If Available
			Use Very Little	Do Not Use	
Discussion with company personnel (informal or formal) . . . . .	63	35	0	0	2
Subordinate-superior discussions or meetings. . . . .	60	31	7	0	2
In-plant reports and bulletins	53	33	5	5	4
Manufacturer's literature. . . . .	31	44	9	11	5
Management journals. . . . .	28	28	22	13	9
Lectures, conferences, workshops, and seminars . . . . .	20	28	24	15	13
Company in-service courses . . . . .	19	17	17	17	30
Technical books, reports, abstracts, and indexes . . . . .	18	40	7	24	11
Scientific and technical journals.	15	31	16	31	7
Professional society meetings. . . . .	10	10	17	50	13
Use of consultants . . . . .	8	25	23	36	8
Business reports . . . . .	5	44	20	29	2
College and university evening courses. . . . .	2	2	6	64	26
College and university day courses. . . . .	2	2	2	82	12

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 39)

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=65)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	29	45
Programmed instruction . . . . .	23	35
Educational television . . . . .	10	15
Courses recorded on records. . . . .	3	5
Two-way radio courses. . . . .	3	5
Courses recorded on tapes. . . . .	2	3
Two-way telephone courses. . . . .	1	2
Other (not specified). . . . .	3	5

Company Attitudes Toward Education

A total of 60 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Sixty-two percent (N=37) said the superior encouraged them; 37 percent (N=22) said he was noncommittal, and one percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=54)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	85	4	2	9
Attend seminars or workshops away from the company. . . . .	69	12	0	19
Enroll for advanced work	65	10	2	23
Attend professional meetings . . . . .	62	12	2	24
Hold office in professional societies. . . . .	42	29	5	24
Write technical and professional papers . . . . .	37	18	3	42
Educational leave of absence. . . . .	24	13	2	61



Seventy-five percent of the supervisors indicated that they were employed by companies which provided in-service training; 20 percent said their company did not provide it and five percent did not know. Forty-two percent said the training was completely on company time, 34 percent said it was partly on company time, nine percent said it was entirely on the men's own time, and 15 percent did not know.

Eighty-one percent reported that their company had an educational assistance plan; 11 percent said it did not, and eight percent did not know. Fifty-nine percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 41 supervisors who answered this question, is shown in the table below:

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	20
About 3/4. . . . .	7
About 2/3. . . . .	1
About 1/2. . . . .	3
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	10
 Total . . . . .	 41

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	5
251 - 300. . . . .	1
201 - 250. . . . .	0
151 - 200. . . . .	1
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	1
Don't know . . . . .	30
 Total . . . . .	 38



When asked what the effect of available financial assistance was on their motivation to undertake further education, 23 percent of the supervisors said it strongly encouraged them, 47 percent said it partially influenced them, and 30 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 70 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only one of the 65 respondents was actually enrolled and 12 were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE STONE, CLAY, AND GLASS PRODUCTS INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Stone, Clay, and Glass Products as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied a good deal. For top and middle management and those they supervise, the needs were higher, but for the first-line supervisors the needs were lower.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Stone, Clay, and Glass Products</u> N=21	<u>Total Report</u> N=705
Communication in the Organization. . . . .	76	59
Managerial Motivation . . . . .	72	*
Management Development . . . . .	68	53
Effective Written Communications . . . . .	62	50
Working Effectively with Individuals and Groups. . . . .	61	*
Performance Appraisal and Counseling Techniques. . . . .	58	*
Improving Decision Making of Managers. . . . .	57	*
Industrial Organization and Administration . . . . .	56	*
Human Aspect of Management . . . . .	56	*
Criteria and Selection of Personnel. . . . .	53	*
Effective Speaking . . . . .	53	50
Creativity and Innovation. . . . .	50	*
Listening Skills . . . . .	50	*
Incentives . . . . .	50	*
Personnel Policy Affecting Labor-Management Relations. . . . .	50	*
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50
Overall Strategy and Goals . . . . .	*	50

\* Less than 50 percent



Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Stone, Clay, and Glass Products</u> N=21	<u>Total Report</u> N=705
Communication in the Organization . . . . .	88	65
Effective Reading Skills. . . . .	79	62
Working Effectively with Individuals and Groups . . .	78	66
Effective Speaking. . . . .	76	67
Listening Skills. . . . .	72	62
Effective Written Communications. . . . .	71	74
Managerial Motivation . . . . .	67	*
Improving Decision Making of Managers . . . . .	62	54
Human Aspect of Management. . . . .	61	54
Performance Appraisal and Counseling Techniques . . .	58	57
Managerial Accounting and Budgeting . . . . .	56	*
Planning and Utilization of Physical Facilities . . .	53	*
Operations Planning and Control . . . . .	50	*
Management Development. . . . .	*	56

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Stone, Clay, and Glass Products and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Stone, Clay, and Glass Products</u> N=39	<u>Total Report</u> N=1,202
Management Development. . . . .	71	66
Performance Appraisal and Counseling Techniques . . .	65	*
Working Efficiently with Individuals . . . . .	62	65
Effective Communication in the Organization . . . . .	61	64
Supervisory Training and Employee Development . . . .	55	53
Creativity and Innovation . . . . .	51	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Stone, Clay, and Glass Products</u> N=39	<u>Total Report</u> N=1,202
Effective Communication in the Organization . . . . .	64	56
Supervisory Training and Employee Development . . . . .	63	61
Working Efficiently with Individuals. . . . .	59	62
Listening Skills. . . . .	50	50
Management Development. . . . .	50	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Stone, Clay, and Glass Products</u> N=65	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job. . . . .	56	64
Safety. . . . .	53	*
Leadership. . . . .	*	57
The Tools and Techniques of Effective Supervision . .	*	55
Decision Making . . . . .	*	54
Human Aspect of Management. . . . .	*	53
Communications. . . . .	*	51

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.



**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)

"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)

"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)

Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)

"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)

Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):

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- E-9 Mining



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- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
TELEPHONE AND TELEGRAPH  
INDUSTRY IN PENNSYLVANIA

MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
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INDUSTRY IN PENNSYLVANIA  
M-77

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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE TELEPHONE AND TELEGRAPH INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## **SURVEY PROCEDURES**

This report is a specific segment of a larger study,\* and is based on responses from 313 managers and supervisors from ten companies in the Telephone and Telegraph industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

## **SUMMARY**

### **Top Management**

Of 48 courses listed, 13 were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 16 courses were needed. (Page 4)

### **Middle Management**

Fifty percent or more of the middle managers expressed a need for ten of 54 listed courses, in areas of communication, general management, and behavioral science and management. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need 12 of the listed courses. (Page 10)

The educational level was fairly high, with 37 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 17-20)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 12 out of 16 courses. (Page 22)

Twelve percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23,24)

**TOP MANAGEMENT**

In the industrial category of Telephone and Telegraph, 58 top managers from ten companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses with a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization . . . . .	67
Impact of Computer Technology . . . . .	65
Performance Appraisal and Counseling Techniques . . . . .	61
Overall Strategy and Goals . . . . .	60
Management Development . . . . .	57
Effective Speaking . . . . .	56
Listening Skills . . . . .	56
Managerial Motivation . . . . .	56
Working Effectively with Individuals and Groups . . . . .	56
Long-range Planning and Forecasting for Corporate Growth. . . . .	54
Managing Major Change in Organizations. . . . .	52
Policy Formation . . . . .	50
Improving Decision Making of Managers . . . . .	50



Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>'Subordinates' Needs'</u> Percent
Effective Written Communications . . . . .	87
Improving Decision Making of Managers. . . . .	85
Working Effectively with Individuals and Groups. . . . .	83
Effective Speaking . . . . .	80
Communication in the Organization. . . . .	79
Performance Appraisal and Counseling Techniques. . . . .	76
Listening Skills . . . . .	75
Management Development . . . . .	74
Effective Reading Skills . . . . .	71
Human Aspect of Management . . . . .	69
Managerial Motivation. . . . .	67
Criteria and Selection of Personnel. . . . .	67
Impact of Computer Technology. . . . .	59
Management Reporting Systems . . . . .	55
Statistical Decision Theory. . . . .	53
Creativity and Innovation. . . . .	52

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the 'Should Have' response. Also included, in the 'Subordinates' Needs' column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=58)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Impact of Computer Technology. . .	65	87	59
Overall Strategy and Goals . . .	60	76	36
Long-range Planning and Fore- casting for Corporate Growth . . .	54	83	39
Managing Major Change in Organizations. . . . .	52	78	30
Improving Decision Making of Managers . . . . .	50	91	85
Policy Formation . . . . .	50	79	30
Management Reporting Systems . .	47	81	55
Impact of Government Legislation and Controls on Business . . .	46	79	42
Industrial Organization and Administration . . . . .	46	75	37
Effective Utilization of Man- power Resources and Allocation	42	77	44
Impact of Science and Technology on Business Management . . . .	40	73	37
Ethical Considerations in Business . . . . .	30	69	36
Management of Research and Development. . . . .	7	24	7
Impact of Multinational Aspects of Planning and Control. . . .	2	6	2

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=57)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	67	92	79
Managerial Motivation. . . . .	56	93	67
Working Effectively with Individuals and Groups . . . .	56	82	83
Creativity and Innovation. . . .	46	65	52
Human Aspect of Management . . .	45	78	69
Political, Social, and Cultural Trends and Their Impact on Business Management. . . . .	26	60	32

**TABLE 3**  
**COMMUNICATIONS TECHNIQUES**  
**(N=56)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Speaking . . . . .	56	86	80
Listening Skills . . . . .	56	83	75
Effective Written Communications	48	77	87
Effective Reading Skills . . . . .	43	75	71

**TABLE 4**  
**ECONOMICS**  
**(N=48)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	13	59	27
Comparative Economic Systems . .	10	35	19

**TABLE 5**  
**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=49)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Statistical Decision Theory . .	29	62	53
Survey Course on Quantitative Methods . . . . .	28	51	32



TABLE 6

**INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT**  
(N=54)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Performance Appraisal and Counseling Techniques . . . . .	61	91	76
Management Development . . . . .	57	91	74
Criteria and Selection of Personnel . . . . .	46	71	67
Incentives . . . . .	32	68	38
Personnel Policy Affecting Labor- Management Relations . . . . .	31	74	41
Personnel Policy Affecting Wage and Salary Structure . . . . .	29	67	29
Personnel Policy Affecting Employment Practices . . . . .	27	58	38

TABLE 7

**FINANCIAL MANAGEMENT**  
(N=54)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Capital Budgeting . . . . .	44	64	35
Financial Planning and Forecasting . . . . .	43	69	25
Managerial Accounting and Budgeting . . . . .	40	66	38
Fundamentals of Financial Reporting and Statement Analysis . . . . .	38	63	42

TABLE 8

**MANUFACTURING AND PRODUCTION**  
(N=45)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	11	29	18
Operations Planning and Control . . . . .	5	19	14
Operations Research Applied to Production . . . . .	5	17	7

TABLE 9

MARKETING  
(N=48)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Marketing Research . . . . .	21	40	29
Pricing . . . . .	13	33	20
Product Planning . . . . .	9	28	14
Logistics Planning . . . . .	5	19	10

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=48)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
International Understanding . .	15	34	8
International Economic Analysis	4	25	2

**MIDDLE MANAGEMENT**

In the industrial category of Telephone and Telegraph, 108 middle managers from ten companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

**Educational Needs Within Areas of Managerial Responsibility**

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Effective Communication in the Organization. . . . .	81
Working Efficiently with Individuals . . . . .	76
Management Development . . . . .	72
Performance Appraisal and Counseling Techniques. . . . .	69
Criteria and Selection of Personnel for Promotion. . . . .	68
Supervisory Training and Employee Development. . . . .	58
Listening Skills . . . . .	58
Human Aspect of Management . . . . .	56
Effective Reading Skills . . . . .	54
Oral Presentation of Reports . . . . .	53

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Supervisory Training and Employee Development. . . . .	88
Working Efficiently with Individuals . . . . .	81
Effective Communication in the Organization. . . . .	77
Management Development . . . . .	73
Listening Skills . . . . .	68
Performance Appraisal and Counseling Techniques. . . . .	66
Effective Reading Skills . . . . .	65
Business Letter Writing. . . . .	63
Oral Presentation of Reports . . . . .	61
Criteria and Selection of Personnel for Promotion. . . . .	58
Effective Report Writing . . . . .	57
Human Aspect of Management . . . . .	56

The tables following, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Telephone and Telegraph category.

TABLE 11  
GENERAL MANAGEMENT  
(N=102)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Working Efficiently with Individuals. . . . .	76	95	81
Management Development . . . . .	72	94	73
Performance Appraisal and Counseling Techniques. . . . .	69	88	66
Criteria and Selection of Personnel for Promotion. . . . .	68	88	58
Supervisory Training and Employee Development . . . . .	58	82	88
Analyzing Organizational Behavior . . . . .	38	74	28
Principles and Analysis of Office Systems . . . . .	34	64	23
The Application of Information Technology on Decision Making. . . . .	30	68	27
Long-range Planning and Fore- casting for Corporate Growth . . . . .	30	59	19
Effective Utilization of Man- power Resources and Allocation . . . . .	26	60	29
Impact of Computer Technology. . . . .	25	64	28
Impact of Science and Technology on Business Management . . . . .	17	60	23
Impact of Government Legislation and Controls on Business . . . . .	17	53	14

**TABLE 12**  
**BEHAVIORAL SCIENCE AND MANAGEMENT**  
**(N=99)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Human Aspect of Management . .	56	85	56
Creativity and Innovation . .	38	78	38
Management Psychology. . . . .	36	79	33
Understanding Group Interaction and Behavior . . . . .	35	83	47
Industrial Sociology . . . . .	20	61	21
Social and Cultural Trends and Their Impact on Business Management . . . . .	19	50	18
Impact of Consumer Behavior on Management . . . . .	15	40	14

**TABLE 13**  
**COMMUNICATION**  
**(N=99)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	81	95	77
Listening Skills . . . . .	58	85	68
Effective Reading Skills . . . .	54	85	65
Oral Presentation of Reports . .	53	84	61
Business Letter Writing. . . . .	48	79	63
Effective Report Writing . . . .	46	77	57
Conference Leadership. . . . .	41	79	47

TABLE 14

ECONOMICS  
(N=97)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Economics . . .	23	51	28
Economic Trends . . . . .	19	51	18
Economics of Production and Cost	15	41	17
The Economic Systems of the United States . . . . .	13	43	13
The Price Mechanism . . . . .	9	35	11
Comparative Economic Systems. .	3	29	9
Economics of Technology and Innovation . . . . .	3	24	1
International Economics . . . . .	2	19	1

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=102)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	45	79	40
Review of Basic Mathematics. .	32	55	38
Applying Program Evaluation and Review Techniques (PERT) . .	26	56	26
Statistical Procedures and Methods . . . . .	26	49	26
Statistical Decision Theory .	21	63	24
Replacement Management . . . .	20	47	16
Probability Theory . . . . .	18	47	20
Waiting Lines. . . . .	14	29	13
Inventory Management . . . . .	10	33	13
Linear Programming . . . . .	8	29	10
Dynamic Programming. . . . .	8	26	9
Matrix Algebra . . . . .	8	16	8
Analytic Geometry . . . . .	6	24	7
Calculus of Infinite Series. .	5	15	6
Calculus of Finite Differences	5	14	4



TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=98)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management . . . . .	34	66	33
Data Systems and Processing . . . . .	33	71	34
Fundamentals of Programming for Computer Operations . . . . .	23	48	24
Mathematics for Digital Computers	15	30	11

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=49)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Job Analysis and Job Evaluation Methods . . . . .	61	85	48
In-plant Training . . . . .	60	85	44
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . . . . .	57	88	43
Maintaining Efficient and Up-To- Date Personnel Records . . . . .	50	72	35
Industrial Safety and Medical Services . . . . .	40	52	29
Salary and Wage Administration	37	64	17
Management and Labor Relations	31	62	24
Employee Benefit Plans . . . . .	31	49	18

TABLE 18

FINANCIAL MANAGEMENT  
(N=22)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets . . . . .	55	82	50
New Developments in Equipment Replacement Policy . . . . .	45	68	23
Managerial Accounting . . . . .	40	60	30
Financial Planning and Fore- casting . . . . .	35	64	29
Taxes . . . . .	35	53	29
Fundamentals of Financial Reporting and Statement Analysis . . . . .	26	63	26

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Maintenance Planning and Control	46	61	35
Engineering Economy . . . . .	33	66	33
Organization and Management of Purchasing Operations . . . . .	29	39	19
Methods Analysis and Work Simpli- fication . . . . .	27	69	35
Value Analysis . . . . .	24	34	24
Production Planning and Control Management . . . . .	22	35	22
Quality Control . . . . .	21	34	21
Automation . . . . .	19	33	19
Inventory Management . . . . .	18	36	18
Materials Handling . . . . .	18	23	14

TABLE 20

MARKETING  
(N=25)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Marketing Management . . . . .	48	60	36
Fundamentals of Marketing. . . . .	39	65	35
Marketing Research . . . . .	36	63	27
Product Planning . . . . .	30	50	20
Application of Management Science and Computers to Marketing Problems . . . . .	29	48	14
Fundamentals of Pricing. . . . .	19	43	10
Physical Distribution Methods. . . . .	18	27	9
Brand Marketing. . . . .	14	32	18
Packaging Design and Development. . . . .	10	20	5

TABLE 21

SALES MANAGEMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Motivating Salesmen. . . . .	53	53	32
Selection and Evaluation of Field Salesmen . . . . .	44	44	31
Compensation of Field Salesmen . . . . .	40	40	33
Supervision of Field Salesmen. . . . .	38	44	38
Training of Field Salesmen . . . . .	31	44	38

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>"Needs"</u> Percent
Sources of Funds: Financing of			
Day-to-Day Transactions. . . .	8	25	0
International Economic Analysis.	8	16	8
Monetary Exchange Problems . . .	0	17	0

None of the middle managers indicated any need for six other subjects in international management for themselves or for those they supervise.

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>"Needs"</u> Percent
Evaluation of the Research and Development Program. . . . .	25	33	17
Guidelines for Selecting and Appraising New Programs . . . .	14	35	14
Supervision and Management of Research Services. . . . .	8	23	8
Planning Budgeting and Control of Projects. . . . .	7	43	0
Building Research and Development Teams. . . . .	7	36	7

**Background Information of Middle Managers**

**Personal, Educational, and Professional Background**

Thirty-seven percent (N=40) of the middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Ninety-six percent (N=104) had completed high school, 37 percent (N=40) had the bachelor's degree, and three percent (N=3) had the master's degree. No one had the doctorate. Eleven percent (N=12) went to business school and two percent (N=2) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below.

**TABLE 24**

**MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES**

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Architecture . . . . .	1	0
Business Administration . . . . .	15	1
Education . . . . .	5	1
Engineering . . . . .	9	0
Law . . . . .	1	1
Liberal Arts . . . . .	8	0
Psychology . . . . .	1	0
<b>Total . . . . .</b>	<b>40</b>	<b>3</b>

The major areas of work for the middle managers in the Telephone and Telegraph industry are shown below.

**TABLE 25**

**MAJOR AREAS OF WORK**

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	60	55
Engineering. . . . .	15	14
Finance. . . . .	3	3
Industrial Relations . . . . .	3	3
Maintenance . . . . .	6	6
Marketing and Sales. . . . .	8	7
Production Control — Records. . . . .	3	3
Purchasing and Procurement . . . . .	2	2
Service (yard and labor personnel, etc.) . . . . .	2	2
Traffic and Transportation . . . . .	1	1
Other (not specified). . . . .	4	4
<b>Total . . . . .</b>	<b>107</b>	<b>100</b>

## Methods of Updating

Fifty-one percent (N=54) of the middle managers would take a credit course and 53 percent (N=63) would take a non-credit course if they were offered locally.

Five managers were currently enrolled for the bachelor's degree. Nine planned to enroll, two for the associate degree, two for the bachelor's, and five for the master's. The curriculum preferred by those enrolled or planning to enroll was: nine in business administration, two in engineering, one in architecture, and one in education.

Eighty-one percent had no plans for further degree work and their reasons are given below:

TABLE 26

### REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	24	27
Not interested. . . . .	12	14
Job demands no more education . . . . .	11	13
Live too far from educational center. . . . .	6	7
Cannot afford it. . . . .	5	6
Can do better on my own . . . . .	2	2
Not a high school graduate. . . . .	2	2
Other (not specified) . . . . .	26	29
Total. . . . .	88	100

Middle managers had used a variety of educational methods for updating within the past four years.

TABLE 27

### EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=108)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics. . . . .	72	67
Managerial development within company . . . . .	68	63
Company in-service training courses . . . . .	59	55
Attendance at regional or national meetings of professional societies. . . . .	35	32
Short refresher courses at colleges or universities. . . . .	14	13
Correspondence courses. . . . .	12	11
Workshops or seminars in liberal arts or humanities. . . . .	8	7
Television courses. . . . .	2	2
High school courses . . . . .	2	2



Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources:

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=107)

	Use Frequently	Average Use	Percent			Would Use If Available
			Use Very Little	Do Not Use		
Discussion with company personnel (informal or formal) . . . . .	75	24	1	0	0	
In-plant reports and bulletins . . .	75	21	1	2	1	
Subordinate-superior discussions or meetings . . . . .	73	22	5	0	0	
Management journals . . . . .	33	50	12	3	2	
Business reports . . . . .	32	40	21	6	1	
Lectures, conferences, workshops and seminars . . . . .	28	47	19	2	4	
Manufacturer's literature . . . . .	25	33	22	19	1	
Company in-service courses . . . . .	22	42	16	10	10	
Technical books, reports, abstracts and indexes . . . . .	18	37	28	15	2	
Scientific and technical journals . .	15	40	28	14	3	
Professional society meetings . . .	9	18	32	41	0	
Use of consultants . . . . .	6	13	20	58	3	
College-university evening courses .	2	3	13	70	12	
College-university day courses . . .	0	1	7	90	2	

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow.

TABLE 29  
PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=108)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction . . . . .	54	50
Correspondence courses . . . . .	46	43
Educational television . . . . .	42	39
Two-way telephone courses. . . . .	16	15
Courses recorded on tapes. . . . .	15	14
Courses recorded on records. . . . .	14	13
Two-way radio courses . . . . .	4	4
Other (not specified). . . . .	3	3

**Company Attitudes Toward Education**

Of the 101 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 41 percent (N=41) said the superior encouraged them and 59 percent (N=60) said the superior was noncommittal. No one said the superior discouraged him. Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30  
MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=104)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	98	1	0	.1
Attend professional meetings	74	18	1	7
Hold office in professional societies. . . . .	71	19	1	9
Enroll for advanced work . .	61	17	4	18
Attend workshops or seminars away from the company. . .	58	21	5	16
Write technical and professional papers. . . .	37	30	2	31
Educational leave of absence	13	26	13	48

Eighty-one percent of the middle managers were employed by companies which provided in-service training; 18 percent were not, and two percent did not know. Seventy-seven percent said the training was entirely on company time, 15 percent said it was partly on company time, four percent said it was not on company time, and four percent did not know.

Eighty-seven percent reported that their company had an educational assistance plan. Eight percent said it did not and five percent did not know. Fifty-one percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below.

TABLE 31  
PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all . . . . .	14
About 3/4 . . . . .	26
About 2/3 . . . . .	0
About 1/2 . . . . .	26
About 1/3 . . . . .	1
Less than 1/3 . . . . .	2
Don't know . . . . .	12
<b>Total . . . . .</b>	<b>81</b>

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

TABLE 32  
MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300. . . . .	15
251 - 300 . . . . .	4
201 - 250 . . . . .	17
151 - 200 . . . . .	1
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know . . . . .	39
<b>Total . . . . .</b>	<b>76</b>

When asked about the effect of available company educational assistance in motivating them to undertake further education, 14 percent of the middle managers said it had strongly encouraged them, 21 percent said it had partially influenced them, and 65 percent said it had no effect. There is an inconsistency here: while 35 percent said the availability of aid motivated them to some extent, only five persons were actually enrolled and nine were planning to enroll.

### FIRST-LINE SUPERVISION

In the industrial category of Telephone and Telegraph, 147 first-line supervisors from ten companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating and company attitudes toward education.

#### Educational Needs

The 147 first-line supervisors in the category of Telephone and Telegraph were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job . . . . .	77
Leadership . . . . .	68
The Tools and Techniques of Effective Supervision . . . . .	67
Evaluation of Employee Performance . . . . .	67
Decision Making. . . . .	65
Communications . . . . .	65
Safety . . . . .	64
Employee Training . . . . .	63
Inter-Departmental Cooperation . . . . .	63
Human Aspect of Management . . . . .	63
Supervisor's Role in Employee Discipline . . . . .	60
Supervisor's Role in Company Economics . . . . .	56

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=145)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . . .	112	77	134	92
The Tools and Techniques of Effective Supervision. . . . .	95	67	132	93
Decision Making . . . . .	92	65	133	94
Inter-Departmental Cooperation . . . . .	89	63	125	88
Supervisor's Role in Employee Discipline . . . . .	85	60	130	92
Supervisor's Role in Company Economics . . . . .	78	56	117	84
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . . .	95	67	129	91
Safety . . . . .	91	64	125	88
Employee Training. . . . .	90	63	127	89
<u>The Supervisor and the Union</u>				
Grievance Procedure and Arbitration. . . . .	66	47	119	85
Labor Relations . . . . .	62	44	116	83
Labor Relations Legislation . . . . .	30	21	92	65
<u>Developing Those We Supervise</u>				
Leadership . . . . .	97	68	134	94
Communications . . . . .	93	65	131	92
Human Aspect of Management . . . . .	89	63	134	95
Developing the Work Team . . . . .	67	47	122	86

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Fifty-two percent (N=76) of the first-line supervisors were 40 years of age or younger. Ninety percent (N=130) were high school graduates, 12 percent (N=18) had the bachelor's degree, and one percent (N=2) had the master's degree; no one had the doctorate. Six percent (N=9) had gone to business school and 13 percent (N=19) to trade school. The major fields of study are indicated in the following table.

TABLE 34

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	9	1
Engineering . . . . .	1	0
Liberal Arts. . . . .	6	1
Other (not specified) . . . . .	2	0
 Total. . . . .	 18	 2

The major areas of work for the first-line supervisors in Telephone and Telegraph are shown in the following table:

TABLE 35

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration. . . . .	61	41
Engineering . . . . .	8	6
Maintenance . . . . .	29	20
Marketing and Sales . . . . .	7	5
Production Control - Records. . . . .	6	4
Purchasing and Procurement. . . . .	1	1
Service (yard and labor personnel, etc.). . . . .	13	9
Traffic and Transportation. . . . .	1	1
Other (not specified) . . . . .	18	13
 Total. . . . .	 144	 100

Methods of Updating

Fifty-five percent (N=80) of the first-line supervisors would take a credit course and 68 percent (N=100) would take a non-credit course if they were offered locally.

Four of the supervisors were currently enrolled in a degree program: one each for the associate, bachelor's, master's, and doctorate. Ten planned to enroll, two for the associate degree, four for the bachelor's, and four for the master's. Major fields of study preferred by those enrolled or planning to enroll were: 12 in business administration, one in engineering, one in liberal arts, and two in other fields which were not specified.

For the 118 supervisors who did not have plans for further formal education, the following reasons were indicated:



TABLE 36

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	29	25
Cannot afford it. . . . .	19	16
Live too far from educational center. . . . .	11	9
Job demands no more education . . . . .	11	9
Not interested. . . . .	11	9
Not a high school graduate. . . . .	7	6
Can do better on my own . . . . .	1	1
Other (not specified) . . . . .	29	25
<b>Total. . . . .</b>	<b>118</b>	<b>100</b>

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 37

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=147)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Managerial development within company . . . . .	81	55
Company in-service training courses . . . . .	72	49
Workshops or seminars on managerial topics. . . . .	58	39
Correspondence courses. . . . .	14	10
Attendance at regional or national meetings of professional societies. . . . .	8	5
Short refresher courses at colleges or universities . . . . .	8	5
Workshops or seminars in liberal arts or humanities. . . . .	6	4
High school courses to improve job performance . . . . .	6	4
Television courses. . . . .	5	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 38  
SOURCES OF INFORMATION USED IN UPDATING  
(N=142)

	Use Frequently	Average Use	<u>Percent</u>		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	64	33	1	1	1
In-plant reports and bulletins . . . . .	56	39	1	1	3
Subordinate-superior discussions or meetings . . . . .	44	47	7	1	1
Technical books, reports, abstracts, and indexes . . . . .	27	39	14	18	2
Company in-service courses . . . . .	26	35	6	10	23
Manufacturer's literature . . . . .	24	32	19	21	4
Management journals . . . . .	20	48	17	11	5
Scientific and technical journals . . . . .	17	34	21	24	4
Lectures, conferences, workshops, and seminars . . . . .	12	47	14	9	18
Business reports . . . . .	8	42	30	19	1
Use of consultants . . . . .	8	12	15	58	7
College-university evening courses . . . . .	5	8	5	77	5
Professional society meetings . . . . .	3	5	18	67	7
College-university day courses . . . . .	0	1	2	90	7

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preferences for media of course presentation.

TABLE 39

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=147)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Programmed instruction . . . . .	81	55
Correspondence courses . . . . .	59	40
Educational television . . . . .	53	36
Courses recorded on tapes . . . . .	19	13
Courses recorded on records . . . . .	17	12
Two-way telephone courses . . . . .	15	10
Two-way radio courses . . . . .	11	7
Other (not specified) . . . . .	8	5

Company Attitudes Toward Education

A total of 141 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty-two percent (N=73) said the superior encouraged him; 48 percent said he was noncommittal, and no one said he discouraged them.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy on educational leave of absence indicates either lack of policy or lack of communication.

TABLE 40

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=138)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses . . . . .	92	2	1	5
Hold office in professional societies . . . . .	69	8	1	22
Attend professional meetings . . . . .	66	8	2	24
Enroll for advanced work . . . . .	60	9	1	30
Attend seminars or workshops away from the company . . . . .	51	13	3	33
Write technical and professional papers . . . . .	27	15	0	58
Educational leave of absence . . . . .	9	13	8	70

Seventy-seven percent of the supervisors were employed by companies which provided in-service training; 20 percent said their company did not provide it and three percent did not know. Eighty-four percent said the training was completely on company time, seven percent said it was partly on company time, four percent said it was entirely on the men's own time, and five percent did not know.

Eighty-one percent reported that their company had an educational assistance plan; 12 percent said it did not, and seven percent did not know. Forty-nine percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below.

TABLE 41

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	11
About 3/4. . . . .	28
About 2/3. . . . .	3
About 1/2. . . . .	35
About 1/3. . . . .	4
Less than 1/3 . . . . .	3
Don't know . . . . .	18
 Total . . . . .	 102

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 42

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	9
251 - 300 . . . . .	13
201 - 250 . . . . .	18
151 - 200 . . . . .	1
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know . . . . .	59
 Total . . . . .	 100

When asked what the effect of available financial assistance was on their motivation to undertake further education, 17 percent of the supervisors said it strongly encouraged them, 34 percent said it partially influenced them, and 49 percent said it had no effect. The same inconsistency that was noted for the middle managers applies to the supervisors: while 51 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only four of the 147 respondents were actually enrolled and ten were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN TELEPHONE AND TELEGRAPH WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Telephone and Telegraph as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were quite similar.

**Top Management**

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Telephone and Telegraph</u> N=58	<u>Total Report</u> N=705
Communication in the Organization. . . . .	67	59
Impact of Computer Technology. . . . .	65	*
Performance Appraisal and Counseling Techniques. . . . .	61	*
Overall Strategy and Goals . . . . .	60	50
Management Development . . . . .	57	53
Effective Speaking . . . . .	56	50
Listening Skills . . . . .	56	*
Managerial Motivation. . . . .	56	*
Working Effectively with Individuals and Groups. . . . .	56	*
Long-range Planning and Forecasting for Corporate Growth	54	50
Managing Major Change in Organizations . . . . .	52	*
Policy Formation . . . . .	50	*
Improving Decision Making of Managers. . . . .	50	*
Effective Written Communication. . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	<u>Telephone and Telegraph</u> N=58	<u>Total Report</u> N=705
Effective Written Communications . . . . .	87	74
Improving Decision Making of Managers. . . . .	85	54
Working Effectively with Individuals and Groups. . . . .	83	66
Effective Speaking . . . . .	80	67
Communication in the Organization. . . . .	79	65
Performance Appraisal and Counseling Techniques. . . . .	76	57
Listening Skills . . . . .	75	62
Management Development . . . . .	74	56
Effective Reading Skills . . . . .	71	62
Human Aspect of Management . . . . .	69	54
Criteria and Selection of Personnel . . . . .	67	*
Managerial Motivation. . . . .	67	*
Impact of Computer Technology. . . . .	59	*
Management Reporting Systems . . . . .	55	*
Statistical Decision Theory . . . . .	53	*
Creativity and Innovation . . . . .	52	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Telephone and Telegraph and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	<u>Telephone and Telegraph</u> N=108	<u>Total Report</u> N=1202
Effective Communication in the Organization. . . . .	81	64
Working Efficiently with Individuals . . . . .	76	65
Management Development . . . . .	72	66
Performance Appraisal and Counseling Techniques. . . . .	69	*
Criteria and Selection of Personnel for Promotion. . . . .	68	*
Supervisory Training and Employee Development. . . . .	58	53
Listening Skills . . . . .	58	*
Human Aspect of Management . . . . .	56	*
Effective Reading Skills . . . . .	54	*
Oral Presentation of Reports . . . . .	53	*

\* Less than 50 percent



Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Telephone and Telegraph</u> N=108	<u>Total Report</u> N=1202
Supervisory Training and Employee Development. . . . .	88	61
Working Efficiently with Individuals . . . . .	81	62
Effective Communication in the Organization. . . . .	77	56
Management Development . . . . .	73	*
Listening Skills . . . . .	68	50
Performance Appraisal and Counseling Techniques. . . . .	66	*
Effective Reading Skills . . . . .	65	*
Business Letter Writing. . . . .	63	*
Oral Presentation of Reports . . . . .	61	*
Criteria and Selection of Personnel for Promotion. . . . .	58	*
Effective Report Writing . . . . .	57	*
Human Aspect of Management . . . . .	56	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Telephone and Telegraph</u> N=147	<u>Total Report</u> N=1713
Fundamentals of the Supervisor's Job . . . . .	77	64
Leadership . . . . .	68	57
The Tools and Techniques of Effective Supervision. . . . .	67	55
Evaluation of Employee Performance . . . . .	67	*
Decision Making. . . . .	65	54
Communications . . . . .	65	51
Safety . . . . .	64	*
Human Aspect of Management . . . . .	63	53
Employee Training. . . . .	63	*
Inter-Departmental Cooperation . . . . .	63	*
Supervisor's Role in Employee Discipline . . . . .	60	*
Supervisor's Role in Company Economics . . . . .	56	*

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, 'Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania,' the following recommendations were made.

### For the University

1. The need for additional training in the area of communications - such subjects as report writing, effective speaking, conference leadership - was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent methods of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

**"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)**

**"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)**

**"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)**

**Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):**

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

**"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)**

**"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)**

**Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):**

**Engineering Fields:**

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts**
- E-11 Chemical and Allied**
- E-12 Electrical Machinery and Equipment**
- E-13 Machinery**
- E-14 Mining**
- E-15 Paper and Allied**
- E-16 Petroleum Refining**
- E-17 Primary Metals**
- E-18 Professional, Scientific, and Controlling Instruments**
- E-19 Research and Consulting Laboratories**
- E-20 Transportation**
- E-21 Electric Utilities**
- E-22 Gas Utilities**
- E-23 Telephone and Telegraph**
- E-24 Water Utilities**
- E-53 Construction**
- E-25 State Government Employees**

**"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)**

**Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):**

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators**
- H-55 Nursing Service and Nursing Education**
- H-56 Supervisory Personnel in the Dietary Department**
- H-57 Supervisory Personnel in the Engineering and Maintenance Department**
- H-58 Supervisory Personnel in the Business Office and Purchasing Department**
- H-59 Supervisory Personnel in the Medical Records Department**
- H-60 Supervisory Personnel in the Institutional Care Departments**
- H-61 Personnel Directors**
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories**

**The above publications may be purchased from:**

**Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802**

**Information about the above publications may be secured from:**

**Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802**

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**MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
TRANSPORTATION INDUSTRY  
IN PENNSYLVANIA**

**M-78**



**MANAGERIAL AND SUPERVISORY  
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**M-78**

**Samuel S. Dubin, Ph.D.**

**Everett Alderman, Ed.D.**

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# MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE TRANSPORTATION INDUSTRY IN PENNSYLVANIA

## INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as greater proportions of sales and profits of many domestic firms come from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## **SURVEY PROCEDURES**

This report is a specific segment of a larger study,\* and is based on responses from 94 managers and supervisors from 11 companies in the Transportation industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

### **SUMMARY**

#### **Top Management**

Of 48 courses listed 19 were checked by 50 percent or more of top managers as "Should Have." (Page 4)

For those they supervise, 50 percent or more of top managers said 12 courses were needed. (Page 4)

#### **Middle Management**

Fifty percent or more of the middle managers expressed a "Should Have" need for 17 courses in the areas of general management, communication, behavioral science and management, and quantitative methods applied to business and industry, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need eight of the listed courses. (Page 10)

Only 12 percent of the middle managers had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-19)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.



### First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 11 out of 16 courses. (Page 21)

Twenty-three percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 22-26)

### TOP MANAGEMENT

In the industrial category of Transportation, 14 top managers from 11 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

### Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Long-range Planning and Forecasting for Corporate Growth. . . .	83
Overall Strategy and Goals. . . . .	79
Financial Planning and Forecasting. . . . .	71
Incentives. . . . .	71
Management Development. . . . .	71
Listening Skills. . . . .	64
Personnel Policy Affecting Labor-Management Relations . . . . .	64
Effective Speaking. . . . .	62
Managerial Motivation . . . . .	62
Criteria and Selection of Personnel . . . . .	57
Working Effectively with Individuals and Groups . . . . .	57
Personnel Policy Affecting Employment Practices . . . . .	55
Communication in the Organization . . . . .	54
Effective Written Communications. . . . .	54
Fundamentals of Financial Reporting and Statement Analysis. . . .	54
Policy Formation. . . . .	54
Impact of Government Legislation and Controls on Business . . . .	50
Improving Decision Making of Managers . . . . .	50
Industrial Organization and Administration. . . . .	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Written Communications. . . . .	85
Communication in the Organization . . . . .	77
Working Effectively with Individuals and Groups . . . . .	71
Effective Speaking. . . . .	69
Human Aspect of Management. . . . .	62
Managerial Motivation . . . . .	62
Performance Appraisal and Counseling Techniques . . . . .	58
Listening Skills. . . . .	57
Fundamentals of Financial Reporting and Statement Analysis. . . .	54
Capital Budgeting . . . . .	50
Criteria and Selection of Personnel . . . . .	50
Management Development. . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Long-range Planning and Fore- casting for Corporate Growth . . . . .	83	91	25
Overall Strategy and Goals . .	79	79	36
Policy Formation . . . . .	54	85	38
Improving Decision Making of Managers . . . . .	50	92	42
Industrial Organization and Administration . . . . .	50	79	21
Impact of Government Legis- lation and Controls on Business . . . . .	50	79	0
Management Reporting Systems .	46	84	31
Effective Utilization of Man- power Resources and Allocation . . . . .	46	61	31
Managing Major Change in Organizations . . . . .	43	79	14
Ethical Considerations in Business . . . . .	38	76	23
Impact of Computer Technology.	31	54	31
Impact of Science and Techno- logy on Business Management.	14	57	7
Management of Research and Development . . . . .	14	43	21
Impact of Multinational Aspects of Planning and Control . . . . .	14	14	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Managerial Motivation . . . . .	62	85	62
Working Effectively with Individuals and Groups . . .	57	86	71
Communication in the Organization . . . . .	54	92	77
Human Aspect of Management . .	46	77	62
Creativity and Innovation . . .	36	72	43
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	21	64	21

**TABLE 3**  
**COMMUNICATIONS TECHNIQUES**  
**(N=14)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Listening Skills . . . . .	64	93	57
Effective Speaking . . . . .	62	93	69
Effective Written Communications . . . . .	54	77	85
Effective Reading Skills . . .	46	84	46

**TABLE 4**  
**ECONOMICS**  
**(N=14)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Economic Trends . . . . .	36	57	21
Comparative Economic Systems .	14	21	14

**TABLE 5**  
**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=14)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Survey Course on Quantitative Methods . . . . .	36	57	21
Statistical Decision Theory . .	33	58	25

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	71	92	50
Incentives . . . . .	71	85	29
Personnel Policy Affecting Labor-Management Relations . . . . .	64	85	29
Criteria and Selection of Personnel. . . . .	57	86	50
Personnel Policy Affecting Employment Practices . . . . .	55	82	36
Personnel Policy Affecting Wage and Salary Structure. . . . .	46	61	38
Performance Appraisal and Counseling Techniques. . . . .	42	67	58

TABLE 7

FINANCIAL MANAGEMENT  
(N=14)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Financial Planning and Forecasting. . . . .	71	85	14
Fundamentals of Financial Reporting and Statement Analysis . . . . .	54	85	54
Managerial Accounting and Budgeting. . . . .	46	77	38
Capital Budgeting. . . . .	42	75	50

**TABLE 8**  
**MANUFACTURING AND PRODUCTION**  
**(N=13)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	38	84	23
Operations Planning and Control . . . . .	25	33	33
Operations Research Applied to Production . . . . .	8	25	17

**TABLE 9**  
**MARKETING**  
**(N=13)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Logistics Planning . . . . .	23	46	8
Marketing Research . . . . .	15	38	15
Product Planning . . . . .	15	23	15
Pricing . . . . .	8	25	25

**TABLE 10**  
**INTERNATIONAL MANAGEMENT**  
**(N=13)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
International Understanding . .	23	31	8
International Economic Analysis . . . . .	15	23	8



## MIDDLE MANAGEMENT

In the industrial category of Transportation, 26 middle managers from 11 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

### Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development. . . . .	84
Effective Communication in the Organization . . . . .	77
Effective Reading Skills. . . . .	77
Working Efficiently with Individuals. . . . .	77
Supervisory Training and Employee Development . . . . .	72
Business Letter Writing . . . . .	68
Criteria and Selection of Personnel for Promotion . . . . .	65
Effective Report Writing. . . . .	64
Listening Skills. . . . .	64
Performance Appraisal and Counseling Techniques . . . . .	61
Creativity and Innovation . . . . .	58
Human Aspect of Management. . . . .	58
Replacement Management. . . . .	57
Conference Leadership . . . . .	56
Oral Presentation of Reports. . . . .	56
Improving Decision Making of Managers . . . . .	52
Management Psychology . . . . .	52

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Working Efficiently with Individuals . . . . .	65
Listening Skills . . . . .	60
Effective Communication in the Organization. . . . .	58
Performance Appraisal and Counseling Techniques. . . . .	57
Business Letter Writing. . . . .	52
Management Development . . . . .	52
Supervisory Training and Employee Development. . . . .	52
Effective Reading Skills . . . . .	50

The following tables, 11 through 16, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Transportation category.

TABLE 11

GENERAL MANAGEMENT  
(N=26)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Management Development . . . . .	84	100	52
Working Efficiently with Individuals. . . . .	77	96	65
Supervisory Training and Employee Development . . . . .	72	92	52
Criteria and Selection of Personnel for Promotion. . . . .	65	88	35
Performance Appraisal and Counseling Techniques. . . . .	61	87	57
Principles and Analysis of Office Systems . . . . .	48	76	20
Effective Utilization of Manpower Resources and Allocation . . . . .	44	76	44
Analyzing Organizational Behavior . . . . .	42	84	46
Long-range Planning and Fore- casting for Corporate Growth . . . . .	42	59	33
Impact of Government Legis- lation and Controls on Business . . . . .	25	58	17
Impact of Computer Technology. . . . .	17	39	22
Impact of Science and Techno- logy on Business Management. . . . .	13	61	13
The Application of Information Technology on Decision Making . . . . .	9	35	17

**TABLE 12**  
**BEHAVIORAL SCIENCE AND MANAGEMENT**  
**(N=26)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Human Aspect of Management . . . . .	58	77	42
Creativity and Innovation. . . . .	58	71	42
Management Psychology. . . . .	52	72	20
Understanding Group Inter- action and Behavior. . . . .	48	83	43
Social and Cultural Trends and Their Impact on Business Management. . . . .	36	56	12
Industrial Sociology . . . . .	32	56	24
Impact of Consumer Behavior on Management . . . . .	25	42	8

**TABLE 13**  
**COMMUNICATION**  
**(N=26)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	77	92	58
Effective Reading Skills . . . . .	77	89	50
Business Letter Writing. . . . .	68	96	52
Listening Skills . . . . .	64	96	60
Effective Report Writing . . . . .	64	88	48
Oral Presentation of Reports . . . . .	56	88	32
Conference Leadership. . . . .	56	80	40

**TABLE 14**  
**ECONOMICS**  
**(N=23)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends. . . . .	26	65	13
Economics of Production and Cost . . . . .	26	43	13
The Economic Systems of the United States. . . . .	22	61	9
Fundamentals of Economics. . . . .	19	52	19
The Price Mechanism. . . . .	18	36	9
International Economics. . . . .	10	24	5
Comparative Economic Systems . . . . .	9	36	5
Economics of Technology and Innovation . . . . .	5	29	5

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=23)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Replacement Management . . . . .	57	70	26
Improving Decision Making of Managers . . . . .	52	87	35
Statistical Decision Theory. . . . .	32	64	18
Linear Programming . . . . .	27	54	23
Review of Basic Mathematics. . . . .	27	45	23
Dynamic Programming. . . . .	26	35	13
Applying Program Evaluation and Review Techniques (PERT)	24	53	10
Inventory Management . . . . .	22	44	9
Statistical Procedures and Methods. . . . .	14	41	5
Probability Theory . . . . .	9	23	5
Waiting Lines. . . . .	5	23	0
Analytic Geometry. . . . .	0	10	5
Calculus of Finite Differences	0	5	0
Matrix Algebra . . . . .	0	0	0
Calculus of Infinite Series. . . . .	0	0	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=22)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Data Systems and Processing. . . . .	27	59	23
Fundamentals of Programming for Computer Operations. . . . .	27	54	18
Applying the Computer to Problems of Business and Management . . . . .	23	50	14
Mathematics for Digital Computers. . . . .	14	23	9

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses for these special fields of work:

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Maintaining Efficient and Up-To-Date Personnel Records. . .	73	93	27
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . .	72	100	44
Management and Labor Relations	65	83	35
Job Analysis and Job Evaluation Methods . . . . .	59	88	24
In-plant Training. . . . .	56	87	38
Employee Benefit Plans . . . . .	50	63	13
Industrial Safety and Medical Services . . . . .	44	69	13
Salary and Wage Administration	35	64	18

TABLE 18

FINANCIAL MANAGEMENT  
(N=9)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets. . . . .	67	78	33
New Developments in Equipment Replacement Policy . . . . .	63	88	25
Fundamentals of Financial Reporting and Statement Analysis . . . . .	50	50	13
Managerial Accounting. . . . .	44	66	11
Taxes. . . . .	33	66	0
Financial Planning and Forecasting. . . . .	25	75	0

TABLE 19

MANUFACTURING AND PRODUCTION  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Maintenance Planning and Control . . . . .	67	67	17
Value Analysis . . . . .	50	67	0
Methods Analysis and Work Simplification . . . . .	40	60	20
Automation . . . . .	40	60	0
Materials Handling . . . . .	40	40	0
Inventory Management . . . . .	25	50	0
Quality Control . . . . .	25	25	0
Production Planning and Control Management . . . . .	20	40	0
Organization and Management of Purchasing Operations . . . . .	20	40	0
Engineering Economy . . . . .	0	25	0

TABLE 20

MARKETING  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
Marketing Management . . . . .	50	67
Fundamentals of Marketing . . . . .	40	65
Packaging Design and Development . . . . .	40	40
Brand Marketing . . . . .	40	40
Marketing Research . . . . .	33	83
Physical Distribution Methods . . . . .	20	60
Product Planning . . . . .	20	40
Fundamentals of Pricing . . . . .	20	20
Application of Management Science and Computers to Marketing Problems . . . . .	20	20

No one indicated any need on the part of his subordinates for any of the courses.



TABLE 21

SALES MANAGEMENT  
(N=8)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Motivating Salesmen . . . . .	63	88	13
Training of Field Salesmen . .	50	88	13
Selection and Evaluation of Field Salesmen . . . . .	38	88	13
Supervision of Field Salesmen.	38	76	13
Compensation of Field Salesmen	38	76	13

TABLE 22

INTERNATIONAL MANAGEMENT  
(N=3)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Commercial Policy and Trade Control . . . . .	33	66	0
United States Foreign Economic Policy . . . . .	33	33	33
Monetary Exchange Problems . .	33	33	0
International Understanding . .	33	33	0
International Law . . . . .	33	33	0
International Economic Organizations . . . . .	33	33	0
British Commonwealth, United Nations, including Inter- national Monetary Fund and World Bank and Their Role in World Trade . . . . .	33	33	0
International Economic Analysis . . . . .	33	33	0
Sources of Funds: Financing of Day-To-Day Transactions . . .	33	33	0
Appraising and Developing Foreign Markets . . . . .	33	33	0

TABLE 23

RESEARCH AND DEVELOPMENT  
(N=3)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
Evaluation of the Research and Development Programs . . . . .	33	33
Planning Budgeting and Control of Projects . .	33	33
Guidelines for Selecting and Appraising New Projects . . . . .	33	33
Supervision and Management of Research Services. . . . .	33	33
Building Research and Development Teams. . . .	33	33

No need for any of the courses was indicated for the subordinates.

Background Information of Middle Managers

Personal, Educational, and Professional Background

Fifty-four percent (N=14) of the 26 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Eighty-eight percent (N=23) had completed high school, 12 percent (N=3) had the bachelor's degree, and four percent (N=1) had the master's degree. No one had the doctorate. Twenty-seven percent (N=7) went to business school and 23 percent (N=6) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 24

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number</u> <u>Bachelor's</u>	<u>Number</u> <u>Master's</u>
Agriculture . . . . .	0	1
Business Administration . . . . .	1	0
Education . . . . .	1	0
Liberal Arts. . . . .	1	0
Total. . . . .	3	1

The major areas of work for the middle managers in Transportation are shown below:

TABLE 25

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	9	35
Maintenance. . . . .	1	4
Marketing and Sales. . . . .	2	8
Traffic and Transportation . . . . .	14	53
 Total . . . . .	 26	 100

Methods of Updating

Sixty-eight percent (N=17) of the middle managers would take a credit course and 81 percent (N=21) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. One manager planned to enroll for the bachelor's degree in business administration.

Eighty-eight percent had no plans for further degree work and their reasons are given below:

TABLE 26

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Cannot afford it . . . . .	7	30
Don't have the time. . . . .	6	28
Not interested . . . . .	3	13
Live too far from educational center . . . . .	2	8
Not a high school graduate . . . . .	1	4
Other (not specified). . . . .	4	17
 Total . . . . .	 23	 100

The variety of educational methods used by middle managers for updating within the past four years follows:

TABLE 27

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=26)

	<u>Number Managers</u>	<u>Percent Managers</u>
Company in-service training courses . . . . .	15	58
Managerial development within company . . . . .	12	46
Workshops or seminars on managerial topics . . . . .	9	35
Correspondence courses . . . . .	4	15
Attendance at regional or national meetings of professional societies . . . . .	3	12
Short refresher courses at colleges or universities . . .	1	4
High school courses . . . . .	1	4

Many sources of information were used by the middle managers to keep up with new developments. Table 28 lists these sources.

TABLE 28

SOURCES OF INFORMATION USED IN UPDATING  
(N=23)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	83	17	0	0	0
In-plant reports and bulletins . .	70	17	4	9	0
Subordinate-superior discussions or meetings . . . . .	68	18	14	0	0
Company in-service courses . . . . .	36	27	5	9	23
Business reports . . . . .	35	39	17	9	0
Management journals . . . . .	29	37	19	10	5
Lectures, conferences, workshops, and seminars . . . . .	14	36	18	14	18
Technical books, reports, abstracts, and indexes . . . . .	14	19	33	24	10
Manufacturer's literature . . . . .	10	45	20	25	0
Scientific and technical journals	10	19	19	42	10
Professional society meetings . .	5	14	19	48	14
Use of consultants . . . . .	5	5	15	55	20
College and university evening courses . . . . .	5	5	14	53	23
College and university day courses . . . . .	5	0	5	76	14
	18				

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 29

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=26)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	16	62
Programmed instruction . . . . .	12	46
Courses recorded on tapes. . . . .	10	38
Courses recorded on records. . . . .	6	23
Educational television . . . . .	5	19
Two-way telephone courses. . . . .	3	12
Other (not specified). . . . .	2	8

Company Attitudes Toward Education

Of the 23 managers responding to a question on the attitude of their immediate superior toward continuing their education, 70 percent (N=16) said the superior encouraged them and 30 percent (N=7) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 30

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=24)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	90	5	0	5
Attend professional meetings . . . . .	61	24	5	10
Enroll for advanced work	59	27	0	14
Hold office in professional societies. .	54	18	5	23
Attend seminars or workshops away from the company. . . . .	52	24	5	19
Educational leave of absence. . . . .	25	17	8	50
Write technical and professional papers. .	15	30	5	50

Fifty-four percent of the middle managers indicated that they were employed by companies which provided in-service training; 42 percent were not, and four percent did not know. Sixty-six percent said the training was entirely on company time, 13 percent said it was partly on company time, no one said it was not on company time, and 21 percent did not know.

Thirty-eight percent reported that their company had an educational assistance plan. Forty-six percent said it did not and 15 percent did not know. Forty-two percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 13 managers who responded to this question, follows:

**TABLE 31**  
**PROPORTION OF TUITION PAID**

	<u>Number Managers</u>
All or almost all. . . . .	2
About 3/4. . . . .	0
About 2/3. . . . .	0
About 1/2. . . . .	5
About 1/3. . . . .	1
Less than 1/3. . . . .	2
Don't know . . . . .	3
 Total . . . . .	 13

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work.

**TABLE 32**  
**MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR**

	<u>Number Managers</u>
More than \$300 . . . . .	1
251 - 300. . . . .	0
201 - 250. . . . .	2
151 - 200. . . . .	7
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	3
 Total . . . . .	 13



When asked about the effect of available company educational assistance in motivating them to undertake further education, 23 percent of the middle managers said it had strongly encouraged them, 54 percent said it had partially influenced them, and 23 percent said it had no effect. There is an inconsistency here: while 77 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and only one was planning to enroll. However, some who had completed their educational objective may have been so motivated at the time they were enrolled.

### FIRST-LINE SUPERVISION

In the industrial category of Transportation, 56 first-line supervisors from 11 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 56 first-line supervisors in the category of Transportation were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	75
Leadership. . . . .	75
Human Aspect of Management. . . . .	66
Supervisor's Role in Employee Discipline. . . . .	66
Evaluation of Employee Performance. . . . .	64
The Tools and Techniques of Effective Supervision . . . . .	63
Communications. . . . .	58
Decision Making . . . . .	58
Employee Training . . . . .	55
Safety. . . . .	55
Labor Relations . . . . .	50

Table 33 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 33

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=56)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . .	42	75	52	93
Supervisor's Role in Employee Discipline .	37	66	48	86
The Tools and Techniques of Effective Supervision. . . . .	35	63	50	90
Decision Making. . . . .	32	58	45	82
Supervisor's Role in Company Economics . .	27	48	50	89
Inter-Departmental Cooperation . . . . .	23	41	46	82
<u>Employee Training and Evaluation</u>				
Evaluation of Employee Performance . . . .	36	64	49	87
Employee Training. . . . .	31	55	48	85
Safety . . . . .	30	55	48	88
<u>The Supervisor and the Union</u>				
Labor Relations. . . . .	28	50	49	88
Grievance Procedure and Arbitration. . . .	24	44	43	79
Labor Relations Legislation. . . . .	20	36	38	68
<u>Developing Those We Supervise</u>				
Leadership . . . . .	41	75	53	97
Human Aspect of Management . . . . .	37	66	53	95
Communications . . . . .	32	58	46	83
Developing the Work Team . . . . .	26	47	47	85

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Forty-one percent (N=23) of the first-line supervisors were 40 years of age or younger. Eighty-two percent (N=46) were high school graduates, four percent (N=2) had the bachelor's degree, and no one had the master's degree or the doctorate. Nine percent (N=5) had gone to business school and 27 percent (N=15) to trade school.

The two supervisors who had the bachelor's degree had majored in business administration.

Below is a listing of the major areas of work for the first-line supervisors in Transportation:

TABLE 34

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration. . . . .	7	13
Engineering . . . . .	1	2
Finance . . . . .	1	2
Industrial Relations. . . . .	3	6
Maintenance . . . . .	6	11
Marketing and Sales . . . . .	2	4
Service (yard and labor personnel, etc.)	4	7
Traffic and Transportation. . . . .	27	49
Other (not specified) . . . . .	3	6
<b>Total. . . . .</b>	<b>54</b>	<b>100</b>

Methods of Updating

Sixty-five percent (N=36) of the first-line supervisors would take a credit course and 75 percent (N=41) would take a non-credit course if they were offered locally.

One supervisor was currently enrolled for the associate degree. Six supervisors planned to enroll: three for the associate degree, one for the bachelor's, and two for the master's. The major fields of study were: six in business administration and one in education.

For the 46 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	16	35
Cannot afford it. . . . .	16	34
Not a high school graduate. . . . .	4	9
Not interested. . . . .	4	9
Job demands no more education . . . . .	3	7
Live too far from educational center. . . . .	1	2
Other (not specified) . . . . .	2	4
<b>Total. . . . .</b>	<b>46</b>	<b>100</b>

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=56)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses . . . . .	32	57
Managerial development within company . . . . .	24	43
Workshops or seminars on managerial topics . . . . .	17	30
Correspondence courses . . . . .	7	12
Attendance at regional or national meetings of professional societies . . . . .	4	7
Short refresher courses at colleges or universities . . . . .	4	7
High school courses to improve job performance . .	2	4
Workshops or seminars in liberal arts or humanities . . . . .	1	2

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING  
(N=52)

	Use Frequently	Average Use	Percent		Would Use If Available
			Use Very Little	Do Not Use	
In-plant reports and bulletins . .	64	18	4	10	4
Discussion with company personnel (informal or formal) . . . . .	59	29	6	4	2
Subordinate-superior discussions or meetings. . . . .	51	27	12	8	2
Management journals. . . . .	31	35	18	10	6
Company in-service courses . . . .	25	31	16	12	16
Manufacturer's literature. . . . .	24	13	25	29	4
Technical books, reports, abstracts, and indexes . . . . .	22	20	20	36	2
Business reports . . . . .	14	50	12	24	0
Lectures, conferences, workshops, and seminars . . . . .	12	34	26	26	2
Scientific and technical journals.	12	25	14	47	2
Use of consultants . . . . .	4	6	18	66	6
Professional society meetings. . .	4	4	26	66	0
College and university evening courses. . . . .	2	4	4	82	8
College and university day courses. . . . .	0	4	2	90	4

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=56)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	33	59
Programmed instruction . . . . .	23	41
Educational television . . . . .	13	23
Courses recorded on tapes. . . . .	8	14
Courses recorded on records. . . . .	6	11
Two-way radio courses. . . . .	3	5
Two-way telephone courses. . . . .	1	2
Other (not specified). . . . .	2	4

Company Attitudes Toward Education

A total of 51 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Sixty-five percent (N=33) said the superior encouraged them; 35 percent (N=18) said he was noncommittal. No one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table:

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=52)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	88	2	2	8
Enroll for advanced work	68	18	0	14
Attend professional meetings . . . . .	68	15	2	15
Hold office in professional societies	64	12	5	19
Attend seminars or workshops away from the company. . . . .	43	20	2	35
Write technical and professional papers. .	40	9	5	46
Educational leave of absence. . . . .	15	17	17	51



Seventy-seven percent of the supervisors were employed by companies which provided in-service training; 21 percent said their company did not provide it and two percent did not know. Sixty-four percent said the training was completely on company time, 18 percent said it was partly on company time, no one said it was entirely on the men's own time, and 18 percent did not know.

Forty-three percent reported that their company had an educational assistance plan; 48 percent said it did not, and nine percent did not know. Thirty-three percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company as indicated by the 24 supervisors who answered this question, is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all . . . . .	1
About 3/4 . . . . .	0
About 2/3 . . . . .	0
About 1/2 . . . . .	8
About 1/3 . . . . .	1
Less than 1/3 . . . . .	2
Don't know. . . . .	12
 Total. . . . .	 24

Table 41 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 41

MAXIMUM AMOUNT OF TUITION PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300. . . . .	0
251 - 300 . . . . .	1
201 - 250 . . . . .	0
151 - 200 . . . . .	13
101 - 150 . . . . .	0
51 - 100 . . . . .	0
50 or less . . . . .	0
Don't know. . . . .	11
 Total. . . . .	 25

When asked what the effect of available financial assistance was on their motivation to undertake further education, 19 percent of the supervisors said it strongly encouraged them, 31 percent said it partially influenced them, and 50 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 50 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only one of the 56 respondents was actually enrolled and six were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE TRANSPORTATION INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Transportation as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were considerably higher and more numerous.

Top Management

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Transportation</u> N=14	<u>Total Report</u> N=705
Long-range Planning and Forecasting for		
Corporate Growth. . . . .	83	50
Overall Strategy and Goals. . . . .	79	50
Management Development. . . . .	71	53
Financial Planning and Forecasting. . . . .	71	*
Incentives. . . . .	71	*
Listening Skills. . . . .	64	*
Personnel Policy Affecting Labor-Management		
Relations . . . . .	64	*
Effective Speaking. . . . .	62	50
Managerial Motivation . . . . .	62	*
Criteria and Selection of Personnel . . . . .	57	*
Working Effectively with Individuals and Groups . . . . .	57	*
Personnel Policy Affecting Employment Practices . . . . .	55	*
Communication in the Organization . . . . .	54	59
Effective Written Communications. . . . .	54	50
Fundamentals of Financial Reporting and		
Statement Analysis. . . . .	54	*
Policy Formation. . . . .	54	*
Impact of Government Legislation and Controls on		
Business. . . . .	50	*
Improving Decision Making of Managers . . . . .	50	*
Industrial Organization and Administration. . . . .	50	*

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u>	
	Percent	
	<u>Transportation</u> N=14	<u>Total Report</u> N=705
Effective Written Communications . . . . .	85	74
Communication in the Organization . . . . .	77	65
Working Effectively with Individuals and Groups . . . . .	71	66
Effective Speaking . . . . .	69	67
Human Aspect of Management . . . . .	62	54
Managerial Motivation . . . . .	62	*
Performance Appraisal and Counseling Techniques . . . . .	58	57
Listening Skills . . . . .	57	62
Fundamentals of Financial Reporting and Statement Analysis . . . . .	54	*
Management Development . . . . .	50	56
Capital Budgeting . . . . .	50	*
Criteria and Selection of Personnel . . . . .	50	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Transportation and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u>	
	Percent	
	<u>Transportation</u> N=26	<u>Total Report</u> N=1,202
Management Development . . . . .	84	66
Working Efficiently with Individuals . . . . .	77	65
Effective Communication in the Organization . . . . .	77	64
Effective Reading Skills . . . . .	77	*
Supervisory Training and Employee Development . . . . .	72	53
Business Letter Writing . . . . .	68	*
Criteria and Selection of Personnel for Promotion . . . . .	65	*
Effective Report Writing . . . . .	64	*
Listening Skills . . . . .	64	*
Performance Appraisal and Counseling Techniques . . . . .	61	*
Creativity and Innovation . . . . .	58	*
Human Aspect of Management . . . . .	58	*
Replacement Management . . . . .	57	*
Conference Leadership . . . . .	56	*
Oral Presentation of Reports . . . . .	56	*
Improving Decision Making of Managers . . . . .	52	*
Management Psychology . . . . .	52	*

\* Less than 50 percent



Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Transportation</u> N=26	<u>Total Report</u> N=1,202
Working Efficiently with Individuals. . . . .	65	62
Listening Skills. . . . .	60	50
Effective Communication in the Organization . . . . .	58	56
Performance Appraisal and Counseling Techniques . . . . .	57	*
Supervisory Training and Employee Development . . . . .	52	61
Business Letter Writing . . . . .	52	*
Management Development. . . . .	52	*
Effective Reading Skills. . . . .	50	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Transportation</u> N=56	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job. . . . .	75	64
Leadership. . . . .	75	57
Human Aspect of Management. . . . .	66	53
Supervisor's Role in Employee Discipline. . . . .	66	*
Evaluation of Employee Performance. . . . .	64	*
The Tools and Techniques of Effective Supervision . . . . .	63	55
Communications. . . . .	58	51
Decision Making . . . . .	58	54
Employee Training . . . . .	55	*
Safety. . . . .	55	*
Labor Relations . . . . .	50	*

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.



4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.



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MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
TRANSPORTATION EQUIPMENT INDUSTRY  
IN PENNSYLVANIA

M-79

**MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
TRANSPORTATION EQUIPMENT INDUSTRY  
IN PENNSYLVANIA**

**M-79**

**Samuel S. Dubin, Ph.D.**

**Everett Alderman, Ed.D.**

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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE TRANSPORTATION EQUIPMENT INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.



## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 94 managers and supervisors from six companies in the Transportation Equipment industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

## SUMMARY

### Top Management

Of 48 courses listed, 19 were checked by 50 percent or more of top managers as "Should Have." (Page 4)

For those they supervise, 50 percent or more of top managers said nine courses were needed. (Page 4)

### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for six courses in areas of general management, behavioral science and management, and communication, out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need two of the listed courses. (Page 9)

Only 13 percent had the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-20)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

### First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for 11 out of 16 courses. (Page 22)

Twenty-three percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-27)

### TOP MANAGEMENT

In the industrial category of Transportation Equipment, 21 top managers from six companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

### Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more are listed at the top of Page 4.

	<u>"Should Have"</u> Percent
Effective Written Communications. . . . .	84
Effective Speaking. . . . .	79
Effective Utilization of Manpower Resources and Allocation. . .	67
Communication in the Organization . . . . .	67
Listening Skills. . . . .	65
Management Development. . . . .	65
Improving Decision Making of Managers . . . . .	61
Performance Appraisal and Counseling Techniques . . . . .	61
Personnel Policy Affecting Labor-Management Relations . . . . .	59
Planning and Utilization of Physical Facilities . . . . .	59
Effective Reading Skills. . . . .	58
Incentives. . . . .	58
Management Reporting Systems. . . . .	55
Industrial Organization and Administration. . . . .	55
Long-range Planning and Forecasting for Corporate Growth. . . .	53
Managerial Motivation . . . . .	53
Creativity and Innovation . . . . .	53
Working Effectively with Individuals and Groups . . . . .	50
Statistical Decision Theory . . . . .	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Creativity and Innovation . . . . .	93
Listening Skills. . . . .	82
Effective Written Communications. . . . .	74
Effective Speaking. . . . .	74
Effective Reading Skills. . . . .	74
Communication in the Organization . . . . .	72
Criteria and Selection of Personnel . . . . .	63
Working Effectively with Individuals and Groups . . . . .	50
Effective Utilization of Manpower Resources and Allocation. . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.



TABLE 1

GENERAL MANAGEMENT  
(N=20)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Utilization of Manpower Resources and Allocation . . . . .	67	89	50
Improving Decision Making of Managers . . . . .	61	78	39
Industrial Organization and Administration . . . . .	55	95	40
Management Reporting Systems .	55	80	40
Long-range Planning and Fore- casting for Corporate Growth	53	85	37
Management of Research and Development . . . . .	47	71	24
Policy Formation . . . . .	45	75	30
Impact of Computer Technology.	41	76	29
Managing Major Change in Organizations . . . . .	39	72	28
Impact of Science and Techno- logy on Business Management.	33	77	28
Overall Strategy and Goals . .	26	73	5
Ethical Considerations in Business . . . . .	17	84	44
Impact of Government Legis- lation and Controls on Business . . . . .	11	61	22
Impact of Multinational Aspects of Planning and Control . . . . .	11	22	0

TABLE 2

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=20)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	67	84	72
Managerial Motivation . . . . .	53	85	32
Creativity and Innovation . . .	53	73	93
Working Effectively with Individuals and Groups . . .	50	83	50
Human Aspect of Management . .	45	80	40
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	19	57	25

**TABLE 3**  
**COMMUNICATIONS TECHNIQUES**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Written Communications . . . . .	84	89	74
Effective Speaking . . . . .	79	90	74
Listening Skills . . . . .	65	89	82
Effective Reading Skills . . . . .	58	79	74

**TABLE 4**  
**ECONOMICS**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	22	55	17
Comparative Economic Systems . . . . .	12	53	18

**TABLE 5**  
**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=17)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Statistical Decision Theory . . . . .	50	94	38
Survey Course on Quantitative Methods . . . . .	18	77	24

TABLE 6

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=20)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	65	95	40
Performance Appraisal and Counseling Techniques . . . . .	61	89	33
Personnel Policy Affecting Labor-Management Relations . . . . .	59	83	47
Incentives . . . . .	58	84	21
Criteria and Selection of Personnel . . . . .	47	68	63
Personnel Policy Affecting Employment Practices . . . . .	29	47	29
Personnel Policy Affecting Wage and Salary Structure . . . . .	28	56	22

TABLE 7

FINANCIAL MANAGEMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Capital Budgeting . . . . .	44	77	39
Managerial Accounting and Budgeting . . . . .	41	70	41
Fundamentals of Financial Reporting and Statement Analysis . . . . .	24	77	35
Financial Planning and Forecasting . . . . .	21	53	21

TABLE 8

MANUFACTURING AND PRODUCTION  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	59	71	41
Operations Planning and Control . . . . .	41	70	41
Operations Research Applied to Production . . . . .	35	64	35



TABLE 9

MARKETING  
(N=17)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Pricing . . . . .	35	53	24
Marketing Research . . . . .	18	42	18
Product Planning . . . . .	12	53	35
Logistics Planning . . . . .	6	24	6

TABLE 10

INTERNATIONAL MANAGEMENT  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
International Understanding . . . . .	7	20
International Economic Analysis . . . . .	0	14

None of the top managers in the Transportation Equipment industry reported that those they supervise needed either of the above courses.

MIDDLE MANAGEMENT

In the industrial category of Transportation Equipment, 30 middle managers from six companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Effective Communication in the Organization. . . . .	63
Management Development . . . . .	62
Working Efficiently with Individuals . . . . .	59
Supervisory Training and Employee Development. . . . .	56
Oral Presentation of Reports . . . . .	52
Creativity and Innovation. . . . .	52

Fifty percent or more of the middle managers thought that those they supervise needed the following courses:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Supervisory Training and Employee Development. . . . .	56
Management Development . . . . .	54

Tables 11 through 16 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Transportation Equipment category.

TABLE 11

GENERAL MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . .	62	93	54
Working Efficiently with Individuals . . . . .	59	100	45
Supervisory Training and Employee Development . . . .	56	88	56
Effective Utilization of Man- power Resources and Allocation . . . . .	46	78	39
Performance Appraisal and Counseling Techniques . . . .	40	80	44
Criteria and Selection of Personnel for Promotion . . .	36	88	24
Principles and Analysis of Office Systems . . . . .	22	74	35
Impact of Science and Techno- logy on Business Management.	20	72	32
Analyzing Organizational Behavior . . . . .	19	63	30
Long-range Planning and Fore- casting for Corporate Growth	16	40	20
Impact of Computer Technology.	13	52	26
The Application of Information Technology on Decision Making . . . . .	12	50	15
Impact of Government Legis- lation and Controls on Business . . . . .	0	42	15

TABLE 12

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=24)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Creativity and Innovation . .	52	91	48
Human Aspect of Management . .	48	91	39
Understanding Group Inter- action and Behavior . . . . .	35	78	35
Management Psychology . . . . .	25	79	21
Industrial Sociology . . . . .	18	45	9
Social and Cultural Trends and Their Impact on Business Management . . . . .	18	41	14
Impact of Consumer Behavior on Management . . . . .	9	18	9

TABLE 13

COMMUNICATION  
(N=25)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	63	92	46
Oral Presentation of Reports . . . . .	52	82	48
Effective Report Writing . . . . .	48	84	40
Effective Reading Skills . . . . .	46	84	46
Business Letter Writing . . . . .	33	83	42
Listening Skills . . . . .	33	75	42
Conference Leadership . . . . .	26	65	30

TABLE 14

ECONOMICS  
(N=24)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Fundamentals of Economics . . . . .	17	38	13
Economics of Production and Cost . . . . .	13	65	26
The Price Mechanism . . . . .	9	54	9
Economic Trends . . . . .	9	35	13
Economics of Technology and Innovation . . . . .	9	31	9
International Economics . . . . .	4	13	4
The Economic Systems of the United States . . . . .	0	32	0
Comparative Economic Systems . . . . .	0	17	0

TABLE 15

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=24)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	48	78	26
Review of Basic Mathematics. . .	39	61	48
Replacement Management . . . . .	25	58	17
Statistical Procedures and Methods. . . . .	23	59	23
Statistical Decision Theory. . .	23	59	14
Inventory Management . . . . .	22	52	13
Probability Theory . . . . .	19	48	19
Applying Program Evaluation and Review Techniques (PERT)	17	46	17
Analytic Geometry. . . . .	14	37	14
Matrix Algebra . . . . .	5	24	14
Calculus of Infinite Series. . .	4	21	4
Dynamic Programming. . . . .	4	17	4
Calculus of Finite Differences	4	13	4
Linear Programming . . . . .	0	13	0
Waiting Lines. . . . .	0	9	0

TABLE 16

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=22)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Mathematics for Digital Computers. . . . .	20	40	20
Applying the Computer to Problems of Business and Management . . . . .	19	43	24
Fundamentals of Programming for Computer Operations. . .	18	45	23
Data Systems and Processing. . .	18	41	23

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 17 through 23, show the responses.

TABLE 17

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
In-plant Training . . . . .	55	73	18
Maintaining Efficient and Up- To-Date Personnel Records . .	50	50	30
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . .	42	67	25
Management and Labor Relations	36	63	36
Job Analysis and Job Evaluation Methods . . . . .	33	75	8
Industrial Safety and Medical Services . . . . .	30	40	20
Employee Benefit Plans . . . . .	20	30	10
Salary and Wage Administration	18	36	9

TABLE 18

FINANCIAL MANAGEMENT  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
New Developments in Equipment Replacement Policy . . . . .	55	64	9
Budgets . . . . .	36	45	18
Managerial Accounting . . . . .	22	33	0
Fundamentals of Financial Reporting and Statement Analysis . . . . .	11	22	0
Taxes . . . . .	11	11	0
Financial Planning and Forecasting . . . . .	0	11	0



**TABLE 19**  
**MANUFACTURING AND PRODUCTION**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Automation . . . . .	47	82	47
Methods Analysis and Work Simplification . . . . .	44	82	56
Quality Control . . . . .	44	66	33
Inventory Management . . . . .	43	64	21
Value Analysis . . . . .	41	65	41
Production Planning and Control Management . . . . .	29	58	41
Engineering Economy . . . . .	28	84	22
Maintenance Planning and Control . . . . .	25	56	25
Materials Handling . . . . .	25	50	38
Organization and Management of Purchasing Operations . . . . .	18	65	18

**TABLE 20**

**MARKETING**  
**(N=7)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Product Planning . . . . .	14	28	14
Fundamentals of Pricing . . . . .	14	28	0
Marketing Management . . . . .	0	14	0
Fundamentals of Marketing . . . . .	0	14	0
Marketing Research . . . . .	0	14	0
Physical Distribution Methods . . . . .	0	14	0

None of the managers indicated a need for the remaining three courses for themselves or those they supervise.

**SALES MANAGEMENT  
(N=6)**

None of the middle managers in the Transportation Equipment industry indicated a need for any of the five courses in Sales Management for themselves or for those they supervise.

TABLE 21

**INTERNATIONAL MANAGEMENT  
(N=6)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
Commercial Policy and Trade Control. . . . .	17	34
United States Foreign Economic Policy. . . . .	17	34
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade. . . . .	17	17
Appraising and Developing Foreign Markets. . .	17	17

No managers reported a need for themselves for five other courses, and none of the middle managers indicated a need for any of the courses listed on the part of those they supervise.

TABLE 22

**RESEARCH AND DEVELOPMENT  
(N=10)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent
Planning Budgeting and Control of Projects . .	30	50
Building Research and Development Teams. . . .	22	44
Supervision and Management of Research Services . . . . .	20	60
Evaluation of the Research and Development Programs . . . . .	20	50
Guidelines for Selecting and Appraising New Projects . . . . .	20	50

None of the middle managers reported a need for any of the courses on the part of those they supervise.

**Background Information of Middle Managers**

**Personal, Educational, and Professional Background**

Seventeen percent (N=5) of the 30 middle managers were 40 years of age or younger. Ninety-three percent (N=28) had completed high school and 13 percent (N=4) had the bachelor's degree. One person had the master's degree and one had the doctorate. Three percent (N=1) went to business school and 30 percent (N=9) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

**TABLE 23**

**MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES**

	<u>Number Bachelor's</u>	<u>Number Master's</u>	<u>Number Doctor's</u>
Business Administration . . . . .	1	1	0
Engineering . . . . .	1	0	0
Liberal Arts . . . . .	2	0	0
Psychology . . . . .	0	0	1
<b>Total . . . . .</b>	<b>4</b>	<b>1</b>	<b>1</b>

The major areas of work for the middle managers in the Transportation Equipment industry are shown below:

**TABLE 24**

**MAJOR AREAS OF WORK**

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	6	20
Engineering . . . . .	11	38
Finance . . . . .	1	3
Industrial Relations . . . . .	1	3
Maintenance . . . . .	2	7
Manufacturing . . . . .	4	13
Production Control — Records . . . . .	2	7
Purchasing and Procurement . . . . .	1	3
Research and Development . . . . .	1	3
Service (yard and labor personnel, etc.) . . . . .	1	3
<b>Total . . . . .</b>	<b>30</b>	<b>100</b>

**Methods of Updating**

Sixty percent (N=18) of the middle managers would take a credit course and 67 percent (N=20) would take a non-credit course if they were offered locally.

One manager was currently enrolled for the associate degree and one for the master's. One planned to enroll for the associate degree.

Sixty-seven percent had no plans for further degree work and their reasons are given below:

**TABLE 25**

**REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION**

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time. . . . .	6	30
Not interested . . . . .	4	20
Can do better on my own. . . . .	3	15
Job demands no more education. . . . .	2	10
Cannot afford it . . . . .	2	10
Other (not specified). . . . .	3	15
<b>Total . . . . .</b>	<b>20</b>	<b>100</b>

The variety of educational methods used by middle managers for updating within the past four years follows:

**TABLE 26**

**EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS (N=30)**

	<u>Number Managers</u>	<u>Percent Managers</u>
Company in-service training courses. . . . .	14	47
Managerial development within company. . . . .	13	43
Attendance at regional or national meetings of professional societies . . . . .	11	37
Workshops or seminars on managerial topics . . . . .	9	30
Short refresher courses at colleges or universities . . . . .	3	10
Correspondence courses . . . . .	2	7
High school courses. . . . .	1	3

Many sources of information were used by the middle managers to keep up with new developments. Table 27 lists these sources.

TABLE 27

SOURCES OF INFORMATION USED IN UPDATING  
(N=29)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	59	41	0	0	0
In-plant reports and bulletins . .	54	42	4	0	0
Subordinate-superior discussions or meetings . . . . .	33	60	7	0	0
Manufacturer's literature . . . . .	31	34	31	4	0
Technical books, reports, abstracts, and indexes . . . . .	25	35	36	4	0
Company in-service courses . . . .	16	52	4	8	20
Lectures, conferences, work- shops, and seminars . . . . .	15	44	19	7	15
Professional society meetings . .	12	20	40	28	0
Scientific and technical journals . . . . .	11	52	15	15	7
Management journals . . . . .	8	52	28	8	4
Use of consultants . . . . .	8	21	25	38	8
College and university evening courses . . . . .	8	8	4	67	13
Business reports . . . . .	7	45	33	15	0
College and university day courses . . . . .	0	0	4	96	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses.

TABLE 28

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=30)

	<u>Number Managers</u>	<u>Percent Managers</u>
Programmed instruction . . . . .	14	47
Correspondence courses . . . . .	12	40
Educational television . . . . .	7	23
Courses recorded on tapes . . . . .	5	17
Courses recorded on records . . . . .	5	17
Two-way radio courses . . . . .	3	10
Two-way telephone courses . . . . .	3	10

## Company Attitudes Toward Education

Of the 28 managers responding to a question on the attitudes of their immediate superior toward continuing their education, 54 percent (N=15) said the superior encouraged them and 46 percent (N=13) said the superior was noncommittal. No one reported that the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 29

### MANAGERS' PERCEPTION OF COMPANY POLICY TOWARD PROFESSIONAL DEVELOPMENT (N=29)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Enroll for advanced work	92	8	0	0
Attend company training courses. . . . .	89	11	0	0
Attend professional meetings . . . . .	81	19	0	0
Hold office in pro- fessional societies. .	61	27	0	12
Attend seminars or work- shops away from the company. . . . .	59	33	4	4
Write technical and pro- fessional papers . . .	46	35	4	15
Educational leave of absence. . . . .	10	14	14	62

Fifty-nine percent of the middle managers indicated that they were employed by companies which provided in-service training; 38 percent were not, and three percent did not know. Seventy-eight percent said the training was entirely on company time, 11 percent said it was partly on company time, four percent said it was not on company time, and seven percent did not know.



Sixty-three percent reported that their company had an educational assistance plan. Thirty percent said it did not and seven percent did not know. Fifty-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company, as indicated by the 18 managers who responded to this question, follows:

TABLE 30

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	12
About 3/4. . . . .	0
About 2/3. . . . .	0
About 1/2. . . . .	0
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	6
 Total . . . . .	 18

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 31

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	4
251 - 300. . . . .	0
201 - 250. . . . .	0
151 - 200. . . . .	0
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	13
 Total . . . . .	 17

When asked about the effect of available company educational assistance in motivating them to undertake further education, 17 percent of the middle managers said it had strongly encouraged them, 28 percent said it had partially influenced them, and 55 percent said it had no effect. There is an inconsistency here: while 45 percent said the availability of financial aid motivated them to some extent, only two persons were actually enrolled and one was planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

**FIRST-LINE SUPERVISION**

In the industrial category of Transportation Equipment, 43 first-line supervisors from six companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

**Educational Needs**

The 43 first-line supervisors in the category of Transportation Equipment were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	70
Leadership. . . . .	63
Human Aspect of Management. . . . .	62
The Tools and Techniques of Effective Supervision . . . . .	60
Decision Making . . . . .	60
Supervisor's Role in Employee Discipline. . . . .	55
Communications. . . . .	55
Safety. . . . .	53
Labor Relations . . . . .	52
Grievance Procedure and Arbitration . . . . .	50
Supervisor's Role in Company Economics. . . . .	50

Table 32 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 32

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=43)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job. . . . .	30	70	39	91
Decision Making . . . . .	26	60	40	93
The Tools and Techniques of Effective Supervision . . . . .	25	60	39	93
Supervisor's Role in Employee Discipline. . . . .	23	55	38	91
Supervisor's Role in Company Economics. Inter-Departmental Cooperation. . . . .	21	50	39	93
	19	44	40	93
<u>Employee Training and Evaluation</u>				
Safety. . . . .	21	53	35	88
Evaluation of Employee Performance. . . . .	20	48	36	86
Employee Training . . . . .	15	36	35	84
<u>The Supervisor and the Union</u>				
Labor Relations . . . . .	22	52	35	83
Grievance Procedure and Arbitration . . . . .	21	50	33	79
Labor Relations Legislation . . . . .	10	24	29	69
<u>Developing Those We Supervise</u>				
Leadership. . . . .	27	63	39	91
Human Aspect of Management. . . . .	26	62	38	91
Communications. . . . .	23	55	41	98
Developing the Work Team. . . . .	18	43	37	88

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Fifty-one percent (N=22) of the first-line supervisors were 40 years of age or younger. Eighty-four percent (N=36) were high school graduates, 23 percent (N=10) had the bachelor's degree, and nine percent (N=4) had the master's degree; no one had the doctorate. Five percent (N=2) had gone to business school and 16 percent (N=7) to trade school. The major fields of study for a degree are indicated at the top of page 23.

TABLE 33

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration . . . . .	2	4
Engineering . . . . .	7	0
Liberal Arts. . . . .	1	0
<b>Total. . . . .</b>	<b>10</b>	<b>4</b>

Below is a listing of the major areas of work for the first-line supervisors in the Transportation Equipment industry:

TABLE 34

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration. . . . .	1	2
Engineering . . . . .	5	12
Industrial Relations. . . . .	2	5
Maintenance . . . . .	3	7
Manufacturing . . . . .	23	55
Marketing and Sales . . . . .	2	5
Production Control — Records . . . . .	2	5
Purchasing and Procurement. . . . .	1	2
Other (not specified) . . . . .	3	7
<b>Total. . . . .</b>	<b>42</b>	<b>100</b>

Methods of Updating

Fifty-two percent (N=22) of the first-line supervisors would take a credit course and 65 percent (N=28) would take a non-credit course if they were offered locally.

Eight supervisors were currently enrolled in degree programs: two for the associate degree, two for the bachelor's, and four for the master's. Three planned to enroll, one for the associate degree and two for the bachelor's. Major fields of study were reported by ten supervisors: seven in business administration, two in engineering, and one in law.

For the 30 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	10	33
Cannot afford it. . . . .	6	20
Not a high school graduate. . . . .	4	13
Not interested. . . . .	3	10
Live too far from educational center. .	2	7
Job demands no more education . . . . .	2	7
Can do better on my own . . . . .	1	3
Other (not specified) . . . . .	2	7
<b>Total. . . . .</b>	<b>30</b>	<b>100</b>

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=43)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Company in-service training courses . .	22	51
Managerial development within company .	14	33
Workshops or seminars on managerial topics. . . . .	13	30
Attendance at regional or national meetings of professional societies. .	11	26
Correspondence courses. . . . .	8	19
Short refresher courses at colleges or universities . . . . .	3	7
Workshops or seminars in liberal arts or humanities . . . . .	3	7
High school courses to improve job performance . . . . .	2	5

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING  
(N=41)

	Use Frequently	Average Use	Percent		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	58	32	10	0	0
In-plant reports and bulletins . .	47	44	7	0	2
Subordinate-superior discussions or meetings. . . . .	46	41	10	3	0
Manufacturer's literature . . . . .	38	28	23	8	3
Management journals. . . . .	36	33	21	5	5
Company in-service courses . . . .	28	34	8	8	22
College and university evening courses. . . . .	22	11	8	45	14
Technical books, reports, abstracts, and indexes . . . . .	21	32	23	21	3
Scientific and technical journals.	21	30	18	23	8
Lectures, conferences, work- shops, and seminars. . . . .	18	35	26	3	18
Use of consultants . . . . .	11	19	27	38	5
Business reports . . . . .	8	40	26	23	3
Professional society meetings. . .	8	13	28	46	5
College and university day . . . .					
courses. . . . .	0	0	9	85	6

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)



TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=43)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	24	56
Programmed instruction . . . . .	17	40
Educational television . . . . .	14	33
Courses recorded on records. . . . .	7	16
Courses recorded on tapes. . . . .	7	16
Two-way radio courses. . . . .	5	12
Two-way telephone courses. . . . .	2	5
Other (not specified). . . . .	2	5

Company Attitudes Toward Education

A total of 42 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Forty-eight percent (N=20) said the superior encouraged them; 52 percent (N=22) said he was noncommittal, and no one said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either lack of policy or lack of communication.

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=40)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses . . . . .	100	0	0	0
Enroll for advanced work. . . . .	80	5	0	15
Attend professional meetings. . . . .	59	15	0	26
Hold office in professional societies . . . . .	57	11	0	32
Attend seminars or workshops away from the company . . . . .	48	8	8	36
Write technical and professional papers . . . . .	35	19	0	46
Educational leave of absence . . . . .	15	5	18	62

Fifty-eight percent of the supervisors were employed by companies which provided in-service training; 28 percent said their company did not provide it and 14 percent did not know. Seventy-two percent said the training was completely on company time, ten percent said it was partly on company time, ten percent said it was entirely on the men's own time, and eight percent did not know.

Seventy-nine percent reported that their company had an educational assistance plan; seven percent said it did not, and 14 percent did not know. Fifty-one percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company, as indicated by the 31 supervisors who answered this question, is shown in the table below:

TABLE 40

PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	16
About 3/4. . . . .	5
About 2/3. . . . .	0
About 1/2. . . . .	2
About 1/3. . . . .	0
Less than 1/3. . . . .	1
Don't know . . . . .	7
 Total . . . . .	 31

Table 42 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 41

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	18
251 - 300. . . . .	0
201 - 250. . . . .	5
151 - 200. . . . .	0
101 - 150. . . . .	0
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	9
 Total . . . . .	 32

When asked what the effect of available financial assistance was on their motivation to undertake further education, 34 percent of the supervisors said it strongly encouraged them, 35 percent said it partially influenced them, and 31 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 69 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only eight of the 43 respondents were actually enrolled and three were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN THE TRANSPORTATION EQUIPMENT INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Transportation Equipment as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," varied widely.

**Top Management**

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Transportation Equipment</u> N=21	<u>Total Report</u> N=705
Effective Written Communications. . . . .	84	50
Effective Speaking. . . . .	79	50
Effective Utilization of Manpower Resources and Allocation. . . . .	67	*
Communication in the Organization . . . . .	67	59
Listening Skills. . . . .	65	*
Management Development. . . . .	65	53
Improving Decision Making of Managers . . . . .	61	*
Performance Appraisal and Counseling Techniques . . . . .	61	*
Personnel Policy Affecting Labor-Management Relations . . . . .	59	*
Planning and Utilization of Physical Facilities . . . . .	59	*
Effective Reading Skills. . . . .	58	*
Incentives. . . . .	58	*
Management Reporting Systems. . . . .	55	*
Industrial Organization and Administration. . . . .	55	*
Long-range Planning and Forecasting for Corporate Growth. . . . .	53	50
Managerial Motivation . . . . .	53	*
Creativity and Innovation . . . . .	53	*
Working Effectively with Individuals and Groups . . . . .	50	*
Statistical Decision Theory . . . . .	50	*
Overall Strategy and Goals. . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Transportation Equipment</u> N=21	<u>Total Report</u> N=705
Creativity and Innovation. . . . .	93	*
Listening Skills . . . . .	82	62
Effective Written Communications . . . . .	74	74
Effective Speaking . . . . .	74	67
Effective Reading Skills . . . . .	74	62
Communication in the Organization. . . . .	72	65
Criteria and Selection of Personnel. . . . .	63	*
Working Effectively with Individuals and Groups. . .	50	66
Effective Utilization of Manpower Resources and Allocation . . . . .	50	*
Performance Appraisal and Counseling Techniques. . .	*	57
Management Development . . . . .	*	56
Improving Decision Making of Managers. . . . .	*	54
Human Aspect of Management . . . . .	*	54

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Transportation Equipment and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Transportation Equipment</u> N=30	<u>Total Report</u> N=1,202
Effective Communication in the Organization. . . . .	63	64
Management Development . . . . .	62	66
Working Efficiently with Individuals . . . . .	59	65
Supervisory Training and Employee Development. . . .	56	53
Oral Presentation of Reports . . . . .	52	*
Creativity and Innovation. . . . .	52	*

\* Less than 50 percent

Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Transportation Equipment</u> N=30	<u>Total Report</u> N=1,202
Supervisory Training and Employee Development. . . . .	56	61
Management Development . . . . .	54	*
Working Efficiently with Individuals . . . . .	*	62
Effective Communication in the Organization. . . . .	*	56
Listening Skills . . . . .	*	50

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they "Should Have" the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Transportation Equipment</u> N=43	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	70	64
Leadership . . . . .	63	57
Human Aspect of Management . . . . .	62	53
The Tools and Techniques of Effective Supervision. . . . .	60	55
Decision Making. . . . .	60	54
Supervisor's Role in Employee Discipline . . . . .	55	*
Communications . . . . .	55	51
Safety . . . . .	53	*
Labor Relations. . . . .	52	*
Grievance Procedure and Arbitration. . . . .	50	*
Supervisor's Role in Company Economics . . . . .	50	*

\* Less than 50 percent



## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superior's attitude toward their further education was non-committal makes it necessary for the company to take steps to remedy this condition.



4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

**"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)**

**"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)**

**"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)**

**Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):**

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

**"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)**

**"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)**

**Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):**

**Engineering Fields:**

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts**
- E-11 Chemical and Allied**
- E-12 Electrical Machinery and Equipment**
- E-13 Machinery**
- E-14 Mining**
- E-15 Paper and Allied**
- E-16 Petroleum Refining**
- E-17 Primary Metals**
- E-18 Professional, Scientific, and Controlling Instruments**
- E-19 Research and Consulting Laboratories**
- E-20 Transportation**
- E-21 Electric Utilities**
- E-22 Gas Utilities**
- E-23 Telephone and Telegraph**
- E-24 Water Utilities**
- E-53 Construction**
- E-25 State Government Employees**

**"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)**

**Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):**

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators**
- H-55 Nursing Service and Nursing Education**
- H-56 Supervisory Personnel in the Dietary Department**
- H-57 Supervisory Personnel in the Engineering and Maintenance Department**
- H-58 Supervisory Personnel in the Business Office and Purchasing Department**
- H-59 Supervisory Personnel in the Medical Records Department**
- H-60 Supervisory Personnel in the Institutional Care Departments**
- H-61 Personnel Directors**
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories**

**The above publications may be purchased from:**

**Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802**

**Information about the above publications may be secured from:**

**Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802**

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**MANAGERIAL AND SUPERVISORY  
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INDUSTRY IN PENNSYLVANIA**

**MANAGERIAL AND SUPERVISORY  
EDUCATIONAL NEEDS IN THE  
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INDUSTRY IN PENNSYLVANIA**

**M-80**

**Samuel S. Dubin, Ph.D.**

**Everett Alderman, Ed.D.**

**H. LeRoy Marlow, Ed.D.**

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## MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS IN THE GAS AND ELECTRIC UTILITIES INDUSTRY IN PENNSYLVANIA

### INTRODUCTION

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 184 managers and supervisors from 12 companies in the Gas and Electric Utilities industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

## SUMMARY

### Top Management

Of 48 courses listed, six were checked by 50 percent or more of top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of top managers said 12 courses were needed. (Page 4)

### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for 11 courses in the areas of general management and communication out of 54 courses listed in six areas. (Page 9)

Those supervised by middle management were thought by 50 percent or more of the managers to need 11 of the listed courses. (Page 10)

The educational level was good, with 45 percent having the bachelor's degree. Middle managers had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 17-20)

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\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

First-Line Supervision

Fifty percent or more of the first-line supervisors reported a "Should Have" need for eight out of 16 courses. (Page 22)

Twelve percent of the supervisors had the bachelor's degree. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 23-27)

**TOP MANAGEMENT**

In the industrial category of Gas and Electric Utilities, 38 top managers from 12 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

Educational Needs Within Areas of Managerial Responsibility

The questionnaire for top management consisted of 48 suggested courses on management subjects. These were in the areas of:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which top management indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Working Effectively with Individuals and Groups . .	63
Communication in the Organization . . . . .	58
Management Development. . . . .	55
Overall Strategy and Goals. . . . .	54
Managerial Motivation . . . . .	53
Policy Formation. . . . .	51

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Working Effectively with Individuals and Groups . .	74
Effective Written Communications. . . . .	71
Performance Appraisal and Counseling Techniques . .	70
Effective Speaking. . . . .	68
Listening Skills. . . . .	66
Communication in the Organization . . . . .	64
Management Development. . . . .	61
Managerial Motivation . . . . .	61
Improving Decision Making of Managers . . . . .	57
Human Aspect of Management. . . . .	56
Effective Reading Skills. . . . .	53
Fundamentals of Financial Reporting and Statement Analysis. . . . .	50

Tables 1 through 10 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.



**TABLE 1**  
**GENERAL MANAGEMENT**  
**(N=37)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Overall Strategy and Goals . . . .	54	73	38
Policy Formation . . . . .	51	73	41
Long-range Planning and Fore- casting for Corporate Growth . . . .	43	81	35
Industrial Organization and Administration . . . . .	42	92	47
Impact of Government Legislation and Controls on Business . . . .	35	65	46
Improving Decision Making of Managers . . . . .	34	80	57
Effective Utilization of Man- power Resources and Allocation . . . .	34	71	49
Impact of Computer Technology. . . .	34	71	43
Management Reporting Systems . . . .	33	66	44
Impact of Science and Technology on Business Management . . . . .	31	68	37
Managing Major Change in Organizations. . . . .	26	70	29
Ethical Considerations in Business . . . . .	23	60	29
Management of Research and Development. . . . .	6	39	9
Impact of Multinational Aspects of Planning and Control. . . . .	0	3	0

**TABLE 2**  
**BEHAVIORAL SCIENCE AND MANAGEMENT**  
**(N=36)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Working Effectively with Individuals and Groups . . . . .	63	89	74
Communication in the Organization . . . . .	58	83	64
Managerial Motivation. . . . .	53	86	61
Human Aspect of Management . . . .	42	75	56
Political, Social, and Cultural Trends and Their Impact on Business Management. . . . .	30	57	27
Creativity and Innovation. . . . .	27	63	45

**TABLE 3**  
**COMMUNICATIONS TECHNIQUES**  
**(N=37)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Written Communications	49	66	71
Effective Reading Skills . . . . .	47	63	53
Listening Skills . . . . .	46	83	66
Effective Speaking . . . . .	46	76	68

**TABLE 4**

**ECONOMICS**  
**(N=35)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	26	57	20
Comparative Economic Systems . .	7	30	20

**TABLE 5**

**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=33)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Statistical Decision Theory . . .	21	36	27
Survey Course on Quantitative Methods . . . . .	16	47	25

**TABLE 6**  
**INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT**  
**(N=33)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> <u>and "Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Management Development . . . . .	55	82	61
Personnel Policy Affecting Labor-Management Relations . . . . .	39	65	32
Personnel Policy Affecting Employment Practices . . . . .	39	65	29
Performance Appraisal and Counseling Techniques . . . . .	36	78	70
Personnel Policy Affecting Wage and Salary Structure . . . . .	28	62	28
Criteria and Selection of Personnel . . . . .	27	72	36
Incentives . . . . .	27	64	33

**TABLE 7**  
**FINANCIAL MANAGEMENT**  
**(N=33)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> <u>and "Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Financial Reporting and Statement Analysis . . . . .	44	66	50
Managerial Accounting and Budgeting . . . . .	31	59	38
Financial Planning and Forecasting . . . . .	30	63	33
Capital Budgeting . . . . .	25	66	34

**TABLE 8**  
**MANUFACTURING AND PRODUCTION**  
**(N=28)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning and Utilization of Physical Facilities . . . . .	29	54	43
Operations Planning and Control.	12	40	32
Operations Research Applied to Production . . . . .	4	29	25

**TABLE 9**  
**MARKETING**  
**(N=28)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Marketing Research . . . . .	25	36	21
Pricing . . . . .	21	25	17
Product Planning . . . . .	13	26	17
Logistics Planning . . . . .	13	25	17

**INTERNATIONAL MANAGEMENT**  
**(N=22)**

None of the top managers indicated a "Should Have" need for themselves or for those they supervise for the two courses in International Management. A few of the managers indicated they "Could Use" these courses: International Understanding, 18 percent, and International Economic Analysis, ten percent.

## MIDDLE MANAGEMENT

In the industrial category of Gas and Electric Utilities, 62 middle managers from 12 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors."

### Educational Needs Within Areas of Managerial Responsibility

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Managers were asked to indicate which of the 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Management Development. . . . .	70
Working Efficiently with Individuals. . . . .	70
Effective Communication in the Organization . . . . .	65
Listening Skills. . . . .	63
Effective Reading Skills. . . . .	55
Performance Appraisal and Counseling Techniques . . . . .	54
Supervisory Training and Employee Development . . . . .	54
Criteria and Selection of Personnel for Promotion . . . . .	53
Business Letter Writing . . . . .	52
Conference Leadership . . . . .	50
Effective Report Writing. . . . .	50

Fifty percent or more of the middle managers thought those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Effective Report Writing. . . . .	72
Working Efficiently with Individuals. . . . .	70
Listening Skills. . . . .	69
Supervisory Training and Employee Development . . . .	67
Oral Presentation of Reports. . . . .	66
Effective Communication in the Organization . . . . .	65
Business Letter Writing . . . . .	63
Effective Reading Skills. . . . .	58
Conference Leadership . . . . .	57
Management Development. . . . .	55
Performance Appraisal and Counseling Techniques . . . .	51

The following tables, 10 through 15, present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Gas and Electric Utilities industry.

TABLE 10

GENERAL MANAGEMENT  
(N=62)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Working Efficiently with Individuals. . . . .	70	95	70
Management Development . . . . .	70	95	55
Performance Appraisal and Counseling Techniques. . . . .	54	86	51
Supervisory Training and Employee Development . . . . .	54	80	67
Criteria and Selection of Personnel for Promotion. . . . .	53	82	42
Impact of Government Legislation and Controls on Business . . . .	35	68	38
Effective Utilization of Man- power Resources and Allocation	29	63	32
Analyzing Organizational Behavior . . . . .	27	72	30
Long-range Planning and Fore- casting for Corporate Growth . . .	26	67	26
Impact of Computer Technology. . .	24	46	29
Principles and Analysis of Office Systems . . . . .	21	55	28
Impact of Science and Technology on Business Management . . . . .	20	53	16
The Application of Information Technology on Decision Making. . .	17	46	21



**TABLE 11**  
**BEHAVIORAL SCIENCE AND MANAGEMENT**  
**(N=61)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Human Aspect of Management . . .	42	81	46
Management Psychology . . . . .	34	81	29
Understanding Group Interaction and Behavior . . . . .	32	81	44
Creativity and Innovation . . . .	28	71	33
Industrial Sociology . . . . .	19	57	19
Impact of Consumer Behavior on Management . . . . .	17	46	10
Social and Cultural Trends and Their Impact on Business Management . . . . .	15	46	15

**TABLE 12**  
**COMMUNICATION**  
**(N=62)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	65	92	65
Listening Skills . . . . .	63	92	69
Effective Reading Skills . . . . .	55	92	58
Business Letter Writing . . . . .	52	92	63
Effective Report Writing . . . . .	50	87	72
Conference Leadership . . . . .	50	86	57
Oral Presentation of Reports . . .	49	88	66

TABLE 13

ECONOMICS  
(N=59)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Economics. . . . .	25	69	46
Economic Trends. . . . .	21	62	26
The Economic Systems of the United States. . . . .	20	54	31
Economics of Production and Cost . . . . .	14	45	21
Economics of Technology and Innovation . . . . .	11	32	9
The Price Mechanism. . . . .	9	41	16
Comparative Economic Systems . . . . .	5	38	21
International Economics. . . . .	0	13	7

TABLE 14

QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY  
(N=59)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Improving Decision Making of Managers . . . . .	39	78	32
Statistical Decision Theory. . . . .	20	49	18
Replacement Management . . . . .	19	52	16
Applying Program Evaluation and Review Techniques (PERT) . . . . .	18	48	26
Review of Basic Mathematics. . . . .	16	41	40
Statistical Procedures and Methods. . . . .	11	36	25
Inventory Management . . . . .	9	34	16
Linear Programming . . . . .	7	31	11
Probability Theory . . . . .	7	28	16
Dynamic Programming. . . . .	7	27	9
Waiting Lines. . . . .	5	23	7
Calculus of Infinite Series. . . . .	5	16	9
Calculus of Finite Differences . . . . .	5	16	7
Matrix Algebra . . . . .	5	10	9
Analytic Geometry. . . . .	4	20	16

TABLE 15

COMPUTER OPERATIONS AND DATA PROCESSING  
(N=58)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Data Systems and Processing. . .	14	46	25
Fundamentals of Programming for Computer Operations. . . . .	12	45	28
Applying the Computer to Problems of Business and Management . . . . .	11	53	26
Mathematics for Digital Computers. . . . .	11	25	20

If the manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special field of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

The following tables, 16 through 22, show the responses for these special fields of work:

TABLE 16

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=28)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
In-plant Training, . . . . .	57	79	57
Job Analysis and Job Evaluation Methods. . . . .	48	74	35
Management and Labor Relations .	48	65	39
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion. . . .	32	68	32
Maintaining Efficient and Up-To- Date Personnel Records . . . .	29	53	29
Salary and Wage Administration .	24	53	19
Employee Benefit Plans . . . . .	24	48	33
Industrial Safety and Medical Services . . . . .	23	55	27

TABLE 17

FINANCIAL MANAGEMENT  
(N=22)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Budgets . . . . .	43	86	38
Fundamentals of Financial Reporting and Statement Analysis . . . . .	43	72	24
Managerial Accounting . . . . .	38	71	19
Financial Planning and Forecasting . . . . .	27	72	23
New Developments in Equipment Replacement Policy . . . . .	24	57	14
Taxes . . . . .	19	52	19

TABLE 18

MANUFACTURING AND PRODUCTION  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Engineering Economy . . . . .	22	55	28
Maintenance Planning and Control	13	51	25
Methods Analysis and Work Simplification . . . . .	13	44	13
Production Planning and Control Management . . . . .	11	44	11
Value Analysis . . . . .	11	33	6
Organization and Management of Purchasing Operations . . . . .	7	27	7
Materials Handling . . . . .	6	37	13
Automation . . . . .	0	38	6
Quality Control . . . . .	0	21	7
Inventory Management . . . . .	0	20	0

TABLE 19

MARKETING  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Marketing Management . . . . .	20	53	33
Fundamentals of Marketing. . . . .	20	47	47
Marketing Research . . . . .	20	33	13
Product Planning . . . . .	14	28	14
Application of Management Science and Computers to Marketing Problems . . . . .	7	27	13
Fundamentals of Pricing. . . . .	0	29	7
Brand Marketing. . . . .	0	21	7
Physical Distribution Methods. . . . .	0	14	7
Packaging Design and Development	0	7	7

TABLE 20

SALES MANAGEMENT  
(N=19)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Selection and Evaluation of Field Salesmen . . . . .	39	50	33
Motivating Salesmen. . . . .	37	69	32
Supervision of Field Salesmen. . . . .	33	50	44
Training of Field Salesmen . . . . .	28	39	33
Compensation of Field Salesmen . . . . .	12	36	12

TABLE 21

INTERNATIONAL MANAGEMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Monetary Exchange Problems . . .	9	27	18
International Understanding. . .	9	27	18
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade . . . . .	9	27	18
United States Foreign Economic Policy . . . . .	9	27	9
International Economic Organizations. . . . .	9	18	18
International Economic Analysis. . . . .	9	18	18
Sources of Funds: Financing of Day-to-Day Transactions. . . .	0	17	8
Commercial Policy and Trade Control. . . . .	0	9	0
International Law. . . . .	0	9	0
Appraising and Developing Foreign Markets. . . . .	0	8	8

TABLE 22

RESEARCH AND DEVELOPMENT  
(N=12)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Planning Budgeting and Control of Projects. . . . .	9	45	18
Guidelines for Selecting and Appraising New Projects. . . .	9	36	9
Supervision and Management of Research Services. . . . .	9	27	18
Building Research and Development Teams . . . . .	9	27	18
Evaluation of the Research and Development Programs . . . . .	8	33	25



Background Information of Middle Managers

Personal, Educational, and Professional Background

Twenty-seven percent (N=16) of the 62 middle managers were 40 years of age or younger. This means that they have at least 25 more years of productive employment. Eighty-nine percent (N=55) had completed high school, 45 percent (N=28) had the bachelor's degree, and five percent (N=3) had the master's degree. No one had the doctorate. Eighteen percent (N=11) went to business school and six percent (N=4) went to trade school. The major fields of study for the undergraduate and graduate degrees are given below:

TABLE 23

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>	<u>Number Master's</u>
Business Administration. . . . .	8	1
Education. . . . .	1	0
Engineering. . . . .	14	2
Liberal Arts . . . . .	2	0
Mineral Industries . . . . .	2	0
Other (not specified). . . . .	1	0
<b>Total . . . . .</b>	<b>28</b>	<b>3</b>

The major areas of work for the middle managers in the Gas and Electric Utilities industry are shown below:

TABLE 24

MAJOR AREAS OF WORK

	<u>Number Managers</u>	<u>Percent Managers</u>
Administration . . . . .	28	45
Engineering. . . . .	7	11
Finance. . . . .	3	5
Industrial Relations . . . . .	4	7
Maintenance. . . . .	2	3
Marketing and Sales. . . . .	11	18
Purchasing and Procurement . . . . .	1	2
Traffic and Transportation . . . . .	1	2
Other (not specified). . . . .	4	7
<b>Total . . . . .</b>	<b>61</b>	<b>100</b>

Methods of Updating

Fifty-one percent (N=30) of the middle managers would take a credit course and 73 percent (N=45) would take a non-credit course if they were offered locally.

No managers were currently enrolled for a degree. Three planned to enroll: one for the bachelor's degree and two for the master's. Two planned to study business administration and one planned to study law.

Seventy-nine percent had no plans for further degree work and their reasons are given below:

TABLE 25

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Managers</u>	<u>Percent Managers</u>
Don't have the time . . . . .	17	36
Live too far from educational center . . . . .	8	16
Job demands no more education. . . . .	5	10
Not a high school graduate . . . . .	4	8
Not interested . . . . .	3	6
Can do better on my own. . . . .	1	2
Other (not specified). . . . .	11	22
 Total . . . . .	 49	 100

The variety of educational methods used by middle managers for updating within the past four years is shown below:

TABLE 26

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=62)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics . . . . .	51	82
Managerial development within company. . . . .	45	73
Company in-service training courses. . . . .	36	58
Attendance at regional or national meetings of professional societies. . . . .	35	56
Short refresher courses at colleges or universities . . . . .	12	19
Correspondence courses . . . . .	10	16
Workshops or seminars in liberal arts or humanities . . . . .	4	6
Television courses . . . . .	4	6
High school courses. . . . .	1	2

Many sources of information were used by the middle managers to keep up with new developments. Table 27 lists these sources.

TABLE 27

SOURCES OF INFORMATION USED IN UPDATING  
(N=62)

	Use Frequently	Average Use	Percent			Would Use If Available
			Use Very Little	Do Not Use		
Discussion with company personnel (informal or formal) . . . . .	68	27	5	0	0	
Subordinate-superior discussions or meetings . . . . .	65	30	2	0	3	
In-plant reports and bulletins . . . .	63	29	2	3	3	
Business reports . . . . .	43	38	15	2	2	
Management journals. . . . .	32	57	6	0	5	
Lectures, conferences, workshops, and seminars . . . . .	32	56	6	3	3	
Manufacturer's literature. . . . .	32	45	15	8	0	
Company in-service courses . . . . .	26	36	16	11	11	
Scientific and technical journals. . .	17	43	22	16	2	
Professional society meetings. . . .	14	35	29	19	3	
Technical books, reports, abstracts, and indexes. . . . .	8	50	32	10	0	
Use of consultants . . . . .	5	26	31	38	0	
College and university evening courses. . . . .	0	12	11	66	11	
College and university day courses .	0	4	4	90	2	

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. (Table 28)

TABLE 28

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=62)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	28	45
Educational television . . . . .	27	44
Programmed instruction . . . . .	24	39
Courses recorded on records. . . . .	8	13
Courses recorded on tapes. . . . .	5	8
Two-way radio courses. . . . .	2	3
Two-way telephone courses. . . . .	1	2

Company Attitudes Toward Education

Of the 60 managers responding to a question on the attitude of their immediate superior toward continuing their education, 52 percent (N=31) said the superior encouraged them and 48 percent (N=29) said the superior was noncommittal. No one said the superior discouraged him.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities.

TABLE 29

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=61)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	95	0	0	5
Attend professional meetings . . . . .	90	7	0	3
Hold office in professional societies . . . . .	83	14	0	3
Enroll for advanced work . . . . .	77	7	0	16
Attend seminars or workshops away from the company. . . . .	76	10	0	14
Write technical and professional papers. . . . .	68	16	0	16
Educational leave of absence. . . . .	16	17	14	53

Eighty-seven percent of the middle managers indicated that they were employed by companies which provided in-service training; 11 percent were not, and two percent did not know. Fifty-nine percent said the training was entirely on company time, 34 percent said it was partly on company time, two percent said it was not on company time, and five percent did not know.

Ninety-eight percent reported that their company had an educational assistance plan and two percent said it did not. Seventy-nine percent said the course had to be job-related in order to qualify for financial assistance.

The proportion of tuition paid by the company is shown below:

TABLE 30

PROPORTION OF TUITION PAID

	<u>Number Managers</u>
All or almost all. . . . .	14
About 3/4. . . . .	1
About 2/3. . . . .	1
About 1/2. . . . .	42
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	1
 Total . . . . .	 59

The following table shows the maximum amount of tuition paid per year by the companies for which the middle managers work:

TABLE 31

MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Managers</u>
More than \$300 . . . . .	21
251 - 300. . . . .	0
201 - 250. . . . .	1
151 - 200. . . . .	5
101 - 150. . . . .	0
51 - 100. . . . .	1
50 or less. . . . .	0
Don't know . . . . .	30
 Total . . . . .	 58

When asked about the effect of available company educational assistance in motivating them to undertake further education, 28 percent of the middle managers said it had strongly encouraged them, 32 percent said it had partially influenced them, and 40 percent said it had no effect. There is an inconsistency here: while 60 percent said the availability of financial aid motivated them to some extent, no one was actually enrolled and only three were planning to enroll. However, some who had completed their educational objectives may have been so motivated at the time they were enrolled.

### FIRST-LINE SUPERVISION

In the industrial category of Gas and Electric Utilities, 84 first-line supervisors from 12 companies completed the questionnaire. First-line supervisors were defined as "those whose major activities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The 84 first-line supervisors in the category of Gas and Electric Utilities were asked to indicate which of the 16 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors.

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job. . . . .	70
The Tools and Techniques of Effective Supervision .	64
Leadership. . . . .	61
Decision Making . . . . .	59
Communications. . . . .	56
Safety. . . . .	56
Human Aspect of Management. . . . .	53
Supervisor's Role in Employee Discipline. . . . .	52

Table 32 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.



TABLE 32

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=83)

	<u>"Should Have"</u>		<u>"Should Have" and "Could Use"</u>	
	No.	%	No.	%
<u>Principles of Supervision</u>				
Fundamentals of the Supervisor's Job . . . . .	53	70	77	93
The Tools and Techniques of Effective Supervision. . . . .	52	64	72	89
Decision Making. . . . .	48	59	75	92
Supervisor's Role in Employee Discipline . . .	42	52	68	84
Supervisor's Role in Company Economics . . .	39	48	68	83
Inter-Departmental Cooperation . . . . .	37	46	65	81
<u>Employee Training and Evaluation</u>				
Safety . . . . .	45	56	69	86
Evaluation of Employee Performance . . . . .	33	42	65	83
Employee Training. . . . .	33	41	65	81
<u>The Supervisor and the Union</u>				
Labor Relations. . . . .	31	38	61	75
Grievance Procedure and Arbitration. . . . .	30	37	60	74
Labor Relations Legislation. . . . .	12	15	36	46
<u>Developing Those We Supervise</u>				
Leadership . . . . .	50	61	73	89
Communications . . . . .	46	56	72	88
Human Aspect of Management . . . . .	43	53	77	95
Developing the Work Team . . . . .	33	41	67	83

Background Information of First-Line Supervisors

Personal, Educational, and Professional Background

Twenty-nine percent (N=25) of the first-line supervisors were 40 years of age or younger. Seventy-five percent (N=62) were high school graduates, 12 percent (N=10) had the bachelor's degree, and no one had the master's degree or the doctorate. Seven percent (N=6) had gone to business school and 15 percent (N=13) to trade school. The major fields of study for the bachelor's degree are indicated in the following table:

TABLE 33

MAJOR FIELDS OF STUDY OF COLLEGE GRADUATES

	<u>Number Bachelor's</u>
Agriculture . . . . .	1
Business Administration . . . . .	2
Education . . . . .	1
Engineering . . . . .	5
Psychology . . . . .	1
 Total . . . . .	 10

Below is a listing of the major areas of work for the first-line supervisors in Gas and Electric Utilities industry:

TABLE 34

MAJOR AREAS OF WORK

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Administration . . . . .	16	20
Engineering . . . . .	4	5
Finance . . . . .	5	6
Industrial Relations . . . . .	1	1
Maintenance . . . . .	24	30
Marketing and Sales . . . . .	1	1
Production Control - Records . . . . .	1	1
Research and Development . . . . .	1	1
Service (yard and labor personnel, etc.)	13	16
Other (not specified) . . . . .	15	19
 Total . . . . .	 31	 100

Methods of Updating

Forty-six percent (N=37) of the first-line supervisors would take a credit course and 73 percent (N=59) would take a non-credit course if they were offered locally.

Two of the supervisors were currently enrolled for an associate degree. Four planned to enroll, one for the associate degree and three for the bachelor's. The major fields of study reported were: three in business administration, one in engineering, and two in another field which was not specified.

For the 71 supervisors who did not have plans for further formal education, the following reasons were indicated:

TABLE 35

REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time . . . . .	19	27
Not a high school graduate . . . . .	11	15
Live too far from educational center . .	10	14
Cannot afford it . . . . .	6	8
Not interested . . . . .	3	4
Job demands no more education. . . . .	2	3
Can do better on my own. . . . .	1	2
Other (not specified). . . . .	19	27
 Total . . . . .	 71	 100

First-line supervisors had used a variety of educational methods for updating within the past four years.

TABLE 36

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=84)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Workshops or seminars on managerial topics . . . . .	47	56
Company in-service training courses. . .	44	52
Managerial development within company. .	37	44
Attendance at regional or national meetings of professional societies . .	22	26
Correspondence courses . . . . .	17	20
Short refresher courses at colleges or universities. . . . .	8	10
High school courses to improve job performance. . . . .	6	7
Television courses . . . . .	5	6
Workshops or seminars in liberal arts or humanities . . . . .	4	5

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 37

SOURCES OF INFORMATION USED IN UPDATING  
(N=76)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	73	20	3	3	1
In-plant reports and bulletins . . . . .	57	33	0	6	4
Subordinate-superior discussions or meetings. . . . .	45	37	11	4	3
Manufacturer's literature. . . . .	29	53	8	10	0
Company in-service courses . . . . .	25	40	9	10	16
Lectures, conferences, workshops, and seminars . . . . .	23	39	19	6	13
Management journals. . . . .	20	49	16	12	3
Scientific and technical journals. . . . .	14	38	23	19	6
Technical books, reports, abstracts, and indexes. . . . .	13	46	21	16	4
Business reports . . . . .	11	45	20	21	3
Use of consultants . . . . .	7	26	21	42	4
College and university evening courses. . . . .	6	6	2	75	11
Professional society meetings. . . . .	3	25	23	42	7
College and university day courses . . . . .	0	3	8	84	5

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 38)

TABLE 38

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=84)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	42	50
Programmed instruction . . . . .	29	35
Educational television . . . . .	22	26
Courses recorded on records. . . . .	12	14
Courses recorded on tapes. . . . .	11	13
Two-way radio courses. . . . .	5	6
Two-way telephone courses. . . . .	4	5
Other (not specified). . . . .	5	6

Company Attitudes Toward Education

A total of 82 first-line supervisors responded to a question on the attitude of their immediate superior toward continuing their education. Fifty percent (N=41) said the superior encouraged them; 49 percent (N=40) said he was noncommittal, and one percent (N=1) said he discouraged him.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in the following table. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 39

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=73)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend company training courses. . . . .	97	0	0	3
Attend professional meetings . . . . .	83	3	0	14
Hold office in professional societies. . . . .	79	4	1	16
Enroll for advanced work . . . . .	77	5	0	18
Attend seminars or workshops away from the company. . . . .	74	7	0	19
Write technical and professional papers. . . . .	54	6	1	39
Educational leave of absence. . . . .	11	10	1	78

Seventy-nine percent of the supervisors were employed by companies which provided in-service training; 20 percent said their company did not provide it and one percent did not know. Fifty-four percent said the training was completely on company time, 29 percent said it was partly on company time, 13 percent said it was entirely on the men's own time, and four percent did not know.

Ninety-three percent reported that their company had an educational assistance plan; six percent said it did not, and one percent did not know. Seventy-seven percent said the course must be job-related in order to qualify for educational assistance.

The proportion of tuition paid by the company is shown in the table below:

TABLE 40  
PROPORTION OF TUITION PAID

	<u>Number Supervisors</u>
All or almost all. . . . .	16
About 3/4. . . . .	0
About 2/3. . . . .	1
About 1/2. . . . .	47
About 1/3. . . . .	0
Less than 1/3. . . . .	0
Don't know . . . . .	5
 Total . . . . .	 69

Table 41 shows the maximum amount of tuition paid per year by the companies employing the first-line supervisors.

TABLE 41  
MAXIMUM AMOUNT OF TUITION  
PAID PER YEAR

	<u>Number Supervisors</u>
More than \$300 . . . . .	20
251 - 300. . . . .	2
201 - 250. . . . .	0
151 - 200. . . . .	3
101 - 150. . . . .	1
51 - 100. . . . .	0
50 or less. . . . .	0
Don't know . . . . .	41
 Total . . . . .	 67



When asked what the effect of available financial assistance was on their motivation to undertake further education, 32 percent of the supervisors said it strongly encouraged them, 38 percent said it partially influenced them, and 30 percent said it had no effect. The seeming inconsistency that was noted for the middle managers applies to the supervisors: while 70 percent said that the availability of financial aid had motivated them to some extent to undertake additional education, only two of the 84 respondents were actually enrolled and four were planning to enroll.

**COMPARISON OF NEEDS OF MANAGERS AND SUPERVISORS IN GAS AND ELECTRIC UTILITIES INDUSTRY WITH THOSE OF MANAGERS AND SUPERVISORS IN TOTAL REPORT**

The educational needs of managers and supervisors in the industrial category of Gas and Electric Utilities as compared with needs of those in business and industry as seen in the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," were relatively higher and more numerous.

**Top Management**

Of the 48 subjects listed, the following were indicated as "Should Have" needs by 50 percent or more of the top managers:

	<u>"Should Have"</u> Percent	
	<u>Gas and Electric</u> <u>Utilities</u> N=38	<u>Total</u> <u>Report</u> N=705
Working Effectively with Individuals and Groups. . . . .	63	*
Communication in the Organization. . . . .	58	59
Management Development . . . . .	55	53
Overall Strategy and Goals . . . . .	54	50
Managerial Motivation. . . . .	53	*
Policy Formation . . . . .	51	*
Effective Speaking . . . . .	*	50
Effective Written Communications . . . . .	*	50
Long-range Planning and Forecasting for Corporate Growth . . . . .	*	50

\* Less than 50 percent

Fifty percent or more of the top managers thought that those they supervise needed the following subjects:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Gas and Electric Utilities</u> N=38	<u>Total Report</u> N=705
Working Effectively with Individuals and Groups . . . . .	74	66
Effective Written Communications . . . . .	71	74
Performance Appraisal and Counseling Techniques . . . . .	70	57
Effective Speaking . . . . .	68	67
Listening Skills . . . . .	66	62
Communication in the Organization . . . . .	64	65
Management Development . . . . .	61	56
Managerial Motivation . . . . .	61	*
Improving Decision Making of Managers . . . . .	57	54
Human Aspect of Management . . . . .	56	54
Effective Reading Skills . . . . .	53	62
Fundamentals of Financial Reporting and Statement Analysis . . . . .	50	*

\* Less than 50 percent

Middle Management

Of the 54 subjects listed, 50 percent or more of the middle managers in Gas and Electric Utilities and in the total report indicated a "Should Have" need for the following:

	<u>"Should Have"</u> Percent	
	<u>Gas and Electric Utilities</u> N=62	<u>Total Report</u> N=1,202
Management Development . . . . .	70	66
Working Efficiently with Individuals . . . . .	70	65
Effective Communication in the Organization . . . . .	65	64
Listening Skills . . . . .	63	*
Effective Reading Skills . . . . .	55	*
Supervisory Training and Employee Development . . . . .	54	53
Performance Appraisal and Counseling Techniques . . . . .	54	*
Criteria and Selection of Personnel for Promotion . . . . .	53	*
Business Letter Writing . . . . .	52	*
Conference Leadership . . . . .	50	*
Effective Report Writing . . . . .	50	*

\* Less than 50 percent



Subjects which 50 percent or more of the middle managers thought represented educational needs of those they supervise were:

	<u>"Subordinates' Needs"</u> Percent	
	<u>Gas and Electric Utilities</u> N=62	<u>Total Report</u> N=1,202
Effective Report Writing . . . . .	72	*
Working Efficiently with Individuals . . . . .	70	62
Listening Skills . . . . .	69	50
Supervisory Training and Employee Development. . . . .	67	61
Oral Presentation of Reports . . . . .	66	*
Effective Communication in the Organization. . . . .	65	56
Business Letter Writing. . . . .	63	*
Effective Reading Skills . . . . .	58	*
Conference Leadership. . . . .	57	*
Management Development . . . . .	55	*
Performance Appraisal and Counseling Techniques. . . . .	51	*

\* Less than 50 percent

First-Line Supervision

Fifty percent or more of the first-line supervisors said they needed the following of a listing of 16 subjects:

	<u>"Should Have"</u> Percent	
	<u>Gas and Electric Utilities</u> N=84	<u>Total Report</u> N=1,713
Fundamentals of the Supervisor's Job . . . . .	70	64
The Tools and Techniques of Effective Supervision. . . . .	64	55
Leadership . . . . .	61	57
Decision Making. . . . .	59	54
Communications . . . . .	56	51
Safety . . . . .	56	*
Human Aspect of Management . . . . .	53	53
Supervisor's Role in Employee Discipline . . . . .	52	*

\* Less than 50 percent

## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications — such subjects as report writing, effective speaking, conference leadership — was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient locations.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.

4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.



**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

**"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)**

**"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)**

**"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)**

**Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):**

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

**"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)**

**"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)**

**Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):**

**Engineering Fields:**

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining



**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
- E-23 Telephone and Telegraph
- E-24 Water Utilities
- E-53 Construction
- E-25 State Government Employees

**"The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" 1965 (\$2.25)**

**Specific Reports by Hospital Departments from "The Determination and Measurement of Supervisory Training Needs of Hospital Personnel — A Survey of Pennsylvania Hospitals" (\$.75 each):**

**Continuing Professional Educational Needs of:**

- H-54 Hospital Administrators
- H-55 Nursing Service and Nursing Education
- H-56 Supervisory Personnel in the Dietary Department
- H-57 Supervisory Personnel in the Engineering and Maintenance Department
- H-58 Supervisory Personnel in the Business Office and Purchasing Department
- H-59 Supervisory Personnel in the Medical Records Department
- H-60 Supervisory Personnel in the Institutional Care Departments
- H-61 Personnel Directors
- H-62 Supervisory Personnel in the Clinical and Radiology Laboratories

The above publications may be purchased from:

Continuing Education Business Office  
J. Orvis Keller Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

Information about the above publications may be secured from:

Department of Planning Studies  
One Shields Building  
The Pennsylvania State University  
University Park, Pennsylvania 16802

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MANAGERIAL AND SUPERVISORY EDUCATIONAL  
CAREERS IN THE APPAREL, TEXTILES, AND LEATHER  
INDUSTRY IN PENNSYLVANIA

**MANAGERIAL AND SUPERVISORY EDUCATIONAL  
NEEDS IN THE APPAREL, TEXTILES, AND LEATHER  
INDUSTRY IN PENNSYLVANIA**

**M-81**

**Samuel S. Dubin, Ph.D.**

**Everett Alderman, Ed.D.**

**H. LeRoy Marlow, Ed. D.**

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**MANAGERIAL AND SUPERVISORY EDUCATIONAL NEEDS  
IN THE APPAREL, TEXTILES, AND LEATHER INDUSTRY IN PENNSYLVANIA**

**INTRODUCTION**

The education and training of managers is a major problem of business and industry today. There are a number of conditions facing business and industry which indicate the need for this study. Among them are:

1. There is a significant increase in managerial positions and a resulting increase in the need for managerial education and training. Managerial positions are increasing faster than the increase in the total work force. Education is needed to keep up to date and prevent obsolescence, and must be a continuing process.
2. The rapid growth of managerial knowledge has increased the importance of disseminating and applying such information.
3. Greater emphasis is being placed on leadership and motivation in developing competence and resourcefulness.
4. There is a need for greater emphasis on long-range planning.
5. Companies must operate in increasingly complex and competitive environments. New skills and abilities are needed for new types of work, and in today's highly competitive market improved efficiency becomes more important.
6. Greater emphasis is being placed on international management. The international aspects of business will become more important for more companies in the future, as a greater proportion of sales and profits of many domestic firms comes from abroad.
7. Scientific research and development are necessities for business growth. The manager must know how to make use of the results of research.
8. Computer operations and data processing are expanding. Computer techniques are far in advance of their application by managers.

Continuing Education has undertaken a study of this problem because of the responsibility of The Pennsylvania State University to the citizens of the Commonwealth in determining educational needs and in cooperation with other educational institutions to provide education to meet such needs.

## SURVEY PROCEDURES

This report is a specific segment of a larger study,\* and is based on responses from 74 managers and supervisors from 17 companies in the Apparel, Textiles, and Leather industry in Pennsylvania. The survey utilized three questionnaire forms, one for each level of management: top management, middle management, and first-line supervision. Each questionnaire listed courses in a number of managerial areas pertinent to managerial personnel. The respondents checked one of three choices: "Should Have," "Could Use," and "Don't Really Need." Top and middle management were asked to indicate the courses that represented educational needs of those they supervise in addition to their own needs; this was not asked of first-line supervision. Middle management and first-line supervision provided information on their educational background, methods of updating, and company attitudes toward education; this was not asked of top management.

## SUMMARY

### Top Management

Of 48 courses listed six were checked by 50 percent or more of the top managers as "Should Have." (Page 3)

For those they supervise, 50 percent or more of the top managers said 11 courses were needed. (Page 4)

### Middle Management

Fifty percent or more of the middle managers expressed a "Should Have" need for three of the 54 listed courses. (Page 8)

None of the listed courses was thought by middle management to be needed by those they supervise to the extent of 50 percent or above.

Twenty-two percent of the middle managers had the bachelor's degree. They had used many methods of instruction and sources of information for updating, and reported generally favorable attitudes toward education on the part of their companies. (Pages 16-18)

\* Dubin, S.S., Alderman, E., and Marlow, H.L., "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," The Pennsylvania State University, 1967. A total of 3,620 managers at three levels in 250 companies took part in the survey: 705 top managers, 1,202 middle managers, and 1,713 first-line supervisors. Twenty-two industrial categories and eight sizes of companies were represented in the study.

**First-Line Supervision**

Fifty percent or more of the first-line supervisors reported a "Should Have" need for three of the 16 courses. (Page 19)

One supervisor had the bachelor's degree in liberal arts and one had the master's degree in business administration. They had used a variety of methods for updating and many sources of information, and thought their companies had a favorable attitude toward continuing education. (Pages 20-23)

**TOP MANAGEMENT**

In the industrial category of Apparel, Textiles, and Leather, 20 top managers from 17 companies completed the questionnaire. Top managers were defined as "senior executives who direct an enterprise as a whole or who head the major divisions."

**Educational Needs Within Areas of Managerial Responsibility**

Top managers were asked to indicate which of 48 suggested courses they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise. The courses were in the following areas of managerial responsibility:

- General Management (14 subjects)
- Behavioral Science and Management (6 subjects)
- Communications Techniques (4 subjects)
- Economics (2 subjects)
- Quantitative Methods Applied to Business and Industry (2 subjects)
- Industrial Relations and Personnel Management (7 subjects)
- Financial Management (4 subjects)
- Manufacturing and Production (3 subjects)
- Marketing (4 subjects)
- International Management (2 subjects)

The courses for which the 20 top managers indicated a "Should Have" need of 50 percent or more were:

	<u>"Should Have"</u> Percent
Communication in the Organization. . . . .	72
Managerial Motivation . . . . .	68
Working Effectively with Individuals and Groups . . . . .	63
Incentives. . . . .	58
Management Development. . . . .	53
Fundamentals of Financial Reporting and Statement Analysis. .	50

Fifty percent or more of the top managers indicated that those they supervise needed the following courses:

	<u>"Subordinates' Needs"</u> Percent
Management Development. . . . .	82
Human Aspect of Management. . . . .	68
Working Effectively with Individuals and Groups . . . . .	68
Communication in the Organization . . . . .	67
Managerial Motivation . . . . .	63
Criteria and Selection of Personnel . . . . .	53
Effective Utilization of Manpower Resources and Allocation. . . . .	53
Listening Skills. . . . .	53
Performance Appraisal and Counseling Techniques . . . . .	53
Effective Speaking. . . . .	50
Personnel Policy Affecting Employment Practices . . . . .	50

Tables 1 through 9 show the extent of the top managers' needs for each subject listed, ranked according to the "Should Have" response. Also included, in the "Subordinates' Needs" column, are the subjects indicated by top management as being needed by those they supervise.

TABLE 1

GENERAL MANAGEMENT  
(N=20)

	<u>"Should Have"</u> Percent	<u>"Should Have" and "Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Industrial Organization and Administration . . . . .	47	89	32
Overall Strategy and Goals . . . . .	45	80	20
Management Reporting Systems . . . . .	40	80	25
Long-range Planning and Forecasting for Corporate Growth . . . . .	40	80	10
Effective Utilization of Manpower Resources and Allocation . . . . .	40	67	53
Improving Decision Making of Managers . . . . .	37	84	47
Policy Formation . . . . .	37	79	42
Ethical Considerations in Business . . . . .	32	58	21
Managing Major Change in Organizations. . . . .	25	63	25
Impact of Computer Technology. . . . .	21	58	26
Impact of Science and Technology on Business Management . . . . .	20	55	20
Management of Research and Development. . . . .	19	56	19
Impact of Government Legislation and Controls on Business . . . . .	15	30	5
Impact of Multinational Aspects of Planning and Control. . . . .	12	12	12

**TABLE 2**  
**BEHAVIORAL SCIENCE AND MANAGEMENT**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Communication in the Organization . . . . .	72	100	67
Managerial Motivation . . . . .	68	95	63
Working Effectively with Individuals and Groups . . . . .	63	95	68
Human Aspect of Management . . . . .	37	84	68
Creativity and Innovation . . . . .	11	67	22
Political, Social, and Cultural Trends and Their Impact on Business Management . . . . .	6	19	13

**TABLE 3**  
**COMMUNICATIONS TECHNIQUES**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Speaking . . . . .	44	78	50
Effective Written Communications	33	67	44
Listening Skills . . . . .	32	63	53
Effective Reading Skills . . . . .	24	53	29

**TABLE 4**  
**ECONOMICS**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economic Trends . . . . .	12	47	6
Comparative Economic Systems . . . . .	6	17	17



**TABLE 5**  
**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Statistical Decision Theory. . . . .	12	65	12
Survey Course on Quantitative Methods. . . . .	6	44	22

**TABLE 6**  
**INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT**  
**(N=14)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Incentives . . . . .	58	89	32
Management Development . . . . .	53	88	82
Criteria and Selection of Personnel. . . . .	47	68	53
Personnel Policy Affecting Labor-Management Relations . . . . .	35	80	35
Personnel Policy Affecting Wage and Salary Structure . . . . .	35	70	30
Personnel Policy Affecting Employment Practices . . . . .	28	67	50
Performance Appraisal and Counseling Techniques. . . . .	26	68	53

**TABLE 7**  
**FINANCIAL MANAGEMENT**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Fundamentals of Financial Reporting and Statement Analysis . . . . .	50	61	11
Financial Planning and Forecasting. . . . .	47	88	12
Managerial Accounting and Budgeting. . . . .	39	61	22
Capital Budgeting. . . . .	28	72	6



**TABLE 8**  
**MANUFACTURING AND PRODUCTION**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Operations Planning and Control.	39	94	39
Planning and Utilization of Physical Facilities. . . . .	28	94	28
Operations Research Applied to Production . . . . .	26	79	16

**TABLE 9**

**MARKETING**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Pricing. . . . .	37	68	47
Marketing Research . . . . .	35	65	24
Product Planning . . . . .	33	67	39
Logistics Planning . . . . .	18	29	18

**INTERNATIONAL MANAGEMENT**

No top managers reported that they "Should Have" either of the two courses included: International Understanding or International Economic Analysis. There was no need for these subjects on the part of those they supervise. Two managers (12 percent) reported that they "Could Use" a course in International Understanding.

**MIDDLE MANAGEMENT**

In the category of Apparel, Textiles, and Leather 23 middle managers from 17 companies completed the questionnaire. Middle managers were defined as "personnel assigned to executive duties in the area between senior executives and supervisors." Middle managers indicated preferences for courses. They also included information on their personal, educational and professional background; methods of updating; and company attitudes toward education.

**Educational Needs Within Areas of Managerial Responsibility**

The six areas of the questionnaire answered by all middle managers were as follows:

- General Management (13 subjects)
- Behavioral Science and Management (7 subjects)
- Communication (7 subjects)
- Economics (8 subjects)
- Quantitative Methods Applied to Business and Industry (15 subjects)
- Computer Operations and Data Processing (4 subjects)

Middle managers were asked to indicate which of these 54 courses listed in the questionnaire they "Should Have," "Could Use," or "Don't Really Need." They were also asked to indicate the courses needed by those they supervise.

The following courses were rated "Should Have" by 50 percent or more of the middle managers:

	<u>"Should Have"</u> Percent
Working Efficiently with Individuals. . . . .	71
Effective Communication in the Organization . . . . .	61
Management Development. . . . .	61

For those they supervise, no middle managers reported a need for any of the courses as great as 50 percent. The highest needs reported were the following:

	<u>"Subordinates"</u> <u>Needs"</u> Percent
Working Efficiently with Individuals. . . . .	38
Effective Utilization of Manpower Resources and Allocation. . . . .	35
Supervisory Training and Employee Development . . . . .	33

Tables 10 through 15 present the data on the six general areas of managerial responsibility which were answered by all the middle managers in the Apparel, Textiles, and Leather category.

TABLE 10

GENERAL MANAGEMENT  
(N=21)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Working Efficiently with Individuals . . . . .	71	100	38
Management Development . . . . .	61	83	22
Supervisory Training and Employee Development . . . . .	44	72	33
Criteria and Selection of Personnel for Promotion. . . . .	44	56	11
Effective Utilization of Manpower Resources and Allocation . . . . .	40	60	35
Performance Appraisal and Counseling Techniques. . . . .	39	72	28
Principles and Analysis of Office Systems . . . . .	38	75	19
Long-range Planning and Fore- casting for Corporate Growth . . . . .	29	53	18
The Application of Information Technology on Decision Making. Impact of Science and Technology on Business Management . . . . .	28	44	17
Impact of Government Legislation and Controls on Business . . . . .	22	67	17
Impact of Computer Technology. . . . .	22	39	11
Analyzing Organizational Behavior . . . . .	16	74	11

TABLE 11

BEHAVIORAL SCIENCE AND MANAGEMENT  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Understanding Group Interaction and Behavior . . . . .	39	67	22
Creativity and Innovation. . . . .	33	67	28
Human Aspect of Management . . . . .	33	67	17
Management Psychology. . . . .	22	67	6
Industrial Sociology . . . . .	17	44	11
Social and Cultural Trends and Their Impact on Business Management . . . . .	17	44	6
Impact of Consumer Behavior on Management . . . . .	6	47	6

TABLE 12

COMMUNICATION  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Effective Communication in the Organization . . . . .	61	72	11
Effective Reading Skills . . . . .	42	63	21
Business Letter Writing . . . . .	41	53	18
Conference Leadership . . . . .	39	61	11
Oral Presentation of Reports . . . . .	37	58	21
Listening Skills . . . . .	28	89	28
Effective Report Writing . . . . .	28	44	17

TABLE 13

ECONOMICS  
(N=18)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Economics of Production and Cost . . . . .	39	67	22
The Price Mechanism . . . . .	28	44	17
Economic Trends . . . . .	11	44	6
Economics of Technology and Innovation . . . . .	11	28	11
Fundamentals of Economics . . . . .	11	28	0
Comparative Economic Systems . . . . .	6	22	6
International Economics . . . . .	6	22	6
The Economic Systems of the United States . . . . .	0	17	6

**TABLE 14**  
**QUANTITATIVE METHODS APPLIED TO BUSINESS AND INDUSTRY**  
**(N=19)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Replacement Management . . . . .	44	50	6
Inventory Management . . . . .	33	67	22
Review of Basic Mathematics. . . . .	32	58	21
Statistical Decision Theory. . . . .	28	50	11
Improving Decision Making of Managers . . . . .	22	44	11
Linear Programming . . . . .	17	28	11
Applying Program Evaluation and Review Techniques (PERT) . . . . .	11	28	6
Statistical Procedures and Methods. . . . .	11	22	17
Probability Theory . . . . .	11	17	17
Dynamic Programming. . . . .	11	11	11
Analytic Geometry. . . . .	6	17	6
Waiting Lines. . . . .	0	17	6
Calculus of Infinite Series. . . . .	0	6	6
Calculus of Finite Differences . . . . .	0	0	6
Matrix Algebra . . . . .	0	0	6

**TABLE 15**  
**COMPUTER OPERATIONS AND DATA PROCESSING**  
**(N=18)**

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Applying the Computer to Problems of Business and Management . . . . .	39	50	17
Data Systems and Processing. . . . .	22	50	11
Fundamentals of Programming for Computer Operations. . . . .	17	39	17
Mathematics for Digital Computers. . . . .	6	22	11

If the middle manager's area of major responsibility was not included in the preceding six, he was asked to complete the one of seven additional areas that most closely corresponded to his special area of work. These were:

- Industrial Relations and Personnel Management (8 subjects)
- Financial Management (6 subjects)
- Manufacturing and Production (10 subjects)
- Marketing (9 subjects)
- Sales Management (5 subjects)
- International Management (10 subjects)
- Research and Development (5 subjects)

Only a small number of managers reported that their major responsibilities were in the areas listed above. The following tables, 16 through 22, show the responses for these special areas of work:

TABLE 16

INDUSTRIAL RELATIONS AND PERSONNEL MANAGEMENT  
(N=11)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates"</u> <u>Needs"</u> Percent
Management and Labor Relations . . . . .	63	100	25
Job Analysis and Job Evaluation Methods . . . . .	63	63	25
In-plant Training . . . . .	50	75	13
Salary and Wage Administration . . . . .	38	75	13
Industrial Safety and Medical Services . . . . .	38	50	13
Recruiting, Interviewing, Selection, Assessment of Personnel and Promotion . . . . .	36	91	9
Employee Benefit Plans . . . . .	33	78	11
Maintaining Efficient and Up- to-Date Personnel Records . . . . .	33	67	22



**TABLE 17**  
**FINANCIAL MANAGEMENT**  
(N=10)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Budgets . . . . .	50	80	10
Fundamentals of Financial Reporting and Statement Analysis . . . . .	50	70	20
New Developments in Equipment Replacement Policy . . . . .	40	100	10
Managerial Accounting . . . . .	30	90	20
Taxes . . . . .	30	80	20
Financial Planning and Forecasting . . . . .	30	80	10

**TABLE 18**  
**MANUFACTURING AND PRODUCTION**  
(N=15)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Production Planning and Control Management . . . . .	71	86	29
Methods Analysis and Work Simplification . . . . .	50	93	36
Value Analysis . . . . .	50	79	29
Maintenance Planning and Control . . . . .	43	64	21
Quality Control . . . . .	40	73	20
Materials Handling . . . . .	38	92	31
Inventory Management . . . . .	38	77	23
Automation . . . . .	36	79	29
Organization and Management of Purchasing Operations . . . . .	31	77	15
Engineering Economy . . . . .	21	50	14

TABLE 19

MARKETING  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Marketing Research . . . . .	33	67	17
Marketing Management . . . . .	33	50	17
Fundamentals of Marketing. . . . .	20	80	40
Product Planning . . . . .	17	83	0
Brand Marketing. . . . .	17	67	17
Fundamentals of Pricing. . . . .	17	67	17
Physical Distribution Methods. . . . .	17	50	17
Application of Management Science and Computers to Marketing Problems . . . . .	0	17	17
Packaging Design and Development	0	17	17

TABLE 20

SALES MANAGEMENT  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates'</u> <u>Needs"</u> Percent
Motivating Salesmen. . . . .	17	33	33
Compensation of Field Salesmen . . . . .	17	33	17
Selection and Evaluation of Field Salesmen . . . . .	17	33	17
Supervision of Field Salesmen. . . . .	17	17	17
Training of Field Salesmen . . . . .	0	33	17

TABLE 21

INTERNATIONAL MANAGEMENT  
(N=6)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Appraising and Developing Foreign Markets. . . . .	17	33	17
International Economic Organizations. . . . .	0	33	17
International Understanding. . . . .	0	33	17
Commercial Policy and Trade Control. . . . .	0	17	17
Monetary Exchange Problems . . . . .	0	17	17
United States Foreign Economic Policy . . . . .	0	17	17
British Commonwealth, United Nations, including International Monetary Fund and World Bank and Their Role in World Trade . . . . .	0	0	17
International Economic Analysis. . . . .	0	0	17
International Law. . . . .	0	0	17
Sources of Funds: Financing of Day-to-Day Transactions. . . . .	0	0	17

TABLE 22

RESEARCH AND DEVELOPMENT  
(N=7)

	<u>"Should Have"</u> Percent	<u>"Should Have"</u> and <u>"Could Use"</u> Percent	<u>"Subordinates' Needs"</u> Percent
Planning Budgeting and Control of Projects. . . . .	33	33	33
Supervision and Management of Research . . . . .	29	57	29
Guidelines for Selecting and Appraising New Projects. . . . .	17	50	33
Evaluation of the Research and Development Programs . . . . .	17	50	17
Building Research and Development Teams. . . . .	17	17	17

Background Information of Middle Managers

**Personal, Educational, and Professional Background**

Twenty-two percent of the 23 middle managers in Apparel, Textiles, and Leather were 40 years of age or younger. Eighty-six percent had completed high school and 22 percent had the bachelor's degree. One person had the master's degree. Two persons had major fields of college study in each of the following fields: business administration, engineering, and liberal arts.

The major areas of work responsibility were: manufacturing (26 percent); administration (22 percent); and finance (13 percent).

**Methods of Updating**

Fifty-two percent (N=12) of the middle managers would take a credit course and 61 percent (N=14) would take a non-credit course if they were offered locally.

None of the managers was currently enrolled for a college degree. Three said they planned to enroll, one for the associate degree, one for the bachelor's and one for the master's. Two planned to enroll in business administration.

However, eighty-seven percent (N=20) had no plans to enroll for further formal education and their reasons follow:

TABLE 23

**REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION**

	<u>Number Managers</u>	<u>Percent Managers</u>
Job demands no more education. . . . .	4	20
Don't have the time. . . . .	3	15
Cannot afford it . . . . .	3	15
Not a high school graduate . . . . .	3	15
Not interested . . . . .	3	15
Live too far from educational center . . . . .	2	10
Other (not specified). . . . .	2	10
<b>Total . . . . .</b>	<b>20</b>	<b>100</b>

The variety of educational methods used for updating within the past four years is shown below:

TABLE 24

EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=23)

	<u>Number Managers</u>	<u>Percent Managers</u>
Workshops or seminars on managerial topics. . . . .	7	30
Attendance at regional or national meetings of professional societies . . . . .	5	22
Managerial development within company . . . . .	3	13
Company in-service training courses . . . . .	2	9

Many sources of information were used by the middle managers to keep up with new developments. Table 25 lists these sources.

TABLE 25

SOURCES OF INFORMATION USED IN UPDATING  
(N=19)

	<u>Percent</u>				
	Use Frequently	Average Use	Use Very Little	Do Not Use	Would Use If Available
In-plant reports and bulletins. . . . .	74	13	13	0	0
Discussion with company personnel (informal or formal). . . . .	66	28	0	6	0
Subordinate-superior discussions or meetings . . . . .	50	50	0	0	0
Manufacturer's literature . . . . .	44	33	6	6	11
Scientific and technical journals . . . . .	29	18	18	29	6
Management journals . . . . .	26	36	11	16	11
Technical books, reports, abstracts and indexes . . . . .	24	24	18	34	0
Business reports. . . . .	21	52	16	11	0
Lectures, conferences, workshops, and seminars. . . . .	13	20	54	13	0
Use of consultants. . . . .	7	13	20	60	0
Professional society meetings . . . . .	7	7	33	53	0
Company in-service courses. . . . .	0	13	20	47	20
College and university evening courses . . . . .	0	6	0	81	13
College and university day courses. . . . .	0	0	0	100	0

Middle managers responded to a listing of seven educational media, other than classroom instruction, through which they would take courses. Their replies follow:

TABLE 26

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=23)

	<u>Number Managers</u>	<u>Percent Managers</u>
Correspondence courses . . . . .	10	44
Programmed instruction . . . . .	9	39
Educational television . . . . .	4	17
Courses recorded on records. . . . .	4	17
Courses recorded on tapes. . . . .	1	4

There was no demand for two-way telephone or radio courses.

Company Attitudes Toward Education

Of the 21 managers responding to a question on the attitude of their immediate superior toward continuing their education, 38 percent said he encouraged them while 62 percent said he was noncommittal.

Middle managers reported their perception of company attitudes toward participation in professional and educational activities. (Table 27)

TABLE 27

MANAGERS' PERCEPTION OF COMPANY POLICY  
TOWARD PROFESSIONAL DEVELOPMENT  
(N=23)

	<u>Encourages</u> Percent	<u>Noncommittal</u> Percent	<u>Discourages</u> Percent	<u>Do Not Know</u> Percent
Attend professional meetings . . . . .	67	28	0	6
Attend company training courses. . . . .	60	20	0	20
Attend seminars or workshops away from the company. . . . .	59	24	6	12
Enroll for advanced work . . . . .	42	42	0	16
Write technical and professional papers. . . . .	40	40	0	20
Hold office in professional societies. . . . .	28	56	0	17
Educational leave of absence. . . . .	5	24	19	52



Only 26 percent of the middle managers reported that their company provided in-service training; 74 percent said that it did not. Seventy percent said that such training was completely on company time, 20 percent said it was partly on company time, and ten percent did not know.

Thirty percent of the managers reported that their company had an educational assistance plan for payment of tuition. Sixty-five percent said it did not and five percent did not know. Sixty-four percent said the course had to be job-related in order to qualify for financial assistance.

Only six middle managers replied to a question on the proportion of tuition which would be paid by the company. Four said that almost all of it would be paid, and two said that half would be paid. Two managers said that \$300 or above was the maximum amount of assistance paid per year.

One manager said the availability of financial aid strongly encouraged him to undertake further education; one said that it partially influenced him, and four said it had no effect on their educational plans.

#### FIRST-LINE SUPERVISION

Thirty-one first-line supervisors from the 17 companies in the category of Apparel, Textiles, and Leather completed the questionnaire. First-line supervisors were defined as "those whose major responsibilities have to do with supervisory and foreman activities." The supervisors responded to a listing of 16 course titles in the area of supervisory responsibility. They provided information on their personal, educational, and professional background, methods of updating, and company attitudes toward education.

#### Educational Needs

The supervisors were asked to indicate which of the 16 courses they "Should Have," "Could Use," or "Don't Really Need." The following courses were rated "Should Have" by 50 percent or more of the supervisors:

	<u>"Should Have"</u> Percent
Fundamentals of the Supervisor's Job . . . . .	58
The Tools and Techniques of Effective Supervision . . . . .	52
Leadership . . . . .	50

Table 28 gives the "Should Have" and the combined "Should Have" and "Could Use" needs for the entire listing of 16 courses, according to four groupings.

TABLE 28

FIRST-LINE SUPERVISION TRAINING NEEDS  
(N=31)

	"Should Have"		"Should Have" and "Could Use"	
	No.	%	No.	%
<b><u>Principles of Supervision</u></b>				
Fundamentals of the Supervisor's Job . . .	18	58	27	87
The Tools and Techniques of Effective Supervision. . . . .	15	52	26	90
Decision Making. . . . .	13	43	23	77
Supervisor's Role in Company Economics . .	11	35	24	77
Inter-Departmental Cooperation . . . . .	10	33	25	83
Supervisor's Role in Employee Discipline .	10	33	23	77
<b><u>Employee Training and Evaluation</u></b>				
Safety . . . . .	11	38	24	83
Employee Training . . . . .	9	29	26	84
Evaluation of Employee Performance . . . .	7	23	24	77
<b><u>The Supervisor and the Union</u></b>				
Grievance Procedure and Arbitration. . . .	6	27	20	67
Labor Relations. . . . .	5	17	12	41
Labor Relations Legislation. . . . .	2	7	12	43
<b><u>Developing Those We Supervise</u></b>				
Leadership . . . . .	15	50	28	93
Human Aspect of Management . . . . .	10	32	30	97
Communications . . . . .	8	27	20	67
Developing the Work Term . . . . .	7	23	23	77

**Background Information of First-Line Supervisors**

**Personal, Educational, and Professional Background**

Forty-five percent (N=14) of the first-line supervisors were 40 years of age or younger. Seventy-seven percent (N=23) had completed high school. One supervisor had the bachelor's degree in liberal arts and one had the master's degree in business administration. Two persons had gone to business school and six to trade school. The major field of work was manufacturing, 64 percent.

**Methods of Updating**

Thirty-nine percent (N=12) of the supervisors would take a credit course and 74 percent (N=23) would take a non-credit course if they were offered locally.

No supervisors were either enrolled or planning to enroll for a college degree.

The supervisors' reasons for not undertaking additional formal education are shown below:

**TABLE 29**

**REASONS FOR NOT UNDERTAKING ADDITIONAL FORMAL EDUCATION**

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Don't have the time. . . . .	7	28
Cannot afford it . . . . .	6	24
Job demands no more education. . . . .	3	12
Not a high school graduate . . . . .	3	12
Not interested . . . . .	3	12
Live too far from educational center . .	1	4
Can do better on my own. . . . .	1	4
Other (not specified). . . . .	1	4
<b>Total . . . . .</b>	<b>25</b>	<b>100</b>

First-line supervisors had used a variety of educational methods for updating within the past four years.

**TABLE 30**

**EDUCATIONAL METHODS USED FOR UPDATING WITHIN THE PAST FOUR YEARS  
(N=31)**

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Workshops or seminars on managerial topics . . . . .	8	26
Company in-service training courses. . .	3	10
Correspondence courses . . . . .	3	10
Managerial development within company. .	2	6
High school courses. . . . .	1	3
Short refresher courses at colleges or universities . . . . .	1	3
Attendance at regional or national meetings of professional societies . .	1	3
Workshops or seminars in liberal arts or humanities. . . . .	1	3

The sources of information used by first-line supervisors in keeping up to date with new developments are shown in the following table:

TABLE 31

SOURCES OF INFORMATION USED IN UPDATING  
(N=25)

	Use Frequently	Average Use	Percent		
			Use Very Little	Do Not Use	Would Use If Available
Discussion with company personnel (informal or formal) . . . . .	68	28	0	4	0
In-plant reports and bulletins . . . . .	53	22	4	4	17
Subordinate-superior discussions or meetings. . . . .	49	43	4	4	0
Manufacturer's literature. . . . .	40	24	24	4	8
Business reports . . . . .	29	21	25	21	4
Management journals. . . . .	28	36	8	20	8
Lectures, conferences, workshops, and seminars . . . . .	14	45	14	18	9
Technical books, reports, abstracts, and indexes . . . . .	14	19	14	39	14
Scientific and technical journals	10	19	24	42	5
Professional society meetings. . . . .	9	13	22	52	4
Company in-service courses . . . . .	5	23	5	32	35
Use of consultants . . . . .	5	14	43	33	5
College and university day courses .	5	0	0	90	5
College and university evening courses. . . . .	0	0	5	81	14

First-line supervisors checked a listing of seven educational media, which did not include formal classroom instruction, to show their preference for media of course presentation. (Table 32)

TABLE 32

PREFERENCE FOR MEDIA OF COURSE PRESENTATION  
(N=31)

	<u>Number Supervisors</u>	<u>Percent Supervisors</u>
Correspondence courses . . . . .	18	58
Programmed instruction . . . . .	10	32
Courses recorded on records . . . . .	5	16
Educational television . . . . .	4	13
Courses recorded on tapes . . . . .	4	13
Two-way radio courses . . . . .	1	3
Two-way telephone courses . . . . .	1	3

Company Attitudes Toward Education

Twenty-seven supervisors responded to a question on the attitude of their immediate superior toward continuing education. Of these, 63 percent reported that their superior encouraged them and 37 percent said he was noncommittal.

The attitude of the company as perceived by first-line supervisors toward participation in educational and professional activities is reported in Table 33. The high percent who did not know company policy indicates either a lack of policy or a lack of communication.

TABLE 33

SUPERVISORS' PERCEPTION OF COMPANY  
POLICY TOWARD PROFESSIONAL DEVELOPMENT  
(N=26)

	<u>Encourages Percent</u>	<u>Noncommittal Percent</u>	<u>Discourages Percent</u>	<u>Do Not Know Percent</u>
Attend professional meetings . . . . .	71	5	5	19
Attend company training courses . . . . .	65	10	0	25
Enroll for advanced work . . . . .	56	12	4	28
Attend seminars or workshops away from the company . . . . .	53	13	4	30
Hold office in professional societies . . . . .	40	30	0	30
Educational leave of absence . . . . .	19	8	0	73
Write technical and professional papers . . . . .	10	40	0	50



## RECOMMENDATIONS

For the total report, "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania," the following recommendations were made:

### For the University

1. The need for additional training in the area of communications -- such subjects as report writing, effective speaking, conference leadership -- was strong for all three levels of management and also for those supervised by top and middle management. The University should expand its programs in this field and make them available at locations convenient to business and industry.
2. Management development was much needed by both top and middle management and those they supervise. While historically the University has been a leader in this field, its efforts should be intensified.
3. Middle management expressed a high need for themselves and for those they supervise in human relations. The number of programs in this field should be increased at the local level by the University.
4. To meet the significant educational needs presented quantitatively by this study, the University should expand its offerings of courses, seminars, workshops and institutes for all three levels of management, and make them available at convenient location.
5. When classroom instruction was excluded, the largest number of middle managers and first-line supervisors said they would take courses by programmed instruction, correspondence, and educational television. Consideration should be given to offering more courses using these three media to help meet the self-perceived educational needs of managers and supervisors.

### For Business and Industry

1. Information on company policies toward participation in educational activities should be much more widely disseminated among middle managers and first-line supervisors. A large percentage do not know the policy of their company.
2. Companies should encourage their employees to take advantage of financial aid which is available for education.
3. The fact that a large number of management personnel felt their superiors' attitude toward their further education was noncommittal makes it necessary for the company to take steps to remedy this condition.



4. Companies should help their managers to realize and meet the needs presented by the increasing complexity of modern business and industry. A number of the subjects which appear to be an integral part of modern management were not perceived as needed by the managers and supervisors who took part in this study.
5. Since the participants felt that the most frequent method of obtaining new information for updating was through discussion with company personnel, the company should be aware of the great potential of this means of dissemination of information.
6. Since about four out of ten managers are employed in companies which do not have in-service educational programs, consideration should be given to the development of additional in-service educational programs.
7. Companies should find ways of motivating their employees to avoid obsolescence in a rapidly changing, competitive business world.
8. Greater consideration should be given to the use of all available educational media, such as programmed instruction, correspondence courses, educational television, and attendance at professional meetings and workshops.

#### For the Individual Manager and Supervisor

1. The individual should take the initiative in selecting the most appropriate media to help him grow with the job and meet the challenges of the future.
2. He should be aware of available financial assistance plans and other educational activities provided by his company which may aid him in meeting his educational objectives.

#### For Professional Associations

1. Professional associations should assist the companies in encouraging more educational activities by sponsoring workshops and meetings, subsidizing training activities, and aid in the dissemination of information to prevent technological and managerial obsolescence.

**PUBLICATIONS OF THE DEPARTMENT OF PLANNING STUDIES**

**"Educational Needs of Managers and Supervisors in Cities, Boroughs, and Townships in Pennsylvania" 1968 (\$2.00)**

**"Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$5.00)**

**"Survey Report of Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" 1967 (\$1.00)**

**Specific Reports by Industrial Category from "Managerial and Supervisory Educational Needs of Business and Industry in Pennsylvania" (\$1.00 each):**

- M-63 Banks
- M-64 Chemical, Rubber, and Plastic Products
- M-65 Construction
- M-66 Department Stores
- M-67 Electrical Machinery
- M-68 Fabricated Metal Products
- M-69 Food and Kindred Products
- M-70 Insurance
- M-71 Machinery (Except Electrical)
- M-72 Petroleum Refining
- M-73 Primary Metals
- M-74 Professional, Scientific, and Controlling Instruments
- M-75 Railroads
- M-76 Stone, Clay, and Glass Products
- M-77 Telephone and Telegraph
- M-78 Transportation
- M-79 Transportation Equipment
- M-80 Gas and Electric Utilities
- M-81 Apparel, Textiles, and Leather

**"Research Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$5.00)**

**"Survey Report of Continuing Professional Education for Engineers in Pennsylvania" 1965 (\$3.50)**

**Fifty-three specific reports from "Research Report of Continuing Professional Education for Engineers in Pennsylvania," in such categories as engineering fields, industrial categories, plant size, and geographic areas (\$2.50 each):**

**Engineering Fields:**

- E-1 Chemical
- E-2 Civil
- E-3 Electrical-Electronics
- E-4 Electrical-Power
- E-5 Engineering-General
- E-6 Industrial
- E-7 Mechanical
- E-8 Metallurgical
- E-9 Mining

**Industrial Groups:**

- E-10 Aircraft, Motors, and Parts
- E-11 Chemical and Allied
- E-12 Electrical Machinery and Equipment
- E-13 Machinery
- E-14 Mining
- E-15 Paper and Allied
- E-16 Petroleum Refining
- E-17 Primary Metals
- E-18 Professional, Scientific, and Controlling Instruments
- E-19 Research and Consulting Laboratories
- E-20 Transportation
- E-21 Electric Utilities
- E-22 Gas Utilities
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