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GRADUATE COLLEGE

CHARACTERISTICS OF MIDDLE MANAGEMENT POSITIONS IN SELECTED TENNESSEE INDUSTRIAL FIRMS

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

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degree of

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BY

HARRIETT JETT MCQUEEN

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1978

CHARACTERISTICS OF MIDDLE MANAGEMENT POSITIONS

IN SELECTED TENNESSEE INDUSTRIAL FIRMS

APPROVED BY

Dissertation Committee

For Leon, Andy, and Jeff

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CHARACTERISTICS OF MIDDLE MANAGEMENT POSITIONS IN SELECTED TENNESSEE INDUSTRIAL FIRMS

CHAPTER I

INTRODUCTION

"There was a time within the memory of many of us when a reasonably intelligent, reasonably personable individual with the self-discipline to lead the business, the drive to work a little harder than the other fellow, and the courage to assume leadership responsibility could usually work his way to the top," stated Paul B. Wishart, former chairman of the board of Honeywell, Inc.[1] That this era is passing is evidenced by the fact that many companies cite a lack of competent managers as the greatest obstacle to their growth and success.

Rapid industrial expansion in Tennessee accounts for a projected growth for future employment of managerial personnel. Of all occupational groups, as classified by the Tennessee Department of Employment Security, the managerial group is the fastest growing and is sixth in total employment.[2] This provides the impetus for determining

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[1]Richard Allen Stull, "A View of Management to 1980," BUSINESS HORIZONS, XVII (June, 1974), p. 5, citing Paul B. Wishart, Honeywell, Inc.

[2]Tennessee Department of Employment Security, TENNESSEE EMPLOYMENT OUTLOOK, Industries and Occupations Statewide 1970-1980 (Nashville: Tennessee Department of Employment Security, 1975), p. 24.

characteristics which contribute to the success of managerial personnel so that colleges and universities can structure a management curriculum which will teach needed competencies to students who will fill these managerial positions in the future.

The nature and purpose of middle management are recorded first in the Bible in the eighteenth chapter of the book of Exodus:

> Moreover thou shalt provide out of all the people able men, such as fear God, men of truth, hating unjust gain; and place such over them to be rulers of thousands, rulers of hundreds, rulers of fifties, and rulers of tens: and let them judge the people at all seasons: and it shall be, that every great matter they shall bring to thee, but every small matter they shall judge themselves: so it shall be easier for thyself, and they shall bear the burden with thee. If thou shalt do this thing, and God command thee so, then thou shalt be able to endure, and all this people also shall go to their place in peace[1]

According to Niles, the term "middle management" to refer to the layer of management between top management and first-line supervision was first coined in 1941.[2] In a later writing, Niles distinguished middle management from top management and first-line supervision as follows:

> Middle management is the group of administrators immediately below top management, with which it is closely bound up. The senior administrative officers share with and delegate a large part of their responsibilities to middle managers. In every organization of one or two hundered people or more, these administrators carry a heavy load of work and responsibility. They are subject to pressure (1) from above by their chiefs in the top management with whose ideas, policies, and attitudes they must work, (2) from below by the supervisors who press for counsel, decisions, and changes, and (3) sideways by colleagues whose departments or functions are interrelated in greater or lesser degree with their own.

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[1]Exodus 18:21-23. (A.S.V.)

[2]Mary C. Niles, MIDDLE MANAGEMENT: THE JOB OF THE JUNIOR ADMINISTRATOR (New York: Harper and Brothers, 1949), p. ix.

> The top management of the future ordinarily will be drawn mainly from middle management with some members from the staff of advisory officers and some from outside. Most of those in line for top positions will have to go through the discipline of middle management. They can develop satisfactorily only if they broaden their view of the company rather than their individual departments. This overall view comes about best by successful efforts and coordination. The middle managers as a group need to pull together to keep the machine functioning smoothly and to build for their own as well as for the collective future.[1]

Niles also described the responsibilities of middle management:

1. To run the detail of the organization, leaving the top officers as free as possible for their other responsibilities.
2. To cooperate to make a smoothly functioning organization.
3. To understand the interlocking of departments in major policies.
4. To achieve coordination between the different parts of the organization.
5. To build up a contented and efficient staff where reward is given according to capacity and merit rather than chance or length of service.
6. To develop leaders for the future by broad training and experience.
7. To build a company spirit where all are working to provide a product or service wanted by others.[2]

Beginning with the Industrial Revolution, a continuous growth in the size of industrial firms throughout the United States has occurred. In the United States today, some 4,000,000 people work as middle managers.[3] In 1970, in Tennessee, 108,480 people were reported as employed in the occupational group "Managers, Officials, and

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[1]Mary C. Niles, THE ESSENCE OF MANAGEMENT (New York: Harper and Brothers, 1958), p. 11.

[2]Ibid., p. 12.

[3]Emanuel Kay, THE CRISIS IN MIDDLE MANAGEMENT (New York: AMA COM, 1974), p. 7.

Proprietors," and it was anticipated that the increase in jobs in this category would be nearly 44 percent by 1980.[1] Approximately 43 percent of the total managerial employment is in goods-producing industries.[2]

Paralleling industrial growth in Tennessee has been the development of extensive training programs in management in Tennessee's colleges and universities. According to the Tennessee Higher Education Commission, five state-supported universities offer a bachelor's degree in management; two schools offer the masters degree in management, and one offers the doctorate. In addition to these, five private colleges offer the bachelor's degree in management; one school offers both the masters degree and the doctorate. Characteristic of the two-year community colleges is the associate degree and/or certificate program in management. Five such schools have industrial management technology programs; two have basic industrial management programs, and one offers a program in advanced industrial management. One four-year institution offers a certificate program in general management, and two community colleges offer such programs. In addition to specific management programs, seven regional universities offer the bachelor's degree in business administration with an emphasis in management; two community colleges offer the associate degree in this area. Fourteen private colleges and universities offer either the bachelor's degree or associate degree in business administration with a management emphasis.[3] Tennessee colleges and

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[1]TENNESSEE EMPLOYMENT OUTLOOK, pp. 22-24.

[2]Ibid., p. 18.

[3]Tennessee Higher Education Commission, AN ACADEMIC PROGRAM INVENTORY FOR TENNESSEE'S HIGHER EDUCATION INSTITUTIONS, Volume 1: A Program Inventory (Nashville: Tennessee Higher Education Commission, 1975).

universities offering management training are listed in Appendix A. This analysis of degree programs indicates a need to determine what is being included in the various types of training and to relate this to the competencies deemed necessary for success in managerial positions by practicing managers.

Statement of the Problem

Specific training for middle management varies with the institutions offering the training. Two-year institutions offering specific programs for industrial management provide for enough flexibility in requirements so that students already employed may design a program to fit an individual need. Middle management training for retailing firms, often referred to as post-secondary distributive education, is funded by the 1968 Amendments to the 1963 Vocational Education Act and will continue to be funded by the 1976 Vocational Education Act. This training is offered in many two-year institutions and also varies in design with the institutions offering the training.

Luter noted a number of these diversities in post-secondary distributive education in a study conducted for the University of Texas:

1. The variations in curriculum, course offerings, program operations and objectives were as numerous as the schools offering the programs.
2. No patterns of trends, strengths, or weaknesses could be identified.
3. Requirements, prerequisites, enrollments, recruiting practices, and scheduling were largely a matter of local regulation and convenience.
4. Work experience, job training, placement of students and the responsibilities for training were as varied as the curricula.

5. Responsibility for the curricula, use of advisory committees, instructor recruitment, and qualifications were largely a matter of local policy and philosophy.

6. Physical facilities, equipment, and department identification were as varied as the curricula and job training requirements.[1]

An examination of the literature reveals a variety of emphases in junior college middle management curricula but reveals little concerning specific programs for industrial middle managers either at the two-year level or four-year level. Kay reports that a study made by the American Management Association reveals that many middle managers are being narrowly trained, frequently having a technical background or training in a specific area of business such as accounting or finance. Such limitations often impede advancement within the firm.[2] Stull notes that the place of formal education in preparing men and women for managerial positions will become more and more important. Although academic learning does not substitute for intuitive judgment and other basic personal qualities, the person equipped with knowledge, principles and techniques of management will be a significantly better manager than one who is not. The combination of education and good business experience lead to success in management work.[3]

Even though industry laments the scarcity of qualified managers, the early 1970's were characterized by a shrinking market for middle managers. During the times of rising unemployment, middle managers

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[1]Robert W. Luter, "Building DE Curriculum for the Junior College," AMERICAN VOCATIONAL JOURNAL, XLIII (April, 1968) pp. 52-53.

[2]Kay, p. 18.

[3]Stull, p. 7.

experienced a high rate of lay-offs. Incompetency was not considered to be the reason for unemployment but a lack of particular qualifications demanded by the times.[1]

Job disenchantment also seems to have become characteristic of middle managers. Tarnowieski reports that there are increasing signs of malaise among middle managers in American industry. In a survey of American businessmen conducted by the American Management Association, 44 percent of the middle manager respondents envisioned an alternate career for themselves and 70 percent of these expected to search for a way to make a career change in the forseeable future.[2]

Jacoby described the managerial environment as politically turbulent and uncertain.[3] Consequently, competencies needed by middle managers as they attempt to function successfully in such an environment must be identified for training purposes.

Objectives of the Study

Because there is nothing to indicate that the pre-employment training needs of industrial middle managers in Tennessee have been determined through research, the major objective of this study has been to develop empirical evidence concerning similarities and differences in curricular needs for middle managers in various types of industrial firms in Tennessee. A second objective, then, was to compare these findings

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[1]"A Shrinking Market for Middle Managers," BUSINESS WEEK, November 2, 1974, pp. 21-22.

[2]Dale Tarnowieski, "Middle Managers' New Values," PERSONNEL, LIX (January-February, 1973), pp. 47, 51.

[3]Neil Jacoby, "Six Challenges to Business Management," BUSINESS HORIZONS, XIX (August, 1976), p. 29.

with the prevailing curricular offerings in Tennessee colleges and universities. The questions considered were:

1. What duties and responsibilities are typical of middle managers in Tennessee industrial firms?

2. Are there differences in pre-employment training needs for middle managers in the principal kinds of industries in Tennessee?

3. Can a core curriculum be ascertained for colleges and universities that is desirable for the development of middle managers? If so, is directed occupational experience a desirable part of the curriculum?

4. How do management curricula presently being offered in Tennessee colleges and universities compare with curriculum recommendations of executive and middle management personnel in Tennessee industrial firms?

5. What are the projected middle management personnel requirements for Tennessee industrial firms for the next decade?

Thus, a third objective was the determination of demand for middle managers for the next decade.

A final objective was to determine whether or not concurrent occupational experience should be made a part of the management curriculum. Cooperative programs have been available for some time in some universities whereby a student receives and is compensated for on-the-job experience during alternate quarters or semesters of schooling. Under this arrangement, the participant is usually a full-time student or full-time employee. The time spent before a degree is attained is generally lengthened. In most regional and private colleges and universities in Tennessee, directed work experience is not a planned part of the curriculum.

The identification, then, of competencies which are common to middle managers in all industrial classifications surveyed permits a

comparison with competencies generally being developed through the management curriculum of Tennessee colleges and universities. Thus, implications for future curriculum development can be drawn.

Need for the Study

Management education has taken different approaches which have been influenced by the management thought prevalent at the time. Two reports in 1959 influenced the thinking of business educators. The Ford Foundation funded the Gordon-Howell report, and the Carnegie Corporation financed a study directed by Frank C. Pierson. Both reports indicted business schools for not preparing competent, imaginative, flexible managers for an ever-changing environment. Gordon and Howell suggested there should be more emphasis on general education, an expansion in the requirements of mathematics, and extended study in the behavioral and social sciences. In approaching the study of the field of management, four aspects to be distinguished are identified: management analysis, organizational theory, management principles, and human relations.[1]

Koontz delineated six "schools" of management thought and suggested that each had something to offer management theory. Throughout the 1960's, much confusion and controversy prevailed in academia concerning management theory which Koontz entitled the "management theory jungle."[2] More recently "contingency theory" has been postulated.

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[1]Robert Aaron Gordon and James Edwin Howell, HIGHER EDUCATION FOR BUSINESS (New York City: Columbia University Press, 1959), pp. 106-107, 173-175.

[2]Harold Koontz, "The Management Theory Jungle," JOURNAL OF THE ACADEMY OF MANAGEMENT, IV (December, 1961), pp. 174-188.

Woodward notes that no one form of organization is best. The organizational structure must be appropriate to situational demands. Thus the type of organizational structure chosen for a specific company will depend upon the purposes the organization has to serve.[1] Wren states that the mix of managerial skills--planning, organizing, controlling--will not change in their basic nature but that managers will need some level of technical ability to communicate with and manage the work of specialists. Further noted as the one change most likely to emerge is a greater emphasis on conceptual skills for the manager of the future.[2] For schools engaged in the training of managers for business firms, the problem is determining which skills should be taught in school and which skills should be taught by the business firm.

Newport indicates that much research has been completed concerning both top management development and foreman training in industry but that relatively little has been written about training of middle-level managers.[3] Patton notes a number of studies pertaining to retailing middle managers but also indicates a scarcity of research pertaining to industrial middle managers.[4]

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[1]Joan Woodward, INDUSTRIAL ORGANIZATIONS: THEORY AND PRACTICE (London: Oxford University Press, 1965), p. 123.

[2]Daniel Wren, THE EVOLUTION OF MANAGEMENT THOUGHT (New York: Ronald Press Company, 1972), p. 505.

[3]Marvin Gene Newport, "Middle Management Development in Industrial Organizations," TRAINING AND DEVELOPMENT JOURNAL, XIX (March, 1965), p. 48.

[4]Lucille Patton, "An Analysis of Curriculum and Employment Needs in Post-Secondary Distributive Education in Oklahoma," (Ed.D dissertation, Oklahoma State University, 1971), p. 109.

The University of Tennessee Bureau of Business and Economic Research stated that no study had been undertaken to determine competencies needed by middle managers in Tennessee industrial firms.[1] Because in excess of 14,000 people are engaged in the work of management in goods-producing industries in Tennessee, a need to determine pre-employment competencies needed by these people seems evident.

Hypotheses To Be Tested

By reviewing related business studies, areas of concern for collegiate schools of business can be delineated. Clearly, these studies indicate that change in the managerial environment is inevitable and that this environmental change will necessitate changes in requirements for management personnel in the future. Studies also suggest that collegiate schools of business have tended to resist change and have tolerated mediocrity as a characteristic of curriculum and instruction. The opinions, then, of those who are presently employed as executive managers and those who are presently employed as middle managers are valuable in determining competencies needed by aspirants yet preparing through formal education.

The first step in statistical testing, according to Siegel, is the statement of the null hypotheses.[2] The hypotheses tested as a part of this study were:

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[1]W. F. Skidmore, Assistant Director, Center for Business and Economics Research, University of Tennessee, Knoxville, Personal Letter, February 12, 1976.

[2]Sidney Siegel, NON-PARAMETRIC STATISTICS FOR THE BEHAVIORAL SCIENCES (New York: McGraw-Hill Book Company, 1956), p. 6.

Ho_1: There is no significant difference in the pre-employment training needs of middle managers in different industries as evidenced by the opinions of executive managers in selected Tennessee industrial firms.

Ho_2: There is no significant difference in the pre-employment training needs of middle managers in different industries as evidenced by the opinions of middle managers in selected Tennessee industrial firms.

Ho_3: There is no significant difference in the opinions of industrial executive and industrial middle managers in selected Tennessee industrial firms concerning pre-employment training needs of industrial middle managers.

Ho_4: There is no significant difference in projected middle management personnel requirements in different industrial classifications in Tennessee in the opinions of executive managers in selected Tennessee industrial firms.

Ho_5: There is no significant difference in the opinions of executive managers and middle managers in selected Tennessee industrial firms concerning duties and responsibilities of industrial middle managers.

Ho_6: There is no significant difference in present management curricular requirements in Tennessee colleges and universities and pre-employment training recommended for industrial middle managers by executive and middle managers in selected Tennessee industrial firms.

Assumptions

An assumption on which this study is based is that there is an opportunity in industrial middle management for graduates of two-year college programs and graduates of four-year college programs leading to a bachelor's degree. That the middle management position may be the ultimate attainment for some and for others a step in the process of promotion to executive-level management is recognized. A further assumption is that a sampling of managers in firms employing approximately 500 or more persons in selected industries located in the four metropolitan areas of Tennessee is representative of the needs of

industrial middle managers throughout the state. A third assumption is that there is a common body of knowledge needed by middle managers in all industrial firms that should be learned before entering the field.

In obtaining a forecast of the projected need for middle managers, the assumption is made that there will be no major event to substantially alter the rate of economic growth and that other patterns or trends affecting the need for managerial personnel will remain essentially the same.

Limitations

Characteristic of this study has been specific selected sampling of a population without any plan toward randomness. Thus, the nature of the study limits it statistically since "randomness" is considered to be more statistically sound than selected sampling. Executive and middle managers surveyed were determined in cooperation with the chief executive of the firm or a manager designated by the chief executive.

Responses of the individual participant could have been influenced by personal background. Thus another limiting factor is imposed. For example, if the participant received pre-employment training in a college or university as opposed to "coming up through the ranks," then the assumption can be made that he or she is more likely to emphasize this type of training than the participant whose training was primarily on the job.

Since the organizational structure of the firm had to be complex enough to have identifiable middle management, the study was limited to those firms employing approximately 500 or more people. The industrial classifications included in this study were selected because there were

firms employing approximately 500 or more people in these classifications in each of the four metropolitan areas of Tennessee. Certainly this should not imply that these are the only industrial classifications in which middle management positions are available but should simply be considered a limitation necessitated by the design of the study.

Operational Definitions

Middle Management. Operating division and department heads--but not persons who directly supervise line workers--together with such staff persons as personnel and industrial relations managers, purchasing agents, analysts, and engineers.[1]

Executive Management. All levels of management above and including the vice-presidential level.[2]

First-Line Supervisor. Generally referred to as the foreman level--directly supervise line workers.[3]

Industrial Firm. A business firm combining the factors of production for the purpose of producing goods and services to be sold ultimately to consumers primarily through wholesaling and retailing institutions.

Management Curriculum. A group of courses offered by an educational institution designed to prepare students to enter managerial positions in business firms.

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[1]Gerald Leon Richards, "The Emerging Role of Collegiate Schools of Business in the Continuing Education of Middle Managers," (Ph.D. dissertation, Arizona State University, 1971), p. 37.

[2]Newport, p. 49.

[3]Ibid.

The following definitions are taken from the TENNESSEE MANUFACTURER'S DIRECTORY:

Apparel and Related Products (SIC Major Group 23). Firms in this group are primarily engaged in producing clothing and fabricating products by cutting and sewing purchased woven or knit fabrics and related materials such as leather, rubberized fabrics, plastics and furs.

Textile Mills Products (SIC Major Group 22). This major group includes establishments engaged in performing one of the following operations.

1. Preparation of fiber and subsequent manufacturing of yarn, thread, braids, twine, and cordage.
2. Manufacturing broad woven fabric, narrow woven fabric, knit fabric, and carpets and rugs from yarn.
3. Dyeing and finishing fiber, yarn, fabric and knit apparel.
4. Coating, water proofing, or otherwise treating fabric.
5. The integrated manufacture of knit apparel and other finished articles from yarn.
6. The manufacture of felt goods, lace goods, bonded-fiber fabrics and miscellaneous textiles.

Chemicals and Allied Products (SIC Major Group 28). This major group includes establishments producing basic chemicals and establishments manufacturing products by predominantly chemical processes.

Printing, Publishing, and Allied Industries (SIC Major Group 27). This classification includes establishments engaged in printing by one or more of the common processes, and those establishments which perform services for the printing trade. Also included are establishments engaged in publishing newspapers, books, and periodicals regardless of whether they do their own printing.

Machinery, Except Electrical (SIC Major Group 35). Firms in this classification manufacture machines powered by built-in or detachable motors with the exception of electrical household appliances and portable tools with the exception of hand tools.[1]

Organization of the Study

Following Chapter I are four additional chapters in this report. Chapter II reviews writings which are pertinent to a determination of competencies needed by middle managers. Included in the literature reviewed are studies pertaining to changes in the managerial environment, criticisms of management education, characteristics needed by managers, and implications for the management curriculum.

The design of the study and the methods used in pursuing the research are discussed in Chapter III. The results of the study are analyzed in Chapter IV. Finally, in Chapter V, conclusions are reached and recommendations are suggested from the analysis of the data.

Summary

Middle management has been an integral part of organizational structure for a number of years. While the literature abounds in writings concerning executive management and first-line management, very little exists concerning middle management, particularly in industrial firms. The purpose of this chapter has been to establish a need for determining pre-employment competencies required of industrial managers by examining that which has had an impact on management education

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[1]Tennessee Department of Economic and Commercial Development, TENNESSEE MANUFACTURER'S DIRECTORY (Nashville: Tennessee Department of Economic and Commercial Development, 1975), pp. 193-194.

in the past and noting the diversity of curriculum requirements among colleges and universities offering management training.

Also set forth in this chapter are the hypotheses which were tested and the assumptions held when the research was being undertaken. The existing limitations preventing a general application of the findings and having implications for further research are noted. Operational definitions and the organization of the study conclude the chapter.

CHAPTER II

REVIEW OF RELATED LITERATURE

According to Kerlinger, a review of related literature is supported by two reasons: (1) to identify what research has and has not been conducted on a problem and (2) to explain the theoretical base of a problem.[1] Even though aforementioned studies allude to a scarcity of research directly related to the problem of competencies needed by middle managers in industrial firms, several studies and business publications do relate to the problem.

Since the purpose of this study was to determine competencies needed by Tennessee industrial middle managers, studies concerning managerial environment and characteristics needed by managers in a changing environment were considered worthy of review. As noted in Chapter I, severe criticism of education for the development of business leaders has been leveled at colleges and universities. Therefore, research concerning these criticisms pertain to this study.

For some thirty years, writers have attempted to develop lists of characteristics that business managers should possess in order to be successful. Even though most of these characteristics might be termed innate rather than learned, studies concerning these characteristics are

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[1]Fred N. Kerlinger, FOUNDATIONS OF BEHAVIORAL RESEARCH (New York: Holt, Rinehart and Winston, Inc., 1965), p. 696.

reviewed. Several extensive studies have dealt with the competencies needed by retailing middle managers. Particularly pertinent to this project, however, were three studies which dealt with management in industrial firms.

A study undertaken by Albanito analyzed employment requirements of potential managers in manufacturing firms in the Peoria, Illinois, area.[1] Richards studied the role of collegiate schools of business in the continuing education of middle managers.[2] Many industrial organizations have undertaken management training programs for the development of their own employees. Newport researched middle management development as a training function of industrial organizations.[3] Thus research deemed relevant to this study suggests that this chapter be divided into five sections: changes in the managerial environment, criticisms of management education, characteristics needed by managers, and implications for management curriculum development. A summary correlating previous research with this study finalizes the chapter.

Changes in the Managerial Environment

Neil H. Jacoby of General Motors, in discussing the environment of the future in which management would be forced to operate, listed six

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[1]Donald Michael Albanito, "An Analysis of the Employment Requirements of Potential Managers Who Enter Business Occupations in Manufacturing and Processing Firms in the Peoria, Illinois, Area," (Ed.D. dissertation, Indiana University, 1971),

[2]Gerald Leon Richards, "The Emerging Role of Collegiate Schools of Business in the Continuing Education of Middle Managers," (D.B.A. dissertation, Arizona State University, 1971), 299 pp.

[3]Marvin Gene Newport, "Middle Management Development in Industrial Organizations," (Ph.D. dissertation, University of Illinois, 1963), 250 pp.

areas of change to challenge future managers. First of all, the environment for business will be politically turbulent and uncertain. Secondly, managers will have to manage successfully in a slow-growth economy. Slow growth, as Jacoby defines it, averages 3 percent a year as opposed to a 3.33 percent growth achieved during the previous century. Thirdly, credit and capital will be very expensive and will have to be used more efficiently. Fourthly, employee productivity must be enhanced because many employees have been inclined to question the work ethic and traditional industrial discipline. Fifthly, the need to respond to demands of consumers, environmentalists, civil rights and the thickening network of governmental regulations will exist. Lastly, the most basic challenge to future managers is the need to re-establish in the public mind the conviction that profit-seeking enterprises competing in the open market provide the most efficient way to satisfy the wants of consumers.[1]

Simon suggests that managerial techniques in a post-industrial environment must differ from techniques used in an industrial society. The professional manager now needs competencies applicable to a wide range of industries rather than specifics for a particular enterprise. Managers must be leaders and less arbitrary in decision making.[2]

Concerning the impact of the computer on middle management, Stull theorizes that computerized decision making will move the role of planning and performance measurement higher up the line in corporations.[3]

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[1]Jacoby, pp. 29-37.

[2]William Simon, "Management in the Future, " CONFERENCE BOARD RECORD, X (March, 1973), pp. 44-47.

[3]Stull, p. 7.

Fulmer believes that the computer should assist the middle manager in doing more and better work because most decisions made by middle managers involve intangibles and estimates.[1]

Kierulff focused on differences in small and large business organizations and suggested that generally accepted principles of management have been developed from large company experience. These differences which affect future managers suggest that administration must be handled differently in small firms than in large firms. Regarding specialization, the manager in a small firm must be a generalist, whereas managers in large firms must be specialists. Creating sales is the area of concentration for the small business, while the large firm must concentrate on managing people. The implication, in recognizing these differences, is that schools of business must not consider the small business as a big business in microcosm.[2]

In summarizing management in the future, Stull dealt with five ideas which will have an effect on management:

1. Computer speed alone will not solve knotty management problems. Managers will still be required to think and innovate, realizing that there is nothing in the computer that man has not put into it.

2. The major difficulties for management will center around the unknowns. What a decision will do to a firm is just as important as what a decision will do for a firm.

3. A professional manager cannot manage everything. The conversion to war-time production characteristic of many companies during World War II toned down the idea that one must have technical and manual skills in order to manage. The observation is made that the higher the

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[1]Robert M. Fulmer, "The Management of Tomorrow," BUSINESS HORIZONS, XV (August, 1972), p. 9

[2]Herbert E. Kierulff, "Can Entrepreneurs Be Developed?" MSU BUSINESS TOPICS, XXIII (Winter, 1975), pp. 39-44.

level of management skill, the more transferrable that skill becomes.

4. Business success does not depend totally on the sale but also, to a large extent, on the proper attention to orders after they are on the books. This involves a combination of high quality, right prices, intelligent cooperation, and prompt deliveries. Because of the computer, lower levels of management are receiving more direction from data than from the higher levels of management. The enterprise must be seen in its entirety as well as in its parts, relating its continuing objectives to the controlled fluctuations of the firm.

5. The manager's job is to lead rather than to sit, decide, and sign. Controversy must be encouraged, objectives posed and tested, thought stimulated, and an active part taken in the operation of the business.[1]

The manager of the future is described by Bellows, Gilson, and Odiorne as a manager of situations. Managers will be judged by the performance of their followers. Managers make things happen. Being more a generalist than in the past, a manager works through the organization rather than individually and is oriented toward results and responsibility.[2]

Characteristics Needed By Managers

Since the environment in which managers must operate is characterized by change, several authors have attempted to list characteristics needed by managers in a changing environment. In 1946, Robert Calkins, then Dean of the School of Business at Columbia University said:

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[1]Stull, pp. 11-12.

[2]Roger Bellows, Thomas Gilson, and George Odiorne, EXECUTIVE SKILLS: THEIR DYNAMICS AND DEVELOPMENT (Englewood Cliffs, N.J.: Prentice Hall, Inc., 1962), pp. 7-8.

> What qualifications make for competence in the careers for which we train? Frankly, I do not know, and I can think of no one who does. But it is high time we found out.[1]

Gordon and Howell noted in their 1959 report that the situation was not much improved.[2] Bellows, Gilson, and Odiorne stated in 1962 that there are no tools as yet for the precise measurement of characteristics necessary for the executive to function successfully. The reasons are:

1. The complexity of executive behavior.
2. The inadequacy of tests and measuring techniques.
3. The different situations calling for different executive performance which in turn require different skills and characteristics.

Further noted is the possibility of a core of behavior skills common to all executive situations. Researchers continually seek to identify and measure this core.[3]

Stull suggests that the "experts" have speculated endlessly on the personality profile of a manager. Companies such as General Electric, Exxon Oil Corporation, and American Telephone and Telegraph Company have conducted numerous experiments to identify a profile, but nothing to date has been conclusive. However, through practice and research, management work is being identified, classified, and measured.[4]

The development of a core of characteristics for managerial success has been attempted by several writers. In attempting to analyze why managers fail, Gaudet and Carli suggest that successful managers

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[1]Robert D. Calkins, "Objectives of Business Education," HARVARD BUSINESS REVIEW, XXV (Autumn, 1946), pp. 49-50.

[2]Gordon and Howell, p. 75.

[3]Bellows, Gilson, and Odiorne, pp. 7-8.

[4]Stull, p. 8.

must possess the following characteristics:

Ability to delegate responsibility
Breadth of knowledge
Ability to analyze and evaluate
Ability to judge people
Ability to cooperate with others
Ability to make decisions
Drive or motivation
Responsibility.[1]

Goode suggested that a manager must be a leader and that leadership necessitated the following characteristics:

Somewhat better than average intelligence
Well-rounded interests and aptitudes
Better-than-average facility in communications
Mental and emotional maturity
Appreciation of the value of cooperative effort
Ability to deal effectively with people
Effective use of so-called executive skills
Strong inner drive or motivation.[2]

Appley discussed the possibility of certification of managers and developed the following as a core of characteristics needed by managers:

Emotional stability, psychological adjustment to the work to be done, and basic management aptitudes

Personal qualifications, including sensitivity to detail, awareness of opportunity, appreciation of human values, willingness to make sacrifices, economic acuity

A philosophy of management

Management skills.[3]

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[1]Frederick J. Gaudet and Ralph Carli, "Why Executives Fail," PERSONNEL PSYCHOLOGY (October, 1957), pp. 7-21.

[2]Cecil E. Goode, "Significant Research in Leadership," PERSONNEL, XXVII (March, 1951), pp. 342-350.

[3]Lawrence Appley, "Manager Certification," MANAGEMENT NEWS, XXXII (March, 1959), pp. 1-2.

Commonalities and differences noted in comparing these lists support the previously cited reasons given by Bellows, Gilson and Odiorne for a lack of a core.

After surveying a number of large firms to determine the desired characteristics of employees, Slappey concluded that nearly every company seeks young people who think and write clearly. Companies want mature people with a competitive spirit and quiet enthusiasm, people with outside interests, and people who will remain with the company. Other qualities sought are intelligence, aggressiveness, imagination, and self-sufficiency.[1]

According to Joyce, effective management makes a corporation a leader in industry. The characteristics, then, of effective management leadership are ability, confidence, ambition, the courage to risk failure, desire to lead, and integrity. In order to maintain or improve its market position, a corporation must carefully choose potential leaders by evaluating the degree to which they possess these characteristics.[2]

Miles utilized the Wonderlick Personnel Test, the Edwards Personal Preference Schedule, and the Minnesota Multi-Phasic Personality Inventory to evaluate the relationship between management success and personality traits. He concluded that mental ability, originality, dominance, autonomy, and change were significantly related to success.[3]

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[1]Sterling G. Slappey, "What Companies Want Most From Young People," NATION'S BUSINESS, February, 1968, pp. 89-90.

[2]J. R. Joyce, "The Search for Leaders," PERSONNEL JOURNAL, XLIX (April, 1970), pp. 308-311.

[3]Wilford Glenn Miles, Jr., "An Investigation into the Relationship Between Certain Personality Traits and Management Success," (Ph.D. dissertation, University of Arkansas, 1968), 165 pp.

In an analysis of requirements for potential managers in manufacturing firms in the Peoria, Illinois, area, Albanito assumed the following characteristics to be essential to success: adaptability; creativity; decision-making ability; general administrative skills; honesty, character and integrity; leadership; loyalty; oral communication; sense of responsibility; technical skills; understanding business objectives; written communications. These traits were rated by business executives and a correlation matrix was developed. The following combinations were found to have a high degree of significance:

Creativity with general administrative skills
Creativity with decision-making ability
General administrative skills with oral communications
General administrative skills with honesty, character and integrity
Understanding business objectives with leadership
Understanding business objectives with loyalty
Understanding business objectives with sense of responsibility
Understanding business objectives with technical skills
Oral communications with written communications
Written communications with adaptability.[1]

Thus the manager is pictured as a leader of good character who possesses the traits of creativity, loyalty, adaptability, sense of responsibility, and an understanding of business objectives. Skills needed by the manager are communications skills, decision-making skills, and general administrative skills.

Criticisms of Management Education

Two previously mentioned studies caused a great stir among collegiate schools of business and inspired much self-examination. The Gordon and Howell study was commissioned by the Ford Foundation, and the Pierson study was funded by the Carnegie Corporation. Gordon and

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[1]Albanito, pp. 105-106.

Howell described the collegiate school of business as "a restless and uncertain giant in the halls of higher education. Gnawed by doubts and harrassed by unfriendly critics, it seeks to serve several masters and is assured by its critics that it serves none well."[1]

Gordon and Howell also noted that schools of business were "trying to find their souls" and stated:

> ...they seek to clarify their purpose and to find their proper place in the educational world. They search for academic respectability, while most of them continue to engage in unrespectable vocational training. They seek to be professional schools, while expressing doubt themselves that the occupations for which they prepare students can rightfully be called a profession.[2]

Likewise Pierson noted the importance of diversifying programs so that each student could develop to the fullest capacity. Reporting the failure of business schools to diversify, he stated:

> ...many kinds of diversity are possible and perhaps desirable, but the most important is to make sure that promising students are given work fully commensurate with their abilities. Broadly speaking, this is not true of undergraduate business schools today. All too many of these schools concentrate their efforts almost exclusively on average or even mediocre students; all too few call for the best work from the best students.[3]

Norton-Taylor, several years prior to the Ford and Carnegie reports, called attention to the vocationalism of schools of business. Even the best business schools had no philosophic focus or solid intellectual content. Schools of business teach vocations but fail to teach abstractions that are vital to management. Business schools, including graduate schools, teach certain techniques but impart no wisdom

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[1]Gordon and Howell, p. 4.

[2]Ibid.

[3]Pierson, p. x.

and provide no real insight into society or its economic problems. Further, the author proposed that there was no justification for highly specialized undergraduate business education because most undergraduate college-age students were not ready for specialization.[1]

By the mid-1960's some changes and innovations in collegiate schools of business were in evidence. However, Sheehan continued to deal harshly with undergraduate preparation. He stated:

> ...there are some mighty stimulating things going on in some echelons of higher education for business these days. For the most part, it is within a small group of leading graduate schools that the excitement runs highest and the changes are greatest.
>
> ...Two years of such graduate study is in no sense an extension of the work now being offered in most undergraduate schools of business, and indeed the suspicion exists that, of all kinds of undergraduate instruction, the business school provides the poorest preparation for the work in the graduate...schools of business.[2]

Significant deficiencies in the education of managers were summarized by LeBreton as follows:

> (1) failure to utilize a sufficiently comprehensive integrated, and realistic model of the administrative process. This resulted from relying on traditional models which emphasize after-the-fact decision making.
>
> (2) failure to give sufficient recognition to the emerging "unity of knowledge" in the subject areas of administration. In some universities there is a proliferation of administrative courses designed to satisfy the limited needs of students majoring in hospital administration, governmental administration, educational administration, and business administration with a separate professional staff, faculty, and budget for each specialized curriculum.

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[1]Duncan Norton-Taylor, "The Business Schools: Pass or Flunk?" FORTUNE, June, 1954, pp. 112-113.

[2]Robert Sheehan, "New Report Card on the Business Schools," FORTUNE, December, 1964, pp. 148, 150.

> (3) lack of sufficient awareness on the part of many educators of the growing interest of practicing administrators in more than one organization at a given period of time. Managers may also move across organizational types during the professional life span.
>
> (4) failure to emphasize or even recognize the emergence of new roles for specialists. Not only will there be a need for specialists in the areas of accounting, finance, and economics, but also there will be a need for specialists such as planners and change catalysts.
>
> (5) failure to admit that each specialist has the need to manage in professional activities and that more often than not professional functions are carried out in a formal organization. Such vital parts of the administrative process as need determination, goal setting, data collection and processing, choosing from alternatives, testing conclusions, initiating action, carrying out programs and monitoring and evaluating performance are an integral part of all professional activities. Components of the administrative process might profitably be included in instructional programs designed to educate professional specialists, and
>
> (6) failure to provide a comprehensive integrated format which will allow students to interrelate knowledge acquired across a variety of disciplines and to relate more fully this newly acquired knowledge to the continuing needs of a dynamic democratic society.[1]

That good management education is just a myth was cited by Livingston who insisted that students are not taught in formal education programs what they most need to know to build successful careers in management. According to Livingston, the only way a manager can advance up the organizational ladder is to acquire through experience the knowledge and skills vital to managerial effectiveness. The author further noted:

> ...much management education is, in fact, miseducation because it arrests or distorts the ability of managerial aspirants to grow as they gain experience.

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[1]Preston P. LeBreton, ed., THE DYNAMIC WORLD OF EDUCATION FOR BUSINESS: ISSUES, TRENDS, FORECASTS (Cincinnati: South Western Publishing Co., 1969), pp. 81-83.

> Formal management education programs typically emphasize the development of problem-solving and decision-making skills...but give little attention to the development of skills required to find the problems that need to be solved, to plan for the attainment of desired results or to carry out operating plans once they are made.[1]

Nanus and Coffey wrote in 1973 that even in the face of continuing criticism, schools of business had effected very little change. Business education still had not adapted to the new realities of the state of flux of some of the most fundamental values of business.[2]

Implications for the Management Curriculum

In spite of continuing criticism, collegiate schools of business have grown rapidly during the past 25 years and have a firm place in institutions of higher education. As was previously cited, Stull, in looking at the future of management, suggested that formal education will play an increasingly important role in preparing men and women for managerial positions.[3] Luthans, Walker, and Hodgetts categorized 3,202 marketing personnel of a large corporation as promotable and nonpromotable after consulting with supervision. The study concluded that there was no simple cause-and-effect relationship between education and executive success but that formal education plays an important but complex role in management success. Of those classified as promotable, 84 percent had attended college and 59 percent had received a degree. Of

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[1] J. Sterling Livingston, "Myth of the Well-Educated Manager," HARVARD BUSINESS REVIEW, XLIX (January-February, 1971), p. 79.

[2] Burt Nanus and Robert E. Coffey, "Future Oriented Business Education," CALIFORNIA MANAGEMENT REVEIW, XV (Summer, 1973), pp. 28-34.

[3] Stull, p. 7.

those classified as nonpromotable, 75 percent had either not attended college at all or had not received a bachelor's degree. Of those who had attended college, the area of specialization was found to have no effect on promotability.[1]

Schaefer interviewed some 200 managers in the Milwaukee, Wisconsin, area and concluded that the business curriculum should be restricted to general management rather than specialized areas. Absolute requirements should include at least one course in the area of management as well as a basic background in business.[2]

Albanito surveyed personnel directors, business executives, and graduates of collegiate schools of business employed in manufacturing and processing firms in the Peoria, Illinois, area to determine criteria for managerial success. These criteria were used as a basis for recommended curricular improvement in the education of potential managers in manufacturing firms. The criteria included background information of the participant, degree of specialization, strengths and weaknesses of collegiate business education, personal traits and characteristics, employment factors, and work experience. The results were that approximately 60 percent ranked general business subjects (management, economics, human relations) as first choice in order of importance. This same 60 percent ranked as their second choice specific business subjects (accounting, marketing, finance), while 33 percent

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[1]Fred Luthans, James W. Walker, Richard Hodgetts, "Evidence on the Validity of Management Education," ACADEMY OF MANAGEMENT JOURNAL, XII (December, 1969), pp. 451-457.

[2]James Robert Schaefer, "An Investigation of Professional Management Education," (Ph.D. dissertation, University of Wisconsin, 1959), 203 pp.

ranked specific business subjects as first choice. The group ranking specific business subjects as first choice ranked general business subjects as their second choice. Courses in mathematics and science were the third choice in order of importance. The humanities and social science subjects were ranked either fourth or fifth in order of importance by 96 percent of the respondents.[1]

The respondents in this study recommended that undergraduate college students wishing to pursue a business career complete the following courses:

Principles of Management
Accounting
Economics
Communications
Finance
Computer Concepts
Personnel Management
Business Law
Marketing
Statistics
Production Management
Computer Programming
Advertising[2]

Non-business courses deemed necessary for potential managers were:

English
Psychology
Mathematics[3]

Further, when queried concerning their philosophy of the undergraduate curriculum, respondents agreed there should be increased emphasis on:

(1) courses which are intellectually demanding, conceptual, and stress analytic skills;

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[1]Albanito, pp. 100-101.

[2]Ibid., p. 107.

[3]Ibid.

(2) management courses which are behavioral science oriented;

(3) electronic computer course with concepts emphasis; and

(4) realization that a proper organization of abilities, knowledge, and personality traits might be more important than possession of a certain list of qualities.[1]

In summary, the businessmen concluded that the purpose of collegiate schools of business in preparing potential managers should be to teach students to think in a cogent, logical fashion and to be innovative, empathetic, and capable of reason.[2]

Recognizing that properly trained middle managers are an invaluable source for future top management personnel, Newport researched middle management development as a function of the business organization. From a survey of industrial firms having planned management development programs, the following training objectives were identified:

1. To improve the ability to work and cooperate successfully with other people.
2. To encourage participants toward further self-development.
3. To insure the vitality and continuity of the organization by assisting individuals in the discovery and utilization of their potential abilities.
4. To aid in developing personal attitudes, insights, work habits and motives essential to management maturity and competence.[3]

Thus the primary purpose of industrial middle management development programs is to broaden the managerial knowledge of the participant.

To answer the question, "What will be the role of collegiate schools of business in the continuing education of middle managers?"

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[1]Albanito, p. 110.

[2]Ibid.

[3]Newport, p. 175.

Richards conducted a survey of deans of member schools of the American Association of Collegiate Schools of Business, presidents of selected business enterprises, and executives of selected trade and professional associations. The study indicated that the modern middle manager must be more skillful in supervision and human relations. The emerging role of the collegiate school of business was visualized as aiding middle managers in updating knowledge of managerial techniques and concepts. Consequently, middle managers can best be served in the future by schools of business offering continuing education programs. These programs should be designed to aid middle managers in becoming more skillful in supervision and human relations by emphasizing current managerial concepts and techniques.[1]

In 1966, the editors of BUSINESS WEEK conducted a survey of chief executives and marketing managers of over 200 leading companies to determine what subjects should be taken by potential managers while in school. The findings concluded that the first requirement was "educated men" with a capacity to grow. The top-rated subject was economics; the second was communications. Other subjects with a high ranking of importance to potential managers were psychology, mathematics, and computer science. In summary:

> ...a school should teach one to read, write, qualify, analyze, and think. The most important function of a college or university is training in the use of the mind. The school should teach one to think in a cogent, logical fashion and to write the English language cogently, logically, and persuasively. What is needed is a trained mind as opposed to a vocational school graduate.[2]

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[1]Richards, p. 263.

[2]"Getting More Out of the Graduate," BUSINESS WEEK, (June 18, 1966), pp. 61-64.

Concerned with the needs of marketing managers in the 1970's was a study completed by Montana. After interviewing executives in forty corporations, the needs of marketing managers were defined as creativity, entrepreneurship, behavioral sciences, market planning, international marketing, in-depth customer orientation, information management, quantitative methods, systems analysis and control, and computer applications. A further recommendation was that colleges and universities maintain contact with industry to develop special programs to meet the needs of business firms.[1]

Because of the overwhelming growth of junior colleges in recent years, formal studies pertaining to the needs of middle managers in retailing institutions have been conducted for the purpose of determining the content of post-secondary distributive education curricula. Carmichael identified activities that are common to retail middle managers as well as their relative importance, crucialness to success on the job, and frequency of performance. His findings indicate:

> (1) managerial competency is the most crucial of all competency areas;
>
> (2) executives view the internship method of training as a necessary and important part of post-secondary middle management curricula;
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> (3) the nature of the retail organization determines the activities performed by middle managers; and
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> (4) routine marketing and distribution activities were found more crucial to lower levels of management while management-type

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[1]Patrick J. Montana, "Developing Marketing Executives for the 1970's: A Study of Selected Large Corporations in the United States," (Ph.D. dissertation, New York University, 1966), 194 pp.

activities (planning, organizing, controlling) are more crucial to higher levels of management.

A further point of the study was the need of middle management instructors to keep abreast of changes in the field by working closely with employers.[1]

Samson used Q-sort cards to determine which characteristics of the retail department store middle manager should be acquired through formal education prior to entrance into the middle management position. As a result of the research, fifteen courses were suggested as being pertinent to the training of department store middle managers:

Fundamental Legal Principles
Oral and Written Communications
Psychology of Business Writing
Business Personality
Role of Credit
Principles of Economics
Role of Advertising
Business Organization and Management
Principles of Retailing
Introduction to Sociology
Principles of Marketing
Anthropology
The Labor Market
Introduction to Political Science
Managerial Data Processing[2]

In comparing this content with typical post-secondary curricula purporting to prepare retail middle managers, the first ten areas are usually found in such programs and the last five will generally not be found.[3]

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[1]John H. Carmichael, "An Analysis of Activities of Middle Management Personnel in the Retail Trade Industry with Implications for Curriculum Development in Post-Secondary Institutions," (Ph.D. dissertation, Michigan State University, 1968), 180 pp.

[2]Harland E. Samson, THE NATURE AND CHARACTERISTICS OF MIDDLE MANAGEMENT IN RETAIL DEPARTMENT STORES (Madison: University of Wisconsin, 1969), pp. 133-134.

[3]Ibid., p. 134.

Areas of training which were defined as best being handled by the department store but in which many schools offer courses were:

Interpreting accounting records
Display
Merchandise Mathematics
Buying
Salesmanship[1]

In order to assure a school's continual provision of curricular content desirable for middle management personnel, emphasis was placed on communications between marketing educators and retail department store executives.[2]

Patton interviewed eighty retail executive and middle managers from eight Standard Industrial Classifications in Oklahoma City to determine curriculum and employment needs of potential middle managers in retailing. The following curricular areas in which competencies are needed are listed as they were ranked by the participants in this study:

Communications
Human Relations
Buying Principles
Salesmanship
Mathematics
Accounting
Psychology
Budget Planning
Management
Business Law
Product Technology
History-Government
Credit Management
Economics
Display
Advertising Principles
Traffic Management
Labor Relations, Sociology

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[1] Samson, p. 134

[2] Ibid.

Advertising Layout
Data Processing[1]

Statistical analysis of these curricular areas was completed to determine differences in competencies needed by each of the eight industrial classifications. Also, participants in the study suggested that associate degree graduates must have satisfactory work experience in order to assume middle management responsibility.[2]

Summary

Because they provide useful insight into concerns of collegiate schools of business, several studies concerning environmental changes and criticism leveled at collegiate schools of business have been reviewed. Since some attempts at identifying characteristics needed for managerial success have been published, several studies pertaining to these characteristics were considered. Realizing, however, that needed competencies may differ according to the situation, studies dealing with implications for business curriculum development in higher education were examined. These studies indicate the importance of developing managerial competency. Subjects typically ranked as important were management principles, economics, communications, and human relations.

With these studies providing background information, an attempt was made to determine competencies needed by industrial middle managers in Tennessee. The methods used to accomplish this purpose are set forth in the following chapter.

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[1]Patton, p. 78.

[2]Ibid., p. 109.

CHAPTER III

DESIGN AND METHODOLOGY OF THE STUDY

In order to determine pre-employment competencies needed by middle managers in Tennessee industrial firms, opinions of persons presently employed as executive and middle managers in selected Tennessee industrial firms were sought. The purpose of this chapter is to describe the methods used in choosing the population, the procedure used in determining a sample of that population to be surveyed, the method of designing the survey instrument, the method of data collection, and the statistical procedures used in analyzing the data.

Selection of the Population

The population on which this study was based consisted of executive and middle managers in goods-producing industrial firms in the Memphis, Nashville, Knoxville, and Chattanooga metropolitan areas of Tennessee. The latest manpower studies available revealed that in 1970 in Tennessee there was a labor force totaling 1,551,247; this number is expected to increase to 2,052,906 by 1980, an increase of 32.2 percent.[1] The portion of the work force employed in Tennessee's 6,042[2] manufacturing firms was nearly 30 percent in 1970 and is expected to increase to

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[1] TENNESSEE EMPLOYMENT OUTLOOK, pp. 8-9.

[2] TENNESSEE MANUFACTURER'S DIRECTORY, p. 430.

31 percent, 633,000 workers, by 1980.[1] Of the total work force, 12.7 percent were employed in the production of durable goods and 18 percent in the production of non-durable goods. Growth in manufacturing is expected in the area of durable goods. The non-durable goods sector is expected to maintain its share of 18 percent of the work force.[2]

No statistical information could be discerned which identified the total number of executive and middle managers in Tennessee industrial firms. However, according to the TENNESSEE EMPLOYMENT OUTLOOK, the most rapid growth in employment is expected in the occupational group "Managers, Officials, and Proprietors," The number of positions for salaried managers is expected to increase by 44 percent from 1970 to 1980, an additional 47,530 new jobs.[3] Including new jobs and separations in this occupational category, there are some 8,880 annual job openings.[4] The projected 1976 employment figure for "Managers, Officials, and Proprietors" was 137,000 persons.[5] This number is distributed as follows:

Buyers, Sales, Loan Managers	24,690
Administrators, Public Inspectors	13,000
Other Managers, Officials, Proprietors	99,300[6]

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[1] TENNESSEE EMPLOYMENT OUTLOOK, p. 13.

[2] Ibid., pp. 13-14.

[3] Ibid., p. 24.

[4] Ibid., p. 46.

[5] Ibid., p. 40.

[6] Ibid.

The decision was made to survey managers in the Memphis, Nashville, Knoxville, and Chattanooga metropolitan areas because of the concentration of population (59 percent)[1] and industrial firms in these geographical areas. In order to determine the industrial classifications of firms in these areas, Chambers of Commerce were contacted to (1) obtain the names of firms employing 500 or more people and (2) the chief executive officer of these firms. The TENNESSEE MANUFACTURER'S DIRECTORY was consulted to determine the industrial classification of these firms. Two extraneous variables which had an effect on the results of this study were the industrial classification of the firm and the location of the firm. Kerlinger describes methods by which extraneous variables can be controlled. One method of control suggested is to build the variable into the design of the study:

> An extraneous variable can be controlled by building it into the research design as an assigned variable, thus achieving control and yielding additional research information about the effect of the variable on the dependent variable and about its possible interaction with other independent variables.[2]

This was accomplished by limiting the study to industrial classifications of which there were representative firms employing approximately 500 or more persons in each of the four metropolitan areas of Tennessee.

Examination of the TENNESSEE MANUFACTURER'S DIRECTORY revealed there were firms of the following industrial classifications employing approximately 500 or more persons in each of the four metropolitan areas of Tennessee:

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[1] TENNESSEE MANUFACTURER'S DIRECTORY, p. 430.

[2] Kerlinger, p. 285.

CLASSIFICATION	SIC NUMBER
Apparel Manufacturing	23
Chemicals and Allied Products	28
Textile Mills Products	22
Machinery, Except Electrical	35
Newspaper Publishing	27[1]

These firms, their Standard Industrial Classification Number, location, and number of employees are listed in Table I. Table II lists these industrial classifications with the 1970 employment figure, the projected 1980 employment figure, and the percent of change.

Selection of the Sample

From the population which has been described, a sample consisting of 100 executive managers and 200 middle managers was selected. Kerlinger defines sampling as:

> ...taking any portion of a population, or universe, as representative of that population or universe. This definition does not say that the portion or sample taken...is representative. It says, rather, taking a portion of a population and *considering* it to be representative.[2]

Kerlinger further states that a sample is really representative if it has been drawn randomly.[3] However, in discussing survey research, he notes that random samples are often bypassed for quota samples[4] made up

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[1]TENNESSEE MANUFACTURER'S DIRECTORY, pp. 45-173

[2]Kerlinger, p. 52.

[3]Ibid.

[4]Ibid., p. 400.

TABLE 1

TENNESSEE INDUSTRIAL FIRMS

(Which Met the Specifications of the Research Design)

Name of Firm	SIC Number	Location	Number of Employees
Levi Strauss	23	Memphis	500
Farber Brothers	23	Memphis	500
Washington Manufacturing Co.	23	Nashville	700
Levi Strauss	23	Knoxville	1600
Southern Athletic Inc.	23	Knoxville	600
Palm Beach Co.	23	Knoxville	500
Skyland International	23	Chattanooga	564
E. I. duPont deNemours Co., Inc.	28	Memphis	600
E. I. duPont deNemours Co., Inc.	28	Nashville	3000
Ferro Corporation	28	Nashville	600
Union Carbide	28	Knoxville	6350
Allied Chemical Co.	28	Knoxville	600
Rohm & Haas Tennessee	28	Knoxville	850
E. I. duPont deNemours Co., Inc.	28	Chattanooga	3800
Bemis, Inc.	22	Memphis	500
May Hosiery Mills	22	Nashville	550
Tennessee Tufting	22	Nashville	630
Werthan Industries	22	Nashville	1400
Standard Knitting Mills	22	Knoxville	2085
Dixie Yarns, Inc.	22	Chattanooga	1200
Standard Coosa-Thatcher	22	Chattanooga	650
Kimco Auto Products	35	Memphis	500
Aladdin Industries	35	Nashville	1500
Dempster Dumpster Systems	35	Knoxville	500
Combustion Engineering	35	Chattanooga	5500
Cavalier Corporation	35	Chattanooga	500
Memphis Publishing Co.	27	Memphis	900
Newspaper Printing Corporation	27	Nashville	2300
News-Sentinel	27	Knoxville	575
Times Printing Co.	27	Chattanooga	425

TABLE 2

TENNESSEE EMPLOYMENT IN SELECTED INDUSTRIAL CLASSIFICATIONS

Classification	1970 Employment	Projected 1980 Employment	Percent of Change
Apparel Manufacturing	66,640	96,830	45
Chemical and Allied Products	59,650	78,020	31
Textile Mills Products	35,670	37,250	4
Machinery, Except Electrical	20,850	29,990	44
Newspaper Publishing	8,120	8,230	1

Source: TENNESSEE EMPLOYMENT OUTLOOK, pp. 33-34.

of groups which are "self selected"[1] because they possess characteristics related to the research problem. In this way representativeness may presumably be achieved.[2]

Originally, the quotas for this study were twenty industrial firms and 300 managers. Five executive managers and ten middle managers were to be selected from each firm. From each of the four metropolitan areas in Tennessee would be selected five firms--one firm from each of the five industrial classifications meeting the specifications of the research design.

In January, 1977, an appointment was made with Mr. James Hunt, Executive Vice President of the Chattanooga Chamber of Commerce, to

[1]Kerlinger, p. 362.

[2]Ibid., p. 400.

discuss the project. Chattanooga has the greatest diversity of industry in the state. Mr. Hunt's association with the Chamber of Commerce and participation in research projects related to industry in the Southeast provided much insight for this study. Mr. Grady Gant, Vice President of Industrial Relations, Dixie Yarns, Inc. of Chattanooga, was also contacted, at Mr. Hunt's suggestion, to advise in the project. In March, 1977, the proposed study was discussed with Mr. Gant, who not only agreed to endorse the study but also provided a letter of introduction (Appendix B) to be used when contacting firms selected for participation. Both Mr. Hunt and Mr. Gant thought that participation could be obtained as well by letter as by personal contact.

During the first week of June, 1977, the twenty selected firms were contacted by a letter to the chief executive officer of the firm. In some instances, at Mr. Gant's suggestion, the personnel officer of the firm was contacted. Included with the letter were an explanation of the purpose of the study, a copy of the survey questionnaire (Appendix C), the letter of introduction, a form on which willingness or unwillingness to participate could be indicated, and a self-addressed envelope. These materials, unless noted as a separate appendix, are included in Appendix D.

The manager contacted was asked to select from his firm five executive managers and ten middle managers for participation in the survey and to submit their names for contact. After two weeks, those firms not responding were again contacted by letter. The suggestion was made that if the manager preferred, all survey materials could be sent to him for distribution. Another two weeks elapsed and those still not

responding were contacted by telephone. At the time the original contacts were being made, some plants were closed for vacation. In other instances, the manager to whom the letter was sent was away from the office. In the meantime, the decision was made to contact the remaining firms which met the specifications of the research design in order to adhere to a sample size of 300. Of the thirty firms contacted, 21 agreed to participate in the study. Five of the firms did not have 15 managers who could be defined as executive or middle managers according to the operational definitions used in this study. Thus, in these firms, fewer than 15 managers were contacted. Included in Table 3 are the firms which participated in the study, the coordinating manager from each firm, and the number of managers contacted to complete the survey from the firm.

The coordinating manager from each firm was advised to use his discretion in selecting managers for participation if the firm did not define executive and middle manager as was defined in the study. For example, E. I. duPont deNemours Co., Inc. employs over 3,000 people in the Nashville plant and the Chattanooga plant. However, the highest level employee in these plants is the plant manager who functions in much the same way a president of a corporation would. Therefore, the definitions of executive and middle manager used for those being surveyed in duPont plants were as follows:

Executive Manager - plant manager, assistant plant manager, superintendents, area supervisors, personnel and industrial relations managers.

Middle Manager - section supervisor, staff assistant, senior engineer, area mechanical supervisor.

TABLE 3

TENNESSEE INDUSTRIAL FIRMS PARTICIPATING IN STUDY

Name of Firm	Coordinating Manager	Number of Managers Contacted
MEMPHIS		
Levi Strauss	Ollie Calvert	10
Farber Brothers	Daniel Farber	10
Memphis Publishing Company	Joseph R. Williams	15
NASHVILLE		
E. I. duPont deNemours Co.	H. G. Gaines	15
Aladdin Industries	R. B. Anderson, Jr.	15
Newspaper Printing Corporation	Doyle Finch	15
KNOXVILLE		
Levi Strauss	Don Nichols	15
Southern Athletic	Cruil Jackson	15
Union Carbide	P. C. Fourney	15
Rohm and Haas Tennessee	M. W. Donald	15
Allied Chemical Company	John Skladan	12
Standard Knitting Mills	J. E. Gettys	15
Dempster Dumpster Systems	Hal Hogan	15
News-Sentinel	Frank Weirich	11
CHATTANOOGA		
Skyland International	George Kerr	15
E. I. duPont deNemours Co.	W. E. Stephenson	15
Dixie Yarns, Inc.	Grady Gant	15
Standard Coosa Thatcher	Floyd Craig	15
Combustion Engineering	H. X. Heiminz	15
Cavalier Corporation	John True	10
Times Printing Company	A. W. Holmberg	14

These definitions were formulated with the assistance of Mr. W. E. Stephenson, Personnel Superintendent, Chattanooga E. I. duPont deNemours Co., Inc.

Collection of Data

In order to obtain the information desired from the sample of executive and middle managers, the survey method of research was determined to be appropriate. Kerlinger notes concerning survey research:

> Survey research is that branch of social scientific investigation that studies large and small populations (or universes) by selecting and studying samples from the population to discover the relative incidence, distribution and interrelations of sociological and psychological variables...The survey researcher is interested in the accurate assessment of the characteristics of whole populations of people. Only rarely, however, do survey researchers study whole populations: they study samples drawn from populations. From these samples they infer the characteristics of the defined population or universe. The study of samples from which inferences about populations can be drawn are needed because of the difficulties of attempting to study whole populations.
>
> The social scientific nature of survey research is revealed by the nature of its variables, which can be classified as sociological facts and opinions and attitudes. Sociological facts are attributes of individuals that spring from their membership in social groups or sets: sex, income, political and religious affiliation, socio-economic status, education, age, living expenses, occupation, race, and so on.[1]

As a device for gathering information from the selected participants, a survey instrument (Appendix C) consisting of scaled responses to competencies was prepared. Current catalogs of Tennessee colleges and universities offering degrees in management were consulted. Competencies included in the survey instrument were the proposed outcomes

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[1]Kerlinger, pp. 395-396.

of courses making up the management curriculum. The course outcome was described in such a manner to allow the respondent to react to its importance. The scale consisted of four responses: Very Important, Moderately Important, Unimportant, To Be Developed on the Job Only. Including the supervised work experience, there were 54 competencies which could be defined. Of this number, 36 competencies are business related. The 18 nonbusiness-related competencies generally are required as a part of a core curriculum.

In addition to securing executive and middle management opinions about management curricula, other types of information sought by means of the survey were:

1. The size of the business as determined by the number of employees.
2. The number of middle management personnel in the firm.
3. The manager's opinion concerning projected need for middle management during the next decade (by 1987).
4. The manager's opinion concerning the typical responsibilities of a middle manager.
5. The number of employees reporting directly to the respondent.

Additional information sought from both executive and middle managers which might have an effect on responses included the educational background of the respondent and the category in which the respondent's age fell.

After the survey instrument was designed, arrangements were made with the Trane Manufacturing Company and the Acme Boot Company, both located in Clarksville, Tennessee, to test the instrument. Five executive managers and ten middle managers from each firm were asked to

respond. Participants from Trane did complete and return the instrument. However, the week after the arrangements were made for testing the instrument, Acme Boot Company went on a 19-week strike. Thus, their managers did not participate. The results from Trane suggested some changes that should be made in the design of the instrument. Following these revisions, the instrument was printed and distributed to the defined sample. In the instances where the coordinating manager from the firm had submitted a list of managers to be contacted, the participants were contacted individually. Mailed to these participants were the materials in Appendix E--an introductory letter, a statement of the purpose of the study, the survey instrument (Appendix C), a card by which the participant could request a copy of the results of the study, and a self-addressed, stamped envelope. To those coordinating managers in firms who requested that all materials be sent directly to them, the appropriate number of copies of the materials in Appendix E were sent for distribution.

The total number of executive and middle managers contacted for participation in the study was 292 managers. Of this number, 223 returned completed usuable survey instruments, constituting a 76.4 percent return. Sixty-five were from executive managers, and 158 were from middle-level managers. The completed instruments were then divided into industrial categories. Within the categories, the responses of executive and middle managers were separated. In order to develop a consensus index from submitted responses, a scale of three to zero was used. A value of three was assigned to the response "Very Important", two to "Moderately Important", one to "Unimportant", and a value of zero was assigned to

the response "To Be Developed on the Job Only." To develop the consensus indices, frequency counts of responses were made and multiplied by the value assigned to the responses. These products were added and the sum of the products divided by the number of respondents. In this way, a consensus value was assigned to each curricular area.

The percentage of responses was developed for each industrial classification by combining the responses of executive and middle managers for each classification. The percentage of managers responding to each level of the scale for each curricular area was then calculated. These percentages are included in Appendix F. The responses of all participants to each curricular area were totaled and a percentage of response to each curricular for all managers was calculated. The responses were tested statistically to determine the significance of the hypotheses.

Methods of Statistical Analysis

In order to statistically analyze the cumulative responses of executive and middle managers, the Kolmogorov-Smirnov Two-Sample Test was selected. This test is a nonparametric procedure having a high power efficiency in using the information generated by rating scales[1] such as were characteristic of this study.

The nature of the this study rendered impossible the use of random sampling. Hence, a nonparametric procedure was dictated. According to Siegel:

> A nonparametric statistical test is a test whose model does not specify conditions about the parameters of the population from

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[1]David R. Adams, "Non-Parametric Statistical Tests in Business Education Survey Research--the Kolmogorov-Smirnov Two-Sample Test," DELTA PI EPSILON JOURNAL, XIX (January, 1977), p. 33.

which the sample was drawn. Certain assumptions generally are associated with most nonparametric statistical tests, i.e., that the observations are independent and that the variable under study has underlying continuity, but these assumptions are fewer and much weaker than those associated with parametric tests. Moreover, nonparametric tests do not require measurement so strong as that required for the parametric tests; most nonparametric tests apply to data in an ordinal scale, and some apply also to data in a nominal scale.[1]

Siegel describes the Kolmogorov-Smirnov Two-Sample Test:

> The Kolmogorov-Smirnov Two-Sample Test is a test of whether two independent samples have been drawn from the same population (or from populations with the same distribution). The two-tailed test is sensitive to any kind of difference in the distributions from which the two samples were drawn--differences in location (central tendency), in dispersion, in skewness, etc. This test is concerned with the agreement between two sets of sample values.
>
> If the two samples have in fact been drawn from the same population distribution, then the cumulative distributions of both samples may be expected to be fairly close to each other, inasmuch as they both should show only random deviations from the population distribution. If the two-sample cumulative distributions are "too far apart" at any point, this suggests that the samples come from different populations. Thus a large enough deviation between the two-sample cumulative distributions is evidence for rejecting Ho.[2]

In discussing the particular applicability of the Kolmogorov-Smirnov test to Business Education research, Adams suggests that if samples have been drawn from populations with the same distributions, then the cumulative frequency distribution of both samples will be similar. Any fluctuation can be accounted for by random error.[3]

When analyzing two samples of unequal size, the two-tailed test is necessary. The first step, then, is to construct a cumulative

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[1]Siegel, p. 31.

[2]Ibid., pp. 127-128.

[3]Adams, p. 34.

frequency distribution of the response frequencies for each sample.[1] To test the hypotheses in this study, it was necessary to develop frequencies as follows:

1. all executive managers.
2. all middle managers.
3. executive managers in each industry; in all other industries.
4. middle managers in each industry; in all other industries.

These frequencies were then cast into a 2 x C contingency table. (In this study, C = 4.) The point of maximum difference between two samples was computed by the following formula:

$$D = \text{Maximum} \left| S_{n_1}(X) - S_{n_2}(X) \right|$$

where D is equal to the difference, $S_{n_1}(X)$ is equal to the cumulative step function of one of the samples and $S_{n_2}(X)$ equals the cumulative step function of the other sample. The cumulative step function is defined as the observed cumulative frequency divided by the sample size. The decimal equivalent of each value in the contingency table is computed and $|D|$ is determined.[2]

From a table of critical values is obtained the number which $|D|$ must equal or exceed for rejection of the null hypothesis. For the purpose of this study, the .05 level of significance was chosen. As noted by Kerlinger, this means that the obtained result could be obtained by chance five percent of the time. This is considered to be neither too

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[1] Adams, p. 38.

[2] Adams, p. 34; Siegel, p. 134.

high nor too low for research such as this study.[1] At the .05 level of significance, the computed value of $|D|$ must equal or exceed

$$1.36 \sqrt{\frac{n^1 + n^2}{n^1 n^2}}$$

in order to reject the null hypothesis.[2]

When the null hypothesis could be rejected by use of the Kolmogorov-Smirnov test, two other nonparametric tests were used to determine where the differences of opinion occurred by testing each curricular area within the cumulative group. These tests are the chi square test for two independent samples and the Fisher exact probability test.

Siegel describes the function of the chi square test as follows:

> When the data of research consists of frequencies in discrete categories, the χ^2 test may be used to determine the significance of differences between two independent groups. The measurement involved may be as weak as nominal scaling.
>
> The hypothesis under test is usually that the two groups differ with respect to some characteristic and therefore with respect to the relative frequency with which group members fall in several categories. To test this hypothesis, we count the number of cases from each group which fall in the various categories, and compare the proportion of cases from one group in the various categories with the proportion of cases from the other group.[3]

The responses to each curricular area in groups where the Kolmogorov-Smirnov test indicated a difference were cast into a 2 x 2 contingency table. This was done in two ways: (1) the "Very Important" responses were cast into one cell; the "Moderately Important", "Unimportant" and

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[1] Kerlinger, pp. 153-154.

[2] Adams, p. 38.

[3] Siegel, p. 104.

"On-the-Job Only" responses were cast into another cell; (2) The "Very Important" and "Moderately Important" responses were cast into one cell; the "Unimportant" and "On-the-Job Only" responses were cast into another cell. The value of χ^2 was then computed by the formula[1]

$$\chi^2 = \frac{N\left(|AD - BC|\right) - \frac{N}{2}}{(A + B)(C + D)(A + C)(B + D)} \qquad df = 1$$

Siegel further notes that the decision to use this test should be guided by three considerations:

1. When N > 40, use the above formula.
2. When N is between 20 and 40, the χ^2 test may be used *if* all expected frequencies are 5 or more. If the smallest expected frequency is less than 5, use the Fisher test.
3. When N < 20, use the Fisher test in all cases.[2]

In the testing of curricular areas, there were instances where N was between 20 and 40 and a cell contained fewer than five frequencies; therefore, the second consideration was applied. Concerning the Fisher exact probability test, Siegel notes:

> The Fisher exact probability test is an extremely useful nonparametric technique for analyzing discrete data...when the two independent samples are small in size. It is used when the scores from two independent random samples all fall into one or the other of two mutually exclusive classes. In other words, every subject in both groups obtains one of two possible scores. The scores are represented by frequencies in a 2 x 2 contingency table.[3]

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[1]Siegel, p. 109.

[2]Ibid., p. 110.

[3]Ibid., p. 96.

Probability is calculated by the following formula:[1]

$$p = \frac{2(A + B)!(C + D)!(A + C)!(B + D)!}{N!A!B!C!D!}$$

The values of χ^2 needed to reject the null hypothesis were determined from appropriate tables. The values of p had to be equal to or less than .05 in order to reject the null hypothesis.

Chi square values were obtained also by utilization of the extension of the median test. Siegel states that this test determines whether k independent samples (not necessarily of equal size) have been drawn from the same population or populations with equal medians.[2]

In a discussion of the application of the extension of the median test, Siegel states:

> To apply the extension of the median test, the median scores for combined samples of scores is determined. Each score is replaced by a plus if larger than the common median and by a minus for those which equal or fall below the median. The results are cast into a k x 2 table with the numbers in the body of the table representing the frequencies of pluses and minuses in the group. To test the null hypothesis that the k samples have come from the same population with respect to median, the value of chi square is computed by the formula:[3]

$$\chi^2 = \sum\sum \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

When k was equal to 2, the previously stated chi square formula for a 2 x 2 contingency table was used.

The results of the applications of these tests in the objective analysis of the research data are presented in the following chapter.

Siegel, p. 97.

Ibid., p. 111.

Ibid., p. 107.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

The purpose of this chapter is to present the data which was collected by a survey of executive and middle managers in selected industrial firms in the four metropolitan areas of Tennessee. Subjective data consists of a descriptive analysis of the 223 respondents. Objective data consists of consensus indices compiled from the responses of the managers; percentages of responses in each industrial classification for the curricular areas; Kolmogorov-Smirnov analyses of the differences in cumulative frequencies between executive and middle managers, between executive respondents in each of the five classifications compared with each of the remaining four classifications, between middle manager respondents in each of the five classifications compared with middle manager respondents in each of the remaining four industrial classifications; and chi square analyses to determine differences in responses to curricular areas between groups in which the Kolmogorov-Smirnov analysis of cumulative frequencies indicated a significant difference.

Profile of the Executive Manager

Of the 65 executive managers who returned completed survey instruments, 12 percent hold masters degrees; 63 percent have earned the bachelor's degree (23 percent were business majors and 40 percent were

nonbusiness majors); 3 percent were graduates of two-year colleges; 11 percent attended college but were not graduated; 11 percent listed high school graduation as their highest level of formal education. The most frequently mentioned types of training other than that previously listed were various management seminars either sponsored by the company or held at some institution of higher education.

Nine percent of the executive respondents were between the ages of 25 and 34; 35 percent were between the ages of 35 and 44; 34 percent were between the ages of 45 and 54; 22 percent were 55 years or older.

The average number of employees reporting to executive managers is 14. The least number reporting to any manager is one employee, and the largest number reporting is 175.

Profile of the Middle Manager

Of the 158 middle managers who returned completed survey instruments, 12 percent hold a masters degree; 58 percent hold a bachelor's degree (23.5 percent were business majors and 34.5 percent were nonbusiness majors); 4 percent are graduates of two-year colleges; 18 percent attended college but were not graduated; 7.6 percent are high school graduates. One respondent had completed the tenth grade as the highest level of formal education. The most frequently mentioned types of training other than that previously listed were data processing seminars and management seminars.

Concerning the ages of middle manager respondents, 30 percent were between the ages of 25 and 34 (one respondent was 24 years old); 36 percent were between the ages of 35 and 44; 25 percent were between the ages of 45 and 54; 9 percent were 55 years or older.

The average number of employees reporting to middle managers is 27 with zero being the lowest number reporting and 575 being the highest number reporting.

Consensus Indices

Consensus indices derived by categorizing responses on a scale from 3 to 0 are reported in Tables 4 through 8 for each of the five industrial classifications included in the study. In each table, the indices are presented in three categories: executive manager, middle manager, and an average derived by combining the indices for executive and middle managers.

Apparel Manufacturing Industry

Of the five industrial classifications included in this study, the Apparel Manufacturing industry is largest in terms of number of employees. Table 4, Page 60, lists the consensus indices for this industry. The indices range downward from 2.86 to 1.205. The rank order of curricular areas according to the indices is as follows:

1. Oral Communications
2. Basic Managerial Functions
3. Written Communications
4. Cost Control
5. Budget Preparation
6. Manufacturing Cost Analysis
7. Production Planning
8. Employee Motivation
9. Labor Relations
10. Selection and Training of Personnel
11. Wage and Salary Administration
12. Accounting Principles; Inventory Management
13. Psychology of the Individual
14. Employee Supervision
15. Short-Term Forecasting
16. Basic Economic Concepts
17. Cooperative Work Experience
18. Elementary Logic

TABLE 4

CONSENSUS INDEX
(Apparel Manufacturing)

Curricular Area	Executive Manager	Middle Manager	Average
Oral Communications	2.80	2.92	2.86
Written Communications	2.50	2.75	2.625
Statistical Techniques	1.60	1.71	1.655
Elementary Calculus (derivatives and integrals in business applications)	1.50	1.42	1.46
Accounting Principles	2.40	2.25	2.325
Budget Preparation	2.70	2.17	2.435
Manufacturing Cost Analysis	2.80	2.04	2.42
Basic Economic Concepts	2.40	1.83	2.115
Electronic Data Processing Systems	1.90	1.71	1.805
Elementary Statistical Probability	1.70	1.58	1.64
Basic Managerial Functions	2.80	2.46	2.63
Employee Supervision	2.50	1.92	2.21
Employee Motivation	2.50	2.25	2.375
Internal and External Sources of Funds and Their Costs to the Firm	1.80	1.63	1.715
Environmental Influences on Marketing Activities	1.60	1.50	1.55
Identification of Marketing Opportunities	1.60	1.75	1.675
Planning and Implementing Competitive Marketing Strategies	1.70	1.92	1.81
Consumer Behavior	1.60	1.88	1.74
Work Measurement	2.00	1.71	1.855
Wage and Salary Administration	2.50	2.17	2.335
Business Law	1.80	1.96	1.88
Governmental Regulating Agencies	1.80	1.92	1.86
Labor Relations	2.40	2.33	2.365
Short-Term Forecasting	2.50	1.75	2.125
Selection and Training of Personnel	2.60	2.08	2.34
Production Quality Control	2.20	1.79	1.995
Industrial Safety	1.90	2.00	1.95
Effect of Human Capabilities and Limitations on the Working Environment	2.00	1.625	1.8125
Effective Procurement of Raw Materials, Supplies, and Services	2.10	1.79	1.945
Plant Location	2.00	1.50	1.75
Production Planning	2.40	2.42	2.41
Inventory Management	2.40	2.25	2.325
Cost Control	2.50	2.38	2.44
Project Planning and Control (emphasis on Network Methods)	1.90	2.04	1.97
Modes of Domestic Freight	1.10	1.33	1.215
Anthropology	1.30	1.21	1.255
Classical Studies	1.20	1.21	1.205
Geography of the Environment	1.70	1.33	1.515
United States History	1.70	1.42	1.56
History of Other Nations	1.50	1.17	1.335
Contemporary Issues in Human Services	1.50	1.54	1.52
Elementary Logic	2.10	1.92	2.01
U. S. Government and Politics	2.00	1.96	1.98
Psychology of the Individual	2.40	2.08	2.24
General Sociology	2.00	1.75	1.875
Concepts of Biology	1.60	1.50	1.55
Ecology	1.70	1.54	1.62
General Chemistry	1.60	2.04	1.82
Geology	1.20	1.25	1.225
Elements of Physics	1.40	1.46	1.43
Survey of English and American Literature	1.50	1.50	1.50
Modern Foreign Languages	1.10	1.42	1.26
Appreciation of Art and Music	1.40	1.25	1.325
Cooperative Work Experience	2.30	1.92	2.11

Other Areas: Business Math, Basic Filing Systems, Principles of Organization

19. Production Quality Control
20. U. S. Government and Politics
21. Project Planning and Control (emphasis on Network Methods)
22. Industrial Safety
23. Effective Procurement of Raw Materials and Supplies
24. Business Law
25. General Sociology
26. Governmental Regulating Agencies
27. Work Measurement
28. General Chemistry
29. Effect of Human Capabilities and Limitations on the Working Environment
30. Planning and Implementing Competitive Marketing Strategies
31. Electronic Data Processing Systems
32. Plant Location
33. Production Planning
34. Internal and External Sources of Funds and Their Costs to the Firm
35. Identification of Marketing Opportunities
36. Statistical Techniques
37. Elementary Statistical Probability
38. Ecology
39. United States History
40. Environmental Influences on Marketing Activities; Concepts of Biology
41. Survey of English and American Literature
42. Contemporary Issues in Human Services
43. Geography of the Environment
44. Elementary Calculus (derivatives and integrals in business applications)
45. Elements of Physics
46. History of Other Nations
47. Appreciation of Art and Music
48. Modern Foreign Languages
49. Anthropology
50. Geology
51. Modes of Domestic Freight
52. Classical Studies

Of these curricular areas, Groups 1 through 3 received a rating of 2.50 or higher. These groups include the communications areas and managerial functions. Groups 4 through 18 received an index of 2.01 to 2.435. Included in these groups are the business-related competencies of behaviorally oriented management, accounting, and economics. The general or nonbusiness areas included in these groups are psychology of the individual, which has a direct relationship with behavioral

management, and elementary logic. The final ten curricular areas in the ranking received an index of 1.5 or lower and would therefore be considered to be of little or no importance to the middle manager in the Apparel Manufacturing industry in his work. The only business-related curricular area in these groups is transportation.

Competency areas not included in the survey instrument which were listed by Apparel Manufacturing respondents as being important to the middle manager were simplified business mathematics, ability to set up and maintain a good filing system, and organization principles--particularly the organization of time. Several respondents reiterated the importance of human relations in management and especially a need to better understand young people in the work force. Concerning nonbusiness competencies, one respondent noted that while most had been marked "unimportant" in relation to the work of a middle manager, the need exists for managers to be able to converse intelligently about many subjects.

Responses on which this analysis is based were obtained from managers in four firms: two in Knoxville, one in Memphis, and one in Chattanooga.

Chemical and Allied Products Industry

The second largest industrial classification included in this study in terms of number of employees is the Chemical and Allied Products industry. Consensus indices for this industry are listed in Table 5, Page 63. The indices range downward from 2.94 to 1.01. Curricular areas in rank order according to indices are as follows:

TABLE 5

CONSENSUS INDEX
(Chemical and Allied Products)

Curricular Area	Executive Manager	Middle Manager	Average
Oral Communications	2.95	2.93	2.94
Written Communications	2.74	2.80	2.77
Statistical Techniques	1.32	1.61	1.465
Elementary Calculus (derivatives and integrals in business applications)	1.32	1.28	1.30
Accounting Principles	1.95	2.17	2.06
Budget Preparation	1.95	2.30	2.125
Manufacturing Cost Analysis	2.00	2.28	2.14
Basic Economic Concepts	2.26	2.04	2.15
Electronic Data Processing Systems	1.58	1.80	1.69
Elementary Statistical Probability	1.37	1.78	1.575
Basic Managerial Functions	2.58	2.72	2.65
Employee Supervision	2.11	2.41	2.26
Employee Motivation	2.42	2.61	2.515
Internal and External Sources of Funds and Their Costs to the Firm	1.21	1.65	1.43
Environmental Influences on Marketing Activities	1.16	1.76	1.46
Identification of Marketing Opportunities	1.21	1.48	1.345
Planning and Implementing Competitive Marketing Strategies	1.10	1.39	1.245
Consumer Behavior	1.37	1.54	1.455
Work Measurement	1.84	1.98	1.91
Wage and Salary Administration	1.79	1.93	1.86
Business Law	1.63	1.61	1.62
Governmental Regulating Agencies	1.68	1.54	1.61
Labor Relations	2.37	2.54	2.455
Short-Term Forecasting	1.89	2.07	1.98
Selection and Training of Personnel	2.00	2.52	2.26
Production Quality Control	1.84	2.11	1.975
Industrial Safety	2.11	2.22	2.165
Effect of Human Capabilities and Limitations on the Working Environment	1.79	1.93	1.85
Effective Procurement of Raw Materials, Supplies and Services	1.32	1.39	1.355
Plant Location	1.42	1.22	1.32
Production Planning	1.68	2.11	1.895
Inventory Management	1.84	2.07	1.955
Cost Control	2.63	2.54	2.585
Project Planning and Control	1.63	1.93	1.78
Modes of Domestic Freight	1.00	1.02	1.01
Anthropology	1.11	1.22	1.165
Classical Studies	1.26	1.22	1.24
Geography of the Environment	1.47	1.46	1.465
United States History	1.52	1.57	1.545
History of Other Nations	1.37	1.33	1.35
Contemporary Issues in Human Services	1.79	1.67	1.73
Elementary Logic	2.26	2.37	2.315
U. S. Government and Politics	2.05	1.74	1.895
Psychology of the Individual	2.26	2.39	2.325
General Sociology	1.63	1.80	1.715
Concepts of Biology	1.26	1.46	1.36
Ecology	1.89	1.87	1.88
General Chemistry	2.11	2.04	2.075
Geology	1.21	1.30	1.255
Elements of Physics	1.95	1.98	1.965
Survey of English and American Literature	1.47	1.43	1.45
Modern Foreign Languages	1.32	1.13	1.225
Appreciation of Art and Music	1.37	1.22	1.295
Cooperative Work Experience	2.00	2.15	2.075

Other Areas: Mechanical or Chemical Engineering, Engineering Economics, Long-Range Planning

1. Oral Communications
2. Written Communications
3. Basic Managerial Functions
4. Cost Control
5. Employee Motivation
6. Labor Relations
7. Psychology of the Individual
8. Elementary Logic
9. Employee Supervision
10. Selection and Training of Personnel
11. Industrial Safety
12. Basic Economic Concepts
13. Manufacturing Cost Analysis
14. Budget Preparation
15. Cooperative Work Experience; General Chemistry
16. Accounting Principles
17. Short-Term Forecasting
18. Production Quality Control
19. Elements of Physics
20. Inventory Management
21. Work Measurement
22. Production Planning; U. S. Government and Politics
23. Ecology
24. Wage and Salary Administration
25. Effect of Human Capabilities and Limitations on the Work Environment
26. Project Planning and Control (emphasis on Network Methods)
27. Contemporary Issues in Human Services
28. General Sociology
29. Electronic Data Processing Systems
30. Business Law
31. Governmental Regulating Agencies
32. Elementary Statistical Probability
33. United States History
34. Statistical Techniques; Geography of the Environment
35. Environmental Influences on Marketing Activities
36. Consumer Behavior
37. Survey of English and American Literature
38. Internal and External Sources of Funds and Their Costs to the Firm
39. Concepts of Biology
40. Effective Procurement of Raw Materials and Supplies
41. History of Other Nations
42. Identification of Marketing Opportunities
43. Plant Location
44. Elementary Calculus (derivatives and integrals in business applications)
45. Appreciation of Art and Music
46. Geology
47. Planning and Implementing Competitive Marketing Strategies
48. Classical Studies
49. Modern Foreign Languages

50. Anthropology
51. Modes of Domestic Freight

Curricular areas 1 through 5 received a rating of 2.50 or higher. Included in these groups are the areas of communications and the business-related areas of management principles, human relations, and cost control. Groups 6 through 16 received an index of 2.00 to 2.50. Business areas included in these groups pertain to behavioral management, budgeting, economics and industrial safety. The nonbusiness areas included are psychology, logic and chemistry. Receiving an index of 1.50 or less were Groups 38 through 51. Business-related curricular areas in these groups are marketing courses, finance, purchasing and transportation.

Other competency areas mentioned as being important to middle managers in the Chemical and Allied Products industry which were not included in the survey instrument included technical areas such as mechanical or chemical engineering, engineering economics, and long-range planning to complement short-range planning. Again, the behavioral areas of management were emphasized by respondents. Specific areas of concern included the importance of delegation and its place in management, application of leadership techniques, dealing with conflicts, and the ability to relate comfortably to people from various social levels and backgrounds. One respondent noted that college students need to improve their ability to communicate technical knowledge both orally and in writing. Two respondents said that cooperative work experience had been overlooked too long as a tool for training managers. While this technique has been used for technical training, it has largely been ignored for the development of management skills.

One respondent stated that while he had marked many areas in the nonbusiness competency group as unimportant, he thought that students should be given a broad grounding in disciplines such as literature, the arts, and history. He noted:

> ...we spend only a portion of our lives in the work situation; and, therefore, to achieve a totally meaningful life, we need to be able to understand ideas unrelated to our normal work.

This analysis is based on responses of managers from five firms in the Chemical and Allied Products industry. One firm is located in Nashville, two in Knoxville, one in Oak Ridge (Knoxville metropolitan area), and one in Chattanooga.

Textile Mill Products Industry

The third largest industrial classification in terms of number of employees included in this study is Textile Mill Products. Consensus indices for this industry are shown in Table 6, Page 67. The indices range downward from 2.83 to 1.105. Curricular areas ranked in order of the indices are as follows:

1. Oral Communications
2. Written Communications
3. Basic Managerial Functions
4. Employee Motivation; Psychology of the Individual; Manufacturing Cost Analysis
5. Cost Control; Employee Motivation
6. Selection and Training of Personnel
7. Labor Relations
8. Elementary Logic
9. Wage and Salary Administration
10. Budget Preparation
11. Industrial Safety
12. U. S. Government and Politics
13. Basic Economic Concepts
14. Accounting Principles
15. Inventory Management
16. Cooperative Work Experience
17. Governmental Regulating Agencies
18. General Sociology

TABLE 6

CONSENSUS INDEX
(Textile Mill Products)

Curricular Area	Executive Manager	Middle Manager	Average
Oral Communications	2.73	2.93	2.83
Written Communications	2.45	2.67	2.55
Statistical Techniques	1.82	1.40	1.61
Elementary Calculus (derivatives and integrals in business applications)	1.55	1.37	1.46
Accounting Principles	2.00	2.07	2.035
Budget Preparation	1.91	2.47	2.19
Manufacturing Cost Analysis	2.18	2.57	2.375
Basic Economic Concepts	2.00	2.10	2.05
Electronic Data Processing Systems	1.91	1.70	1.805
Elementary Statistical Probability	1.45	1.63	1.54
Basic Managerial Functions	2.36	2.70	2.53
Employee Supervision	2.27	2.50	2.385
Employee Motivation	2.18	2.57	2.375
Internal and External Sources of Funds and Their Costs to the Firm	1.82	1.70	1.76
Environmental Influences on Marketing Activities	1.45	1.40	1.425
Identification of Marketing Opportunities	1.64	1.00	1.32
Planning and Implementing Competitive Marketing Strategies	1.73	1.23	1.48
Consumer Behavior	1.91	1.70	1.805
Work Measurement	1.73	2.00	1.865
Wage and Salary Administration	2.27	2.13	2.20
Business Law	1.91	1.83	1.87
Governmental Regulating Agencies	1.73	2.17	1.95
Labor Relations	2.09	2.57	2.33
Short-Term Forecasting	1.64	1.57	1.605
Selection and Training of Personnel	2.27	2.40	2.335
Production Quality Control	1.82	2.00	1.91
Industrial Safety	2.00	2.33	2.165
Effect of Human Capabilities and Limitations on the Working Environment	1.64	2.00	1.82
Effective Procurement of Raw Materials, Supplies and Services	1.73	1.53	1.63
Plant Location	1.73	1.50	1.615
Production Planning	2.00	1.83	1.195
Inventory Management	2.00	2.00	2.00
Cost Control	2.55	2.20	2.375
Project Planning and Control (emphasis on Network Methods)	2.00	1.70	1.85
Modes of Domestic Freight	.91	1.30	1.105
Anthropology	1.45	1.57	1.51
Classical Studies	1.18	1.23	1.205
Geography of the Environment	1.27	1.60	1.435
United States History	1.73	1.70	1.715
History of Other Nations	1.45	1.40	1.425
Contemporary Issues in Human Services	1.64	2.00	1.82
Elementary Logic	2.27	2.27	2.27
U. S. Government and Politics	2.00	2.27	2.135
Psychology of the Individual	2.27	2.50	2.385
General Sociology	1.82	2.07	1.945
Concepts of Biology	1.45	1.53	1.49
Ecology	1.73	1.73	1.73
General Chemistry	1.36	1.50	1.43
Geology	1.29	1.10	1.185
Elements of Physics	1.09	1.40	1.245
Survey of English and American Literature	1.55	1.43	1.49
Modern Foreign Languages	1.27	1.30	1.285
Appreciation of Art and Music	1.18	1.33	1.255
Cooperative Work Experience	2.09	1.90	1.995

Other Areas: Time Management, Counseling of Employees

19. Production Planning
20. Production Quality Control
21. Business Law
22. Short-Term Forecasting
23. Project Planning and Control (emphasis on Network Methods)
24. Contemporary Issues in Human Services
25. Effect of Human Capabilities and Limitations on the Work Environment
26. Electronic Data Processing Systems; Consumer Behavior
27. Internal and External Sources of Funds and Their Costs to the Firm
28. Ecology
29. United States History
30. Effective Procurement of Raw Materials and Supplies
31. Plant Location
32. Statistical Techniques
33. Short-Term Forecasting
34. Elementary Statistical Probability
35. Anthropology; Survey of English and American Literature
36. Concepts of Biology
37. Planning and Implementing Competitive Marketing Strategies
38. Elementary Calculus (derivatives and integrals in business applications)
39. Geography of the Environment
40. General Chemistry
41. Environmental Influences on Marketing Activities; History of Other Nations
42. Identification of Marketing Opportunities
43. Modern Foreign Languages
44. Elements of Physics
45. Classical Studies
46. Appréciation of Art and Music
47. Geology
48. Modes of Domestic Freight

In this ranking of curricular areas, Groups 1 through 3 received and index of 2.50 or better. Included in these groups are the communications areas and management principles. Groups 4 through 14 received an index of 2.00 to 2.50. Business-related areas included pertain to behavioral management, budgeting and cost control, economics, and industrial safety. The nonbusiness-related areas included are psychology and logic. Receiving an index of 1.50 or lower were Groups 36 through 48. Business-related areas in these groups are marketing and transportation.

Other competencies listed by respondents from the Textile Mill Products industry as being important for middle managers included time management and counseling of employees. The importance of human relations was stressed by several respondents. One participant noted that an important element of wage and salary administration is performance appraisals for wage and salary increases.

The importance of general education was stressed even though nonbusiness competencies might not be directly related to the manager's work. Concerning the role of the middle manager, one respondent wrote:

> Business education tends to stress middle management's role in carrying out plans established by top management. In actual practice, middle management plays a heavy role in guiding top management in the development of plans. This is particularly true in technical areas such as data processing. A well-rounded education provides a better framework than a more vocationally oriented curriculum for four-year institutions. The two-year institutions should concentrate on vocational subjects.

The source of this data included participants from four firms. One firm is located in Memphis, one in Knoxville, and two are located in Chattanooga.

Machinery, Except Electrical, Industry

The industrial classification, Machinery, Except Electrical, employs the fourth largest number of people of the five industrial classifications included in this study. Consensus indices for this group are listed in Table 7, Page 70. The indices range downward from 2.98 to 1.19. Curricular areas ranked in order of the indices are:

1. Oral Communications
2. Written Communications
3. Basic Managerial Functions; Employee Motivation
4. Psychology of the Individual
5. Cost Control
6. Employee Supervision

TABLE 7

CONSENSUS INDEX
(Machinery, Except Electrical)

Curricular Area	Executive Manager	Middle Manager	Average
Oral Communications	3.00	2.96	2.98
Written Communications	2.73	2.79	2.76
Statistical Techniques	1.21	1.36	1.285
Elementary Calculus (derivatives and integrals in business applications)	1.09	1.29	1.19
Accounting Principles	2.27	2.18	2.225
Budget Preparation	2.36	2.11	2.235
Manufacturing Cost Analysis	2.09	2.21	2.15
Basic Economic Concepts	2.18	2.14	2.16
Electornic Data Processing Systems	1.91	1.57	1.74
Elementary Statistical Probability	1.55	1.43	1.49
Basic Managerial Functions	2.82	2.54	2.68
Employee Supervision	2.64	2.04	2.34
Employee Motivation	2.82	2.54	2.68
Internal and External Sources of Funds and Their Costs to the Firm	2.18	1.79	1.985
Environmental Influences on Marketing Activities	1.73	1.75	1.74
Identification of Marketing Opportunities	1.91	1.14	1.525
Planning and Implementing Competitive Marketing Strategies	1.91	1.21	1.56
Consumer Behavior	1.82	1.64	1.73
Work Measurement	2.00	2.00	2.00
Wage and Salary Administration	1.91	1.96	1.935
Business Law	1.54	2.00	1.77
Governmental Regulating Agencies	1.91	1.89	1.90
Labor Relations	2.18	2.18	2.18
Short-Term Forecasting	2.09	1.64	1.865
Selection and Training of Personnel	2.36	1.93	2.145
Production Quality Control	2.00	2.00	2.00
Industrial Safety	2.27	2.07	2.17
Effect of Human Capabilities and Limitations on the Working Environment	1.91	1.86	1.885
Effective Procurement of Raw Materials, Supplies and Services	1.73	1.82	1.775
Plant Location	1.73	1.36	1.545
Production Planning	1.91	1.75	1.83
Inventory Management	1.82	1.86	1.84
Cost Control	2.55	2.21	2.38
Project Planning and Control (emphasis on Network Methods)	2.09	2.00	2.045
Modes of Domestic Freight	1.36	1.46	1.41
Anthropology	1.27	1.32	1.295
Classical Studies	1.27	1.21	1.24
Geography of the Environment	1.36	1.57	1.465
United States History	1.82	1.68	1.75
History of Other Nations	1.55	1.64	1.595
Contemporary Issues in Human Services	1.82	2.00	1.91
Elementary Logic	2.27	2.36	2.315
U. S. Government and Politics	2.36	2.07	2.215
Psychology of the Individual	2.64	2.36	2.50
General Sociology	1.82	1.79	1.805
Concepts of Biology	1.18	1.36	1.27
Ecology	1.73	1.96	1.845
General Chemistry	1.45	1.54	1.495
Geology	1.45	1.32	1.385
Elements of Physics	1.91	1.79	1.85
Survey of English and American Literature	1.45	1.39	1.42
Modern Foreign Languages	1.55	1.21	1.38
Appreciation of Art and Music	1.36	1.21	1.285
Cooperative Work Experience	2.09	2.14	2.115

Other Areas: Transactional Analysis, Time Management, Shop Courses (welding, wood working, etc.)

7. Elementary Logic
8. Budget Preparation
9. Accounting Principles
10. U. S. Government and Politics
11. Labor Relations
12. Industrial Safety
13. Basic Economic Concepts
14. Manufacturing Cost Analysis
15. Selection and Training of Personnel
16. Cooperative Work Experience
17. Project Planning and Control (emphasis on Network Methods)
18. Work Measurement; Production Quality Control
19. Internal and External Sources of Funds and Their Costs to the Firm
20. Wage and Salary Administration
21. Contemporary Issues in Human Services
22. Governmental Regulating Agencies
23. Effect of Human Capabilities and Limitations on the Work Environment
24. Short-Term Forecasting
25. Elements of Physics
26. Ecology
27. Inventory Management
28. Production Planning
29. General Sociology
30. Effective Procurement of Raw Materials and Supplies
31. Business Law
32. U. S. History
33. Environmental Influences on Marketing Activities; Electronic Data Processing
34. Consumer Behavior
35. History of Other Nations
36. Planning and Implementing Competitive Marketing Strategies
37. Plant Location
38. Identification of Marketing Opportunities
39. General Chemistry
40. Elementary Statistical Probability
41. Geography of the Environment
42. Survey of English and American Literature
43. Modes of Domestic Freight
44. Geology
45. Modern Foreign Languages
46. Anthropology
47. Statistical Techniques; Appreciation of Art and Music
48. Concepts of Biology
49. Classical Studies
50. Elementary Calculus (derivatives and integrals in business applications)

In this ranking of curricular areas, Groups 1 through 4 received an index of 2.50 or greater. Included in these groups are the

communications areas, management principles, and behavioral management. Also included is the general area of psychology of the individual. Groups 5 through 18 received an index of 2.00 to 2.50. Business-related curricular areas included in these groups are cost analysis and control, behavioral management areas, accounting areas, economics, and cooperative work experience. Aspects of industrial engineering and the nonbusiness areas of logic and U. S. Government and politics are also included. The final twelve curricular areas received an index of 1.50 or lower. Transportation is the only business-related area included in these groups.

Competencies considered important to the middle manager by respondents in the Machinery, Except Electrical, industry which were not included in the survey list included transactional analysis, time management, and technical courses such as welding, sheet metal founding, and wood working. Technical courses were stressed so that the graduate would have a "feel" for materials used by employees. Emphasized as an important part of management principles was the study of various management philosophies and techniques of problem solving. The area of human relations was noted as being particularly important to the middle manager.

Respondents providing this data were executive and middle managers employed in four firms. One firm is located in Nashville and one in Knoxville. Two are located in Chattanooga.

Newspaper Publishing Industry

Accounting for the smallest number of employees of the five industrial classifications included in this study is the Newspaper Publishing industry. Consensus indices for this industry are listed in

Table 8, Page 74. The indices range downward from 2.895 to 0.925.

Curricular areas ranked in order of indices are as follows:

1. Oral Communications
2. Basic Managerial Functions
3. Written Communications
4. Psychology of the Individual
5. Employee Motivation; Selection and Training of Personnel
6. Inventory Management
7. Budget Preparation
8. Elementary Logic
9. Cost Control
10. Business Law
11. Employee Supervision; Planning and Implementing Competitive Marketing Strategies; Labor Relations
12. Consumer Behavior
13. Identification of Market Opportunities
14. Accounting Principles
15. Manufacturing Cost Analysis
16. Basic Economic Concepts
17. Short-Term Forecasting
18. Electronic Data Processing Systems; U. S. Government and Politics
19. Environmental Influences on Marketing Activities; Survey of English and American Literature
20. Project Planning and Control (emphasis on Network Methods); Sociology
21. United States History
22. Cooperative Work Experience
23. Governmental Regulating Agencies
24. Wage and Salary Administration
25. Internal and External Sources of Funds and Their Costs to the Firm
26. Contemporary Issues in Human Services
27. Work Measurement
28. Ecology
29. Production Planning
30. Geography of the Environment
31. History of Other Nations
32. Statistical Techniques
33. Elementary Statistical Probability
34. Industrial Safety
35. Classical Studies
36. Elements of Physics
37. Effect of Human Capabilities and Limitations on the Work Environment
38. Anthropology
39. Production Quality Control
40. Concepts of Biology
41. Appreciation of Art and Music

TABLE 8

CONSENSUS INDEX
(Newspaper Publishing)

Curricular Area	Executive Manager	Middle Manager	Average
Oral Communications	3.00	2.79	2.895
Written Communications	2.71	2.75	2.73
Statistical Techniques	1.57	1.86	1.715
Elementary Calculus (derivatives and integrals in business applications)	1.21	1.69	1.45
Accounting Principles	1.93	2.36	2.145
Budget Preparation	2.43	2.55	2.49
Manufacturing Cost Analysis	2.00	2.28	2.14
Basic Economic Concepts	2.21	2.17	2.19
Electronic Data Processing Systems	1.86	2.38	2.12
Elementary Statistical Probability	1.57	1.72	1.645
Basic Managerial Functions	2.79	2.69	2.74
Employee Supervision	2.57	2.17	2.37
Employee Motivation	2.79	2.34	2.565
Internal and External Sources of Funds and Their Costs to the Firm	2.00	1.71	1.855
Environmental Influences on Markeging Activities	2.14	2.93	2.035
Identification of Marketing Opportunities	2.43	2.00	2.215
Planning and Implementing Competitive Marketing Strategies	2.57	2.17	2.37
Consumer Behavior	2.36	2.31	2.335
Work Measurement	2.00	1.66	1.83
Wage and Salary Administration	1.64	2.14	1.89
Business Law	2.71	2.07	2.39
Governmental Regulating Agencies	1.64	2.17	1.905
Labor Relations	2.29	2.45	2.37
Short-Term Forecasting	2.15	2.17	2.16
Selection and Training of Personnel	2.79	2.34	2.565
Production Quality Control	1.43	1.59	1.51
Industrial Safety	1.36	1.86	1.61
Effect of Human Capabilities and Limitations on the Working Environment	1.57	1.52	1.545
Effective Procurement of Raw Materials, Supplies and Services	1.00	1.52	1.26
Plant Location	.86	1.45	1.155
Production Planning	1.71	1.86	1.785
Inventory Management	2.86	2.19	2.525
Cost Control	2.21	2.59	2.40
Project Planning and Control (emphasis on Network Methods)	1.86	2.14	2.00
Modes of Domestic Freight	.57	1.28	.925
Anthropology	1.43	1.62	1.525
Classical Studies	1.57	1.55	1.56
Geography of the Environment	1.71	1.76	1.735
United States History	2.00	1.86	1.93
History of Other Nations	1.86	1.59	1.725
Contemporary Issues in Human Services	1.93	1.76	1.845
Elementary Logic	2.43	2.38	2.405
U. S. Government and Politics	2.21	2.03	2.21
Psychology of the Individual	2.50	2.79	2.645
General Sociology	1.93	2.07	2.00
Concepts of Biology	1.50	1.48	1.49
Ecology	1.79	1.83	1.81
General Chemistry	1.36	1.38	1.37
Geology	.93	1.28	1.105
Elements of Physics	1.64	1.46	1.55
Survey of English and American Literature	2.07	2.00	2.035
Modern Foreign Languages	1.26	1.38	1.32
Appreciation of Art and Music	1.50	1.48	1.49
Cooperative Work Experience	2.00	1.83	1.915

Other Areas: Business Games for Abstract Thinking

42. Elementary Calculus (derivatives and integrals in business applications)
43. General Chemistry
44. Modern Foreign Languages
45. Effective Procurement of Raw Materials and Supplies
46. Plant Location
47. Geology
48. Modes of Domestic Freight

Groups 1 through 6 in this ranking of curricular areas have an index of 2.50 or above. Included in these groups are the communications areas, management principles, aspects of behavioral management, and inventory management. The only nonbusiness area included is psychology of the individual. Groups 7 through 20 received an index of 2.00 to 2.50. Business-related curricular areas included in these rankings are accounting and related areas, business law and labor relations, behavioral aspects of management, marketing-related areas, economics, data processing, and production management. The nonbusiness areas included in these groups are U. S. Government and politics, literature, and sociology. The final eight curricular areas in this listing have an index of less than 1.50. Business-related areas included in this group are purchasing, transportation, and plant location.

Newspaper Publishing respondents also said that intensive study in human relations is of utmost importance to the middle manager. The use of business games for training was noted, and the importance of the case study method of instruction was listed. As an important segment of labor relations and government regulating agencies, working with unions and an understanding of the Civil Rights Laws as they pertain to hiring and firing were stressed by respondents.

Data for the Newspaper Publishing Industry was provided by executive and middle managers from four newspaper publishing companies.

One company is located in Memphis, one in Nashville, one in Knoxville, and one in Chattanooga.

All Industrial Classifications

In order to determine the comprehensive importance of competencies included in the survey instrument, consensus indices (see Table 9, Page 77) were derived from the responses of executive and middle managers in all industrial classifications. These indices were averaged yielding indices ranging from 2.905 to 1.11. The curricular areas in rank order for all respondents are as follows:

1. Oral Communications
2. Written Communications
3. Basic Managerial Functions
4. Employee Motivation
5. Cost Control
6. Psychology of the Individual
7. Labor Relations
8. Selection and Training of Personnel
9. Employee Supervision
10. Budget Preparation
11. Elementary Logic
12. Manufacturing Cost Analysis
13. Accounting Principles
14. Basic Economic Concepts
15. U. S. Government and Politics
16. Cooperative Work Experience
17. Wage and Salary Administration; Inventory Management
18. Production Planning
19. Work Measurement
20. Short-Term Forecasting
21. Industrial Safety
22. Project Planning and Control (emphasis on Network Methods)
23. Production Quality Control; General Sociology
24. Government Regulating Agencies
25. Electronic Data Processing Systems
26. Ecology
27. Effect of Human Capabilities and Limitations on the Work Environment
28. Business Law
29. Consumer Behavior
30. Contemporary Issues in Human Services
31. Internal and External Sources of Funds and Their Costs to the Firm

TABLE 9

CONSENSUS INDEX
(Respondents, All Industrial Classifications)

Curricular Area	Executive Manager	Middle Manager	Average
Oral Communications	2.92	2.89	2.905
Written Communications	2.65	2.75	2.70
Statistical Techniques	1.54	1.61	1.575
Elementary Calculus (derivatives and integrals in business applications)	1.32	1.41	1.365
Accounting Principles	2.08	2.26	2.17
Budget Preparation	2.23	2.34	2.285
Manufacturing Cost Analysis	2.17	2.30	2.235
Basic Economic Concepts	2.22	2.06	2.14
Electronic Data Processing Systems	1.80	1.84	1.82
Elementary Statistical Probability	1.51	1.67	1.59
Basic Managerial Functions	2.68	2.66	2.67
Employee Supervision	2.38	2.27	2.325
Employee Motivation	2.68	2.51	2.595
Internal and External Sources of Funds and Their Costs to the Firm	1.74	1.69	1.715
Environmental Influences on Marketing Activities	1.58	1.72	1.65
Identification of Marketing Opportunities	1.77	1.65	1.71
Planning and Implementing Competitive Marketing Strategies	1.75	1.61	1.68
Consumer Behavior	1.78	1.78	1.78
Work Measurement	2.02	1.89	1.955
Wage and Salary Administration	1.97	2.05	2.01
Business Law	1.71	1.86	1.785
Governmental Regulating Agencies	1.74	1.91	1.825
Labor Relations	2.28	2.42	2.35
Short-Term Forecasting	2.02	2.87	2.445
Selection and Training of Personnel	2.37	2.30	2.335
Production Quality Control	1.80	1.93	1.865
Industrial Safety	1.92	1.94	1.93
Effect of Human Capabilities and Limitations on the Work Environment	1.77	1.82	1.795
Effective Procurement of Raw Materials, Supplies and Services	1.51	1.58	1.545
Plant Location	1.49	1.39	1.44
Production Planning	1.89	2.08	1.985
Inventory Management	1.94	2.08	2.01
Cost Control	2.46	2.41	2.435
Project Planning and Control (emphasis on Network Methods)	1.86	1.95	1.905
Modes of Domestic Freight	0.97	1.25	1.11
Anthropology	1.34	1.38	1.36
Classical Studies	1.31	1.28	1.295
Geography of the Environment	1.51	1.54	1.525
United States History	1.65	1.65	1.65
History of Other Nations	1.54	1.42	1.48
Contemporary Issues in Human Services	1.75	1.77	1.76
Elementary Logic	2.28	2.21	2.245
U. S. Government and Politics	2.12	2.00	2.06
Psychology of the Individual	2.37	2.38	2.375
General Sociology	1.82	1.91	1.865
Concepts of Biology	1.38	1.48	1.43
Ecology	1.78	1.82	1.80
General Chemistry	1.63	1.68	1.655
Geology	1.28	1.25	1.265
Elements of Physics	1.65	1.68	1.665
Survey of English and American Literature	1.62	1.54	1.58
Modern Foreign Languages	1.31	1.27	1.29
Appreciation of Art and Music	1.23	1.32	1.275
Cooperative Work Experience	2.06	2.03	2.045

32. Identification of Marketing Opportunities
33. Planning and Implementing Competitive Marketing Strategies
34. Elements of Physics
35. General Chemistry
36. Environmental Influences on Marketing Activities; United States History
37. Elementary Statistical Probability
38. Survey of English and American Literature
39. Statistical Techniques
40. Effective Procurement of Raw Materials, Supplies, and Services
41. Geography of the Environment
42. History of Other Nations
43. Plant Location
44. Concepts of Biology
45. Elements of Calculus (derivatives and integrals in business applications)
46. Anthropology
47. Classical Studies
48. Modern Foreign Languages
49. Appreciation of Art and Music
50. Geology
51. Modes of Domestic Freight

In this comprehensive ranking, Groups 1 through 4 received an index of 2.50 or greater. Included in these groups are the communications areas, managerial functions, and motivation of employees. Receiving an index of 2.00 to 2.50 were Groups 5 through 17. Business competencies included in these groups are budget preparation, cost analysis and control, accounting areas, the human-relations-related areas, economics and cooperative work experience. The nonbusiness curricular areas included in these groups are U. S. Government and politics, psychology, and logic. Groups 39 through 51 received an index of 1.50 or lower. The business-related areas included in these competencies are purchasing, transportation, and plant location.

Contained in Appendix F are all the curricular areas included in the survey and the percentage of all respondents who considered the subject to be "Very Important", "Moderately Important", "Unimportant", or

thought that the competency should be developed on the job. From this table, it was determined that the following curricular areas are considered to be very important to the middle manager in his work by 50 percent or more of all respondents:

Oral Communications

Written Communications

Basic Managerial Functions

Psychology of the Individual

Cost Control

A further analysis of the comprehensive opinions of the respondents indicated that the only curricular area considered to be very important by 90 percent or more respondents was oral communications. Fifty percent or more respondents consider the following curricular areas (ranked in order) to be very important or moderately important to the middle manager in his work:

Oral Communications

Written Communications

Basic Managerial Functions

Employee Motivation

Cost Control

Psychology of the Individual

Labor Relations

Selection and Training of Personnel

Employee Supervision

In summary, analysis of the consensus indices for each industry and the combined responses of all executive and middle managers indicates

overwhelmingly the importance of oral and written communications and the human-relations-oriented management subjects as a part of the management curriculum. These areas consistently received a high rating by respondents from all industrial classifications included in the study.

Analyses of the Kolmogorov-Smirnov Test

The Kolmogorov-Smirnov Two-Sample statistical test was selected to determine significant differences of opinion concerning the importance of competencies included in the survey instrument. The results of this test indicate significant differences in the combined responses of groups within the survey sample but do not indicate the competencies or curricular areas where the differences of opinion occur.

The design of the survey instrument was such that the respondent reacted to each competency as "Very Important", "Moderately Important", "Unimportant", or "To Be Developed on the Job Only". In order to utilize the Kolmogorov-Smirnov Test, the responses in each of these categories were totaled for each of the following groups within the sample: executive managers in each industrial classification, middle managers in each industrial classification, all executive managers, and all middle managers.

The first Kolmogorov-Smirnov test was utilized to determine significant differences in the responses of executive managers in one industrial classification and the responses of executive managers in each of the other industrial classifications. The maximum difference, D, was computed for each comparison.

Stated in the null, the first hypothesis to be tested was:

> There is no significant difference in the pre-employment training needs of industrial middle managers in Tennessee as evidenced by the opinions of executive managers in selected Tennessee industrial firms.

Tables 10 through 14, Pages 82 through 86, show the values which maximum D must equal or exceed in each comparison and the computed value of maximum D for each comparison. From these tables, the following significant differences are noted in executive managerial responses:

Apparel Manufacturing and Chemical and Allied Products

Apparel Manufacturing and Textile Mill Products

Chemical and Allied Products and Machinery, Except Electrical

Chemical and Allied Products and Newspaper Publishing

Textile Mill Products and Newspaper Publishing

Thus, of the ten comparisons made, five, 50 percent, yielded significant differences. For these, the null hypothesis must be rejected. There is a significant difference in the pre-employment training needs of middle managers in the Apparel Manufacturing industry and the Chemical and Allied Products industry; the Apparel Manufacturing and Textile Mill Products industries; the Chemical and Allied Products and Machinery, Except Electrical, industries; the Chemical and Allied Products and Newspaper Publishing industries; and the Textile Mill Products and Newspaper Publishing industries as evidenced by the opinions of executive managers in selected Tennessee industrial firms.

The second usage of the Kolmogorov-Smirnov test was to compare the responses of middle managers in one industrial classification with the responses of middle managers in each of the other industrial classifications. Stated in the null, the second hypothesis to be tested was:

TABLE 10

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Executive Managers--Apparel Manufacturing)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Chemical and Allied Products	.0723	.0876
Textile Mill Products	.0809	.0874
Machinery, Except Electrical	.0809	.0470
Newspaper Publishing	.0766	.0457

*.05 Level of Significance

TABLE 11

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Executive Managers--Chemical and Allied Products)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Newspaper Publishing	.0652	.0734
Apparel Manufacturing	.0732	.0876
Textile Mill Products	.0701	.0673
Machinery, Except Electrical	.0701	.0875

*.05 Level of Significance

TABLE 12

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Executive Managers--Textile Mill Products)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Chemical and Allied Products	.0701	.0673
Machinery, Except Electrical	.0789	.0675
Newspaper Publishing	.0746	.0892
Apparel Manufacturing	.0809	.0874

*.05 Level of Significance

TABLE 13

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Executive Managers--Machinery Except Electrical)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Chemical and Allied Products	.0701	.0875
Textile Mill Products	.0789	.0674
Apparel Manufacturing	.0766	.0457
Newspaper Publishing	.0746	.0703

*.05 Level of Significance

TABLE 14

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Executive Managers--Newspaper Publishing)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Chemical and Allied Products	.0652	.0734
Textile Mill Products	.0746	.0892
Apparel Manufacturing	.0766	.0457
Machinery, Except Electrical	.0746	.0703

*.05 Level of Significance

> There is no significant difference in the pre-employment training needs of industrial middle managers in Tennessee as evidenced by the opinions of middle managers in selected Tennessee industrial firms.

Responses of middle managers in each industrial classification were combined. Maximum D for each comparison was computed. Tables 15 through 19, Pages 88 through 92, show the value which Maximum D had to equal or exceed for rejection of the null hypothesis and the computed value of Maximum D for each comparison. These tables reveal significant differences for the following comparisons:

Apparel Manufacturing and Newspaper Publishing

Chemical and Allied Products and Newspaper Publishing

Textile Mill Products and Machinery, Except Electrical

Textile Mill Products and Newspaper Publishing

Machinery, Except Electrical, and Newspaper Publishing

Ten comparisons were made; five, 50 percent, resulted in significant differences. For these comparisons, then, the null hypothesis must be rejected. Hence, there is a significant difference in the pre-employment training needs of middle managers in the Apparel Manufacturing industry and middle managers in the Newspaper Publishing industry; the Chemical and Allied Products industry and the Newspaper Publishing industry; the Textile Mill Products industry and the Machinery, Except Electrical, industry; the Textile Mill Products industry and the Newspaper Publishing industry; the Machinery, Except Electrical, industry and the Newspaper Publishing industry as evidenced by the opinions of middle managers in selected Tennessee industrial firms.

The Kolmogorov-Smirnov test was used a third time for determining significant differences in the combined responses of all executive

TABLE 15

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Middle Managers--Apparel Manufacturing)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Chemical and Allied Products	.0460	.0140
Textile Mill Products	.0501	.0448
Machinery, Except Electrical	.0509	.0161
Newspaper Publishing	.0501	.0621

*.05 Level of Significance

TABLE 16

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Middle Managers--Chemical and Allied Products)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Apparel Manufacturing	.0460	.0140
Textile Mill Products	.0434	.0340
Machinery, Except Electrical	.0444	.0150
Newspaper Publishing	.0434	.0513

*.05 Level of Significance

TABLE 17

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Middle Managers--Textile Mill Products)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Apparel Manufacturing	.0501	.0448
Chemical and Allied Products	.0434	.0340
Machinery, Except Electrical	.0486	.0521
Newspaper Publishing	.0478	.0543

*.05 Level of Significance

TABLE 18

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Middle Managers--Machinery, Except Electrical)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Apparel Manufacturing	.0509	.0161
Chemical and Allied Products	.0444	.0150
Textile Mill Products	.0486	.0521
Newspaper Publishing	.0486	.0694

*.05 Level of Significance

TABLE 19

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(Middle Managers--Newspaper Publishing)

Industrial Classification	Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
Apparel Manufacturing	.0501	.0621
Chemical and Allied Products	.0434	.0513
Textile Mill Products	.0478	.0534
Machinery, Except Electrical	.0486	.0694

*.05 Level of Significance

managers and the combined responses of all middle managers. Stated in the null, the third hypothesis was:

> There is no significant difference in the pre-employment training needs of industrial middle managers in Tennessee as evidenced by the opinions of executive and middle managers in selected Tennessee industrial firms.

Table 20, Page 94, shows the result when the comparison was made of the responses of all executive managers and the responses of all middle managers. In order to reject the null hypothesis at the .05 level of significance, the computed value of maximum D had to equal or exceed .0636. Because the computed value of maximum D was .0581, the third hypothesis must fail to be rejected. Consequently, there is no significant difference in the pre-employment training needs of industrial middle managers in Tennessee as evidenced by the opinions of 65 executive managers and 158 middle managers in selected Tennessee industrial firms.

Analyses of the Chi Square and Fisher Tests

The chi square test and the Fisher test of exact probability were used for statistical analysis of the curricular areas. When the combined responses of executive managers in one industry were compared with the combined responses of executive managers in other industries by utilizing the Kolmogorov-Smirnov statistical test, five significant differences were noted. Likewise, significant differences were indicated in five comparisons of cumulative middle managerial responses.

For the industrial classifications where these differences occurred, responses to each curricular area were combined in 2 x 2 cells in the following ways: (1) The "Very Important" and "Moderately Important" responses were combined to form one cell; the "Unimportant" and

TABLE 20

SIGNIFICANT KOLMOGOROV-SMIRNOV ANALYSES

(All Executive Managers and All Middle Managers)

Maximum D Value Needed to Reject Null Hypothesis*	Computed Value Maximum D
.0636	.0581

*.05 Level of Significance

"To-Be-Developed-on-the-Job" responses were combined to form another cell; (2) the "Very Important" responses were cast into one cell; the "Moderately Important", "Unimportant", and "To-Be-Developed-on-the-Job" responses were combined to form another cell. In each comparison of responses to curricular areas, the chi square test was utilized if N was greater than 40. If N was between 20 and 40 and any cell had fewer than five frequencies, the Fisher test of exact probability was used.

In the comparisons of executive managerial responses to curricular areas, all N's were between 20 and 40. In most instances, there was at least one cell with fewer than five frequencies. Two tests were computed for each curricular area. Sixty-three of these were chi square tests and 477 were Fisher tests. All significant differences were P values (computed by the Fisher test) in the comparisons of executive managerial responses to curricular areas.

When middle managerial responses to the importance of individual competencies were compared, all N's were greater than 40. Thus all significant differences are chi square values. Again, two tests were computed for each curricular area. The analysis was based upon 540 computations of the chi square statistical test.

Executive Managerial Responses

Tables 21 through 25 list the curricular areas where there were significant differences in the comparisons of executive managerial responses to competency areas.

Apparel Manufacturing. Table 21, Page 96, lists the competency areas in which there were significant differences when the responses of Apparel Manufacturing executive managers were compared with executive

TABLE 21

SIGNIFICANT CHI SQUARE AND FISHER TEST ANALYSES

(Executive Managers--Apparel Manufacturing)

Competency	Calculated P Value	
	Chemical and Allied Products	Textile Mill Products
6. Budget Preparation	.02*	.02*
19. Work Measurement	.02*	
29. Effective Procurement of Raw Materials, Supplies, and Services	.03	

*Comparison of "Very Important" responses with other responses.

managerial responses from the Chemical and Allied Products industry and the Textile Mill Products industry. Significant differences were derived when "Very Important" and "Moderately Important" responses were grouped and "Unimportant" and "To-Be-Developed-on-the-Job" responses formed another cell unless indicated. Four significant differences occurred in a total of 216 comparisons (1.85 percent). The following are the competency areas in which significant differences were revealed in the comparison of executive managerial responses from the Apparel Manufacturing industry with executive managerial responses from the Chemical and Allied Products industry:

6. Budget Preparation
19. Work Measurement
29. Effective Procurement of Raw Materials, Supplies, and Services

When Apparel Manufacturing executive managerial responses were compared with the responses of Textile Mill Products executives, there was a significant difference in only one curricular area. This was:

6. Budget Preparation

Comparisons of the cumulative responses of Apparel Manufacturing executives and the cumulative responses of Machinery, Except Electrical, and Newspaper Publishing executives revealed no significant differences. Thus, there is no significant difference in the pre-employment training needs of middle managers in the Apparel Manufacturing industry and middle managers in the Machinery, Except Electrical, and Newspaper Publishing industries in Tennessee in the opinions of executive managers from selected firms in these industries.

Chemical and Allied Products. Table 22, Page 98, indicates the curricular areas in which there were significant differences in the

TABLE 22

SIGNIFICANT CHI SQUARE AND FISHER TEST ANALYSES

(Executive Managers--Chemical and Allied Products)

Competency	Calculated P Value		
	Newspaper Publishing	Apparel Manufacturing	Machinery Except, Electrical
6. Budget Preparation		.02*	
14. Internal and External Sources of Funds			.03*
15. Environmental Influences on Marketing Activities	.02		
16. Identification of Marketing Opportunities	.02		
17. Planning and Implementing Competitive Marketing Strategies	.02		
18. Consumer Behavior	.05		
19. Work Measurement		.02*	
25. Selection and Training of Personnel	.05		
27. Industrial Safety	.05*		
29. Effective Procurement of Raw Materials, Supplies and Services		.03	
37. Classical Studies	.03		
39. United States History			.04*
40. History of Other Nations	.04		
48. General Chemistry	.03		.05*
51. Survey of English and American Literature	.04		

*Comparison of "Very Important" responses and all other responses.

responses of executive managers in the Chemical and Allied Products industry when compared with the responses of executive managers in the Newspaper Publishing; Apparel Manufacturing; and Machinery, Except Electrical, industries. Of 324 comparisons, there were 16 significant differences (4.94 percent). In the comparison of Chemical and Allied Products executive managerial responses with Newspaper Publishing executive managerial responses, there were significant differences in the following curricular areas:

15. Environmental Influences on Marketing Activities
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
18. Consumer Behavior
25. Selection and Training of Personnel
27. Industrial Safety
37. Classical Studies
40. History of Other Nations
48. General Chemistry
51. Survey of English and American Literature

There were three curricular areas where significant differences were indicated when the responses of Chemical and Allied Products executives were compared with the responses of Apparel Manufacturing executives. These were:

6. Budget Preparation
19. Work Measurement
29. Effective Procurement of Raw Materials, Supplies, and Services

A comparison of Chemical and Allied Products executive managerial responses and Machinery, Except Electrical, executive managerial responses revealed significant differences in three curricular areas. These were:

14. Internal and External Sources of Funds and Their Costs to the Firm
39. United States History
48. General Chemistry

Statistical analysis of the cumulative Chemical and Allied Products executive managerial responses and the cumulative executive managerial responses of the Textile Mill Products industry revealed no significant differences. Therefore, pre-employment training needs for middle managers in the Chemical and Allied Products industry and middle managers in the Textile Mill Products industry do not differ significantly in the opinions of executive managers from selected firms in Tennessee in these industries.

Textile Mill Products. Table 23, Page 101, lists the curricular areas in which the executive managerial responses in the Textile Mill Products industry differ significantly from the responses of executive managers in the Apparel Manufacturing and Newspaper Publishing industries. Of 216 comparisons, there were seven areas in which significant differences occurred (3.24 percent). In the comparison of Textile Mill Products executive managerial responses with Apparel Manufacturing executive managerial responses, only one area of significant difference was revealed. This was:

6. Budget Preparation

This difference was obtained when the "Very Important" responses were cast into one cell and all other responses were cast into another cell. No significant difference was obtained when the "Very Important" and "Moderately Important" responses were grouped against the "Unimportant" and "To-Be-Developed-on-the-Job" responses.

The group with which there was the greatest difference when Textile Mill Products executive managerial responses were compared with other executive managerial responses was the Newspaper Publishing

TABLE 23

SIGNIFICANT CHI SQUARE AND FISHER TEST ANALYSES

(Executive Managers--Textile Mill Products)

Competency	Calculated P Value	
	Apparel Manufacturing	Newspaper Publishing
6. Budget Preparation	.02*	
15. Environmental Influences on Marketing Activities		.03
16. Identification of Marketing Opportunities		.02*
18. Consumer Behavior		.03*
27. Industrial Safety		.03*
30. Plant Location		.03
50. Elements of Physics		.03

*Comparison of "Very Important" responses with other responses.

industry. There were significant differences in the following curricular areas:

15. Environmental Influences on Marketing Activities
16. Identification of Marketing Opportunities
18. Consumer Behavior
27. Industrial Safety
30. Plant Location
50. Elements of Physics

Comparisons of the cumulative responses of Textile Mill Products executive managers with the cumulative responses of Machinery, Except Electrical, and Chemical and Allied Products executive managers revealed no significant differences. Thus there is no significant difference in the pre-employment training needs of Textile Mill Products middle managers and Machinery, Except Electrical, and Chemical and Allied Products middle managers in Tennessee in the opinion of executive managers from selected Tennessee industrial firms.

Machinery, Except Electrical. Table 24, Page 103, lists the curricular areas where significant differences occurred when executive managerial responses in the Machinery, Except Electrical, industry were compared with Chemical and Allied Products executive managerial responses. Of 108 comparisons, there were three (2.79 percent) curricular areas in which significant differences occurred. These areas were:

14. Internal and External Sources of Funds and Their Costs to the Firm
39. United States History
48. General Chemistry

All of these differences were obtained by grouping the "Very Important" responses against all other responses.

When Machinery, Except Electrical, cumulative executive managerial responses were compared with the cumulative responses of executive

TABLE 24

SIGNIFICANT CHI SQUARE AND FISHER TEST ANALYSES

(Executive Managers--Machinery, Except Electrical)

Competency	Computed P Value
	Chemical and Allied Products
14. Internal and External Sources of Funds and Their Costs to the Firm	.03*
39. United States History	.04*
48. General Chemistry	.05*

*Comparison of "Very Important" responses with other responses.

managers in the Newspaper Publishing, Apparel Manufacturing, and Textile Mill Products industries, no significant differences occurred. Hence, there is no significant difference in the pre-employment training needs of middle managers in the Machinery, Except Electrical, industry and middle managers in the Newspaper Publishing, Apparel Manufacturing, and Textile Mill Products industries according to the opinions of executive managers in selected firms from these industries in Tennessee.

Newspaper Publishing. Table 25, Page 105, indicates the curricular areas in which the responses of executive managers in the Newspaper Publishing industry differed significantly from Chemical and Allied Products executive managerial responses and Textile Mill Products executive managerial responses. Sixteen significant differences (7.41 percent) occurred from 216 comparisons. The comparison of Newspaper Publishing executive managerial responses with Chemical and Allied Products executive managerial responses revealed significant differences in the following areas:

15. Environmental Influences on Marketing Activities
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
18. Consumer Behavior
25. Selection and Training of Personnel
27. Industrial Safety
37. Classical Studies
40. History of Other Nations
48. General Chemistry
51. Survey of English and American Literature

Significant differences in the responses of Newspaper Publishing executives were indicated in six curricular areas when compared with the responses of Textile Mill Products executives. These were:

15. Environmental Influences on Marketing Activities
16. Identification of Marketing Opportunities
18. Consumer Behavior

TABLE 25

SIGNIFICANT CHI SQUARE AND FISHER TEST ANALYSES

(Executive Managers--Newspaper Publishing)

Competency	Calculated P Value	
	Chemical and Allied Products	Textile Mill Products
15. Environmental Influences on Marketing Activities	.02	.03
16. Identification of Marketing Opportunities	.02	.02*
17. Planning and Implementing Competitive Marketing Strategies	.02	
18. Consumer Behavior	.05	.03*
25. Selection and Training of Personnel	.05	
27. Industrial Safety	.05*	.03*
30. Plant Location		.03
37. Classical Studies	.03	
40. History of Other Nations	.04	
48. General Chemistry	.03	
50. Elements of Physics		.03
51. Survey of English and American Literature	.04	

*Comparison of "Very Important" responses with other responses.

27. Industrial Safety
30. Plant Location
50. Elements of Physics

There were no significant differences in the cumulative responses of Newspaper Publishing executives when compared with the cumulative responses of Apparel Manufacturing executives and Machinery, Except Electrical, executives. Consequently, there is no significant difference in the pre-employment training needs of middle managers in the Newspaper Publishing industry and middle managers in the Apparel Manufacturing and Machinery, Except Electrical, industries in the opinions of executive managers from selected firms in Tennessee in these industrial classifications.

Middle Managerial Responses

The Kolmogorov-Smirnov test indicated significant differences in the cumulative responses of five comparisons of middle managers. Tables 26 through 30 list the curricular areas for groups of industrial middle managers where significant differences occurred.

Apparel Manufacturing. Table 26, Page 107, compares the responses of Apparel Manufacturing middle managers with the responses of middle managers in the Newspaper Publishing industry. Of 108 comparisons, four differences (3.7 percent) occurred. The curricular areas where differences occurred were:

9. Electronic Data Processing Systems
31. Production Planning
42. Elementary Logic
51. Survey of English and American Literature

No significant differences occurred when the cumulative responses of Apparel Manufacturing middle managers were compared with the cumulative responses of Chemical and Allied Products middle managers;

TABLE 26

SIGNIFICANT CHI SQUARE ANALYSES

(Middle Managers--Apparel Manufacturing)

Competency	Calculated Chi Square Value
	Newspaper Publishing
9. Electronic Data Processing Systems	5.24
31. Production Planning	6.19*
42. Elementary Logic	5.61
51. Survey of English and American Literature	4.86

*Comparison of "Very Important" responses with other responses.

Textile Mill Products middle managers; and Machinery, Except Electrical, middle managers. Hence there is no significant difference in the pre-employment training needs of middle managers in the Apparel Manufacturing industry and middle managers in the Chemical and Allied Products; Textile Mill Products; and Machinery, Except Electrical, industries in the opinions of middle managers from selected firms in Tennessee in these industries.

Chemical and Allied Products. Table 27, Page 109, lists the curricular areas in which there were significant differences when Chemical and Allied Products middle managerial responses were compared with Newspaper Publishing middle managerial responses. Of 108 comparisons, there were 14 differences (12.96 percent). The areas where these differences occurred were:

4. Elementary Calculus
9. Electronic Data Processing Systems
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
18. Consumer Behavior
21. Business Law
22. Governmental Regulating Agencies
27. Industrial Safety
36. Anthropology
38. Geography of the Environment
40. History of Other Nations
46. Concepts of Biology and Their Relationship to Current and Future Social Problems
50. Elements of Physics
51. Survey of English and American Literature

When the cumulative responses of Chemical and Allied Products middle managers were compared with the cumulative responses of middle managers in the Apparel Manufacturing; Textile Mill Products; and Machinery, Except Electrical, industries, no significant differences occurred. Thus, there is no significant difference in the pre-employment

TABLE 27

SIGNIFICANT CHI SQUARE ANALYSES

(Middle Managers--Chemical and Allied Products)

Competency	Calculated Chi Square Value
	Newspaper Publishing
4. Elementary Calculus	7.78
9. Electronic Data Processing Systems	14.39*
16. Identification of Marketing Opportunities	9.07*
17. Planning and Implementing Competitive Marketing Strategies	6.26
18. Consumer Behavior	16.66*
21. Business Law	4.02
22. Governmental Regulating Agencies	4.55*
27. Industrial Safety	6.26*
36. Anthropology	4.13
38. Geography of the Environment	5.72*
40. History of Other Nations	4.08
46. Concepts of Biology and Their Relationship to Current and Future Social Problems	3.91
50. Elements of Physics	11.26
51. Survey of English and American Literature	8.84

*Comparison of "Very Important" responses with other responses.

training needs of middle managers in the Chemical and Allied Products industry and middle managers in the Apparel Manufacturing; Textile Mill Products; and Machinery, Except Electrical, industries in the opinions of middle managers currently employed in selected firms in Tennessee of these industrial classifications.

Textile Mill Products. Statistical testing of the cumulative middle managerial responses revealed significant differences in the comparison of responses of Textile Mill Products middle managers and Machinery, Except Electrical, and Newspaper Publishing middle managers. Table 28, Page 111, lists the curricular areas where these differences occurred. Fifteen significant differences (6.94 percent) were revealed from 216 comparisons. In the comparison with responses of middle managers in the Machinery, Except Electrical, industry, significant differences occurred in the following curricular areas:

12. Employee Supervision
23. Labor Relations
40. History of Other Nations
49. Geology

When Textile Mill Products middle managerial responses were compared with Newspaper Publishing middle managerial responses, significant differences occurred in the following curricular areas:

4. Elementary Calculus
9. Electronic Data Processing Systems
15. Environmental Influences on Marketing Activities
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
18. Consumer Behavior
19. Work Measurement
24. Short-Term Forecasting
26. Production Quality Control
27. Industrial Safety
51. Survey of English and American Literature

TABLE 28

SIGNIFICANT CHI SQUARE ANALYSES

(Middle Managers--Textile Mill Products)

Competency	Calculated Chi Square Value	
	Machinery, Except Electrical	Newspaper Publishing
4. Elementary Calculus		4.27
9. Electronic Data Processing Systems		4.57
12. Employee Supervision	4.41*	
15. Environmental Influences on Marketing Activities		5.10*
16. Identification of Marketing Opportunities		8.10
17. Planning and Implementing Competitive Marketing Strategies		6.73
18. Consumer Behavior		6.08*
19. Work Measurement		3.89*
23. Labor Relations	5.22*	
24. Short-Term Forecasting		5.25
26. Production Quality Control		3.89*
27. Industrial Safety		5.50
40. History of Other Nations	4.39	
49. Geology	5.278	
51. Survey of English and American Literature		8.21

*Comparison of "Very Important" responses with other responses.

No significant differences were revealed when the cumulative responses of Textile Mill Products middle managers were compared with the cumulative responses of Apparel Manufacturing middle managers and Chemical and Allied Products middle managers. Therefore, there is no significant difference in the pre-employment training needs of middle managers in the Textile Mill Products industry and middle managers in the Apparel Manufacturing and Chemical and Allied Products industries in the opinions of middle managers from selected firms in Tennessee of these industrial classifications.

Machinery, Except Electrical. Table 29, Page 113, lists the curricular areas in which there were significant differences when responses of middle managers in the Machinery, Except Electrical, industry were compared with Newspaper Publishing and Textile Mill Products middle managerial responses. Of 216 comparisons, 11 differences occurred (5.09 percent). When Machinery, Except Electrical, middle managerial responses were compared with Newspaper Publishing middle managerial responses, there were significant differences in the following curricular areas:

3. Statistical Techniques
4. Elementary Calculus
6. Budget Preparation
9. Electronic Data Processing Systems
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
51. Survey of English and American Literature

Curricular areas in which differences occurred when the responses of Machinery, Except Electrical, middle managers were compared with Textile Mill Products middle managerial responses were as follows:

12. Employee Supervision
23. Labor Relations
40. History of Other Nations
49. Geology

TABLE 29

SIGNIFICANT CHI SQUARE ANALYSES

(Middle Managers--Machinery, Except Electrical)

Competency	Calculated Chi Square Value	
	Newspaper Publishing	Textile Mill Products
3. Statistical Techniques	4.24	
4. Elementary Calculus	5.47	
6. Budget Preparation	6.59*	
9. Electronic Data Processing Systems	10.39*	
12. Employee Supervision		4.41*
16. Identification of Marketing Opportunities	3.86*	
17. Planning and Implementing Competitive Marketing Strategies	5.30	
23. Labor Relations		5.22*
40. History of Other Nations		4.39
49. Geology		5.278
51. Survey of English and American Literature	5.35	

*Comparison of "Very Important" responses with other responses.

No significant differences were revealed when the cumulative responses of Machinery, Except Electrical, middle managers were compared with the cumulative responses of middle managers in the Chemical and Allied Products and Apparel Manufacturing industries. Thus there is no significant difference in the pre-employment training needs of middle managers in the Machinery, Except Electrical, industry and middle managers in the Chemical and Allied Products and Apparel Manufacturing industries in the opinions of middle managers from selected Tennessee firms in these industries.

Newspaper Publishing. Table 30, Pages 115-116, compares the responses of Newspaper Publishing middle managers with the responses of middle managers in the other four industrial classifications. Of 432 comparisons, there were 36 differences (8.33 percent). When Newspaper Publishing middle managerial responses were compared to Chemical and Allied Products middle managerial responses, significant differences occurred in fourteen curricular areas. These were:

9. Electronic Data Processing Systems
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
18. Consumer Behavior
21. Business Law
22. Governmental Regulating Agencies
27. Industrial Safety
36. Anthropology
38. Geography of the Environment
40. History of Other Nations
46. Concepts of Biology
48. General Chemistry
50. Elements of Physics
51. Survey of English and American Literature

Significant differences in the responses of Newspaper Publishing middle managers when compared with the responses of Apparel Manufacturing middle managers occurred in the following curricular areas:

TABLE 30

SIGNIFICANT CHI SQUARE ANALYSES

(Middle Managers--Newspaper Publishing)

Competency	Calculated Chi Square Value			
	Chemical and Allied Products	Apparel Manufacturing	Textile Mill Products	Machinery, Except Electrical
3. Statistical Techniques				4.24
4. Elementary Calculus				5.47
6. Budget Preparation				6.59*
9. Electronic Data Processing Systems	14.39*	5.24	4.57	10.39*
15. Environmental Influences On Marketing Activities			5.10	
16. Identification of Marketing Opportunities	9.07*			3.86*
17. Planning and Implementing Competitive Marketing Strategies	6.26		6.73	5.30
18. Consumer Behavior	16.66*		6.08*	
19. Work Measurement			3.89*	
21. Business Law	4.02			
22. Governmental Regulating Agencies	4.55*			
24. Short-Term Forecasting			5.25	

TABLE 30 (Continued)

Competency	Calculated Chi Square Value			
	Chemical and Allied Products	Apparel Manufacturing	Textile Mill Products	Machinery, Except Electrical
26. Production Quality Control			3.89*	
27. Industrial Safety	6.26		5.50*	
31. Production Planning		6.19*		
36. Anthropology	4.13			
38. Geography of the Environment	5.72*			
40. History of Other Nations	4.08*			
42. Elementary Logic		5.61		
46. Concepts of Biology	3.91			
48. General Chemistry	18.80			
50. Elements of Physics	11.26			
51. Survey of English and American Literature	8.84	4.86	8.21	5.35

*Comparison of "Very Important" responses and all other responses.

9. Electronic Data Processing Systems
31. Production Planning
42. Elementary Logic
51. Survey of English and American Literature

There were nine curricular areas in which significant differences were noted when Newspaper Publishing middle managerial responses were compared with Textile Mill Products middle managerial responses. These were:

9. Electronic Data Processing Systems
15. Environmental Influences on Marketing Activities
17. Planning and Implementing Competitive Marketing Strategies
18. Consumer Behavior
19. Work Measurement
24. Short-Term Forecasting
26. Production Quality Control
27. Industrial Safety
51. Survey of English and American Literature

A comparison of Newspaper Publishing middle managerial responses with Machinery, Except Electrical, middle managerial responses revealed significant differences in seven curricular areas. These were:

3. Statistical Techniques
4. Elementary Calculus
6. Budget Preparation
9. Electronic Data Processing Systems
16. Identification of Marketing Opportunities
17. Planning and Implementing Competitive Marketing Strategies
51. Survey of English and American Literature

This analysis of Newspaper Publishing middle managerial responses indicates that in the opinions of industrial middle managers, pre-employment training needs of Newspaper Publishing middle managers differ significantly from the pre-employment training needs of middle managers in other industrial classifications. The greatest difference is between the Newspaper Publishing industry and the Chemical and Allied Products industry. The least difference occurs in the comparison of the Newspaper Publishing and Apparel Manufacturing industries.

Middle Management Personnel Requirements

Managers participating in the study were asked to predict increases or decreases in their firm's need for middle managers for the next decade. Executive managerial responses were analyzed to determine the predicted percentages of increase or decrease for each industrial classification. Table 31 lists these increases or decreases for each industrial classification.

TABLE 31

AVERAGE OF PREDICTED INCREASE OR DECREASE IN MANPOWER NEEDS FOR INDUSTRIAL MIDDLE MANAGEMENT

Industrial Classification	Percent of Increase or Decrease As Evidenced by Executive Management
Apparel Manufacturing	34.82%
Chemical and Allied Products	-00.66%
Textile Mill Products	41.15%
Machinery, Except Electrical	17.41%
Newspaper Publishing	2.64%

Mean = 19.072%; Standard Deviation = 16.72%

The mean of these averages is 19.072 percent. The greatest predicted increase is in the Textile Mill Products industry. The combined responses of executives in the Chemical and Allied Products industry suggest a slight decrease in middle management requirements. Predicted increases in the Apparel Manufacturing and Textile Mill Products industries

are above the mean. The prediction for the Machinery, Except Electrical, industry is slightly below the mean. The predictions for the Newspaper Publishing and Chemical and Allied Products industries is considerably below the mean. Only the predicted decrease of .66 percent for the Chemical and Allied Products industry and the predicted increase of 41.15 percent for the Textile Mill Products industry are greater than one standard deviation from the mean.

Of the 65 executive managers participating in the study, 42 predicted middle management requirements for the next decade. Several of the managers not responding to this question indicated the following as their reasons for not doing so: (1) the employing firm had no ten-year plan; (2) there simply was no basis for prediction. Some managers who indicated no additional requirements in number of personnel noted there would be replacements necessitated by the retirement of present personnel.

The extension of the median test was utilized to test the fourth hypothesis. Stated in the null, this hypothesis was:

> There is no significant difference between projected middle management requirements in different industrial classifications in the opinions of executive managers in selected Tennessee industrial firms.

The median of the percentages of increase or decrease was 25 percent. Table 32, Page 120, shows the number of predicted increases above the median for each industrial classification and the number of predicted increases or decreases below the median increase. In order to reject the null hypothesis, chi square had to equal or exceed 9.49 at the .05 level of significance. The calculated value of chi square was 21.01 and is significant at the .05 level, 4 degrees of freedom. Therefore the null hypothesis must be rejected. There is a significant

TABLE 32

PREDICTED INCREASES IN MIDDLE MANAGEMENT REQUIREMENTS

(Median = 25%)

	Apparel Manufacturing	Chemical and Allied Products	Textile Mill Products	Machinery, Except Electrical	Newspaper Publishing	Total
Number of Predicted Percentages of Increase Above the Common Median	5	0	5	4	1	15
Number of Predicted Percentages Equal To or Below the Common Median	1	7	1	5	13	27
Total	6	7	6	9	14	42

Chi Square = 21.02;

.05 Level of Significance, 4df

difference in the projected middle management requirements for different industrial classifications in the opinions of executive managers in selected Tennessee industrial firms.

Responsibilities of Industrial Middle Managers

In order to determine duties and responsibilities characteristic of the jobs of industrial middle managers in Tennessee, executive managerial participants were asked what they considered to be the duties and responsibilities typical of an industrial middle manager's job. Middle manager participants were asked what duties and responsibilities were characteristic of their jobs.

The following duties and responsibilities were listed by executive and middle managers in the Apparel Manufacturing industry as being typical of a middle manager's job:

Plant Manager
Division Manager
Department Manager
Functional Manager (manufacturing, sales, finance, publishing, etc.)
Product Manager
Project Manager
Planning and formulation of goals
Production planning, scheduling, and control
Selecting and hiring employees
Employee supervision
Training and development of subordinates
Labor and employee relations
Motivation of employees
Community relations
Cost control and budgeting
Inventory control
Evaluation of trends and forecasting
Industrial safety
Monitor deviations and measure progress
Maintenance of equipment

Duties and responsibilities typical of a middle manager's job as reported by managers in the Chemical and Allied Products industry are:

Division Manager
Department Manager
Functional Manager (manufacturing, sales, finance, purchasing, etc.)
Product Manager
Project Manager
Planning and formulation of goals
Production planning, scheduling, and control
Employee supervision
Training and development of subordinates
Delegation of authority
Labor and employee relations
Motivation of employees
Cost control and budgeting
Quality control
Waste control
Materials management
Evaluation of trends and forecasting
Troubleshooting
Industrial safety
Monitor deviations and measure progress
Equipment maintenance
Implement programs of top management
Compliance with governmental regulations (OSHA, EEO, etc.)
Decision making
Maximization of profits

Middle managerial duties and responsibilities listed by Textile Mill Products managers were:

Plant Manager
Division Manager
Department Manager
Functional Manager (manufacturing, sales, finance, purchasing, etc.)
Planning and formulation of goals
Production planning, scheduling and control
Selecting and hiring employees
Employee supervision
Training and developing subordinates
Labor and employee relations
Cost control and budgeting
Quality control
Inventory control
Waste control
Materials management
Evaluation of trends and forecasting
Troubleshooting
Industrial safety
Monitor deviations and measure progress
Equipment maintenance
Implement programs of top management

Assist in determining capital expenditures
Compliance with governmental regulations (OSHA, EEO, etc.)
Maximization of profits

Executive and middle manager participants in the Machinery, Except Electrical, industry listed the following duties and responsibilities as being characteristic of a middle manager's job:

Plant Manager
Division Manager
Department Manager
Functional Manager (manufacturing, sales, finance, purchasing, etc.)
Planning and formulation of goals
Production planning, scheduling, and control
Selection and hiring of employees
Employee supervision
Monitor deviations and measure progress
Labor and employee relations
Community relations
Cost control and budgeting
Evaluation of trends and forecasting
Troubleshooting
Industrial safety
Equipment maintenance
Compliance with governmental regulations (OSHA, EEO, etc.)
Quality control
Inventory control
Waste control
Assist in determining capital expenditures

Participating managers in the Newspaper Publishing industry listed the following duties and responsibilities as being typical of a middle manager's work:

Division Manager
Department Manager
Functional Manager (manufacturing, sales, finance, purchasing, etc.)
Planning and formulation of goals
Production planning, scheduling, and control
Selection and hiring of employees
Employee supervision
Training and developing subordinates
Labor and employee relations
Community relations
Cost control and budgeting
Evaluation of trends and forecasting
Troubleshooting

Industrial safety
Equipment maintenance
Compliance with governmental regulations (OSHA, EEO, etc.)

Stated in the null, the fifth hypothesis to be tested was:

> There is no significant difference in the opinions of executive and middle managers in selected Tennessee industrial firms concerning the duties and responsibilities of industrial middle managers in Tennessee.

The extension of the median test was employed to determine if there was a significant difference in the opinions of executive managers and middle managers in the five industrial classifications concerning duties and responsibilities of middle managers. All executive managerial responses from the five classifications were combined for comparison with the responses of all middle managers in all classifications. Table 33, Page 125, lists the duties and responsibilities noted by respondents and the percent of managers who listed them. Table 34, Page 126, shows the application of the extension of the median test.

In order to reject the null hypothesis at the .05 level of significance, chi square had to equal or exceed 3.84, 1 degree of freedom. In this analysis, chi square was equal to .27. Therefore the null hypothesis cannot be rejected. There is no significant difference in the opinions of executive and middle managers in selected Tennessee industrial firms concerning the duties and responsibilities of industrial middle managers.

Because this information was gathered by simply asking one question rather than providing a checklist of responsibilities to which participants might respond, limitations must be placed on this analysis. Some managerial responses were stated in much more detail than others.

TABLE 33

DUTIES AND RESPONSIBILITIES OF INDUSTRIAL MIDDLE MANAGERS

Responsibility	Percent of Executive Managers Responding	Percent of Middle Managers Responding
Plant Manager	3.1	3.8
Division Manager	4.8	9.0
Department Manager	6.5	9.6
Functional Manager (Manufacturing, Sales, Finance, etc.)	45.2	39.1
Product Manager	12.9	7.7
Project Manager	0.0	1.3
Planning and Formulation of Goals	6.5	8.3
Production Planning and Scheduling	12.9	13.5
Selecting and Hiring Employees	1.6	3.8
Employee Supervision	12.9	19.9
Training and Development of Subordinates	9.7	8.3
Delegation of Responsibility	0.0	0.6
Labor and/or Employee Relations	21.0	14.1
Motivation of Employees	1.6	1.3
Community Relations	1.6	1.9
Cost Control and Budgeting	9.7	16.7
Quality Control	6.5	12.2
Inventory Control	1.6	2.6
Waste Control	0.0	2.6
Materials Management	4.8	0.6
Evaluation of Trends and Forecasting	1.6	3.8
Troubleshooting	0.0	1.9
Industrial Safety	24.2	9.6
Monitor Deviations and Measure Progress	3.2	7.7
Equipment Maintenance	0.0	4.5
Implement Programs of Top Management	3.2	1.3
Assist in Determination of Capital Expenditures	0.0	1.3
Compliance With Governmental Regulations (OSHA, EEO, etc.)	1.6	1.9
Decision Making	0.0	1.3
Maximization of Profits	1.6	1.9

Chi Square = .27, 1df; .05 Level of Significance

TABLE 34

DUTIES AND RESPONSIBILITIES OF INDUSTRIAL MIDDLE MANAGERS

(Median = 3.5%)

	Executive Managers	Middle Managers	Total
Number Responding to Responsibility Above the Common Median	13	17	30
Number Responding to Responsibility At or Below the Common Median	17	13	30
Total	30	30	60

Chi Square = .27, 1df

.05 Level of Significance

For example, one manager might list "department head" as a responsibility. Another would list not only "department head" but would list also the duties and responsibilities that this job entailed. Generally executive managerial responses were much more limited and much less detailed than the responses of middle managers.

The Management Curriculum in Tennessee Colleges and Universities

In Tennessee, there are five state-supported and five private institutions of higher education which offer the bachelor's degree in management (see Appendix A). Seven two-year colleges offer a certificate program and/or an associate degree in industrial management. The management curriculum of each of these schools was obtained (See Appendix G). Requirements for the bachelor's and associate degrees in management were compared to executive and middle managerial responses to business-related competencies included in the survey instrument.

Commonly noted characteristics of the requirements for a degree in management were: (1) There is a core requirement of business-related courses. Beyond these, the student may elect an area of emphasis from a number of options. The larger the school the more options available to the student. (2) There is a core requirement of nonbusiness-related subjects. Much flexibility is built into this core. Specified areas of study required of all students generally include English composition, mathematics, United States history, natural science, humanities, and physical education. Within these areas, the student as some choice of subjects to be taken. (3) The two-year colleges offer more technical

training. Very little general education is required. There is much flexibility in the requirements; in one instance, all course offerings were electives. The student, in order to earn the degree or certificate, selected an appropriate number of hours from these electives.

Course requirements and suggested outcomes of these courses were analyzed. Shown in Table 35, Page 129, are the business competencies which were included in the survey instrument, the percentage of schools which require these curricular areas as a part of the core of the management curriculum, and the percentage of executive and middle managers who responded to the competency as "Very Important" or "Moderately Important". The sixth hypothesis to be tested was:

> There is no significant difference in present management curricular requirements in Tennessee colleges and universities and pre-employment training recommended for industrial middle managers by executive and middle managers in selected Tennessee industrial firms.

The extension of the median test was utilized to test this hypothesis. The median percentage was 71.165 percent. Table 36, Page 130, indicates the number of percentages above the median and equal to or below the median for both curricular requirements and managerial responses. In order to reject the null hypothesis at the .05 level of significance, chi square had to equal 3.84, one degree of freedom. In this analysis, chi square was equal to .926. Therefore the null hypothesis must fail to be rejected. There is no significant difference in the present management curricular requirements in Tennessee colleges and universities and pre-employment training recommended for industrial middle managers by executive and middle managers in selected Tennessee industrial firms.

TABLE 35

PRE-EMPLOYMENT TRAINING NEEDED BY INDUSTRIAL MIDDLE MANAGERS

Competency	Percent of Participants Responding "Very Important" or "Moderately Important"	Percent of Tennessee Colleges Requiring Competency In Management Curriculum
Oral Communications	99.1	84.6
Written Communications	98.2	92.3
Statistical Techniques	58.7	84.6
Elementary Calculus (integrals and derivatives for business applications)	37.7	38.5
Accounting Principles	88.8	100.0
Budget Preparation	86.1	84.6
Manufacturing Cost Analysis	87.0	84.6
Basic Economic Concepts	87.0	100.0
Electronic Data Processing Systems	75.8	92.3
Elementary Statistical Probability	61.0	84.6
Basic Managerial Functions	94.6	92.3
Employee Supervision	81.6	84.6
Employee Motivation	88.3	69.2
Internal and External Sources of Funds	65.9	92.3
Environmental Influences on Marketing Activities	61.9	92.3
Identification of Marketing Opportunities	52.5	92.3
Planning and Implementing Competitive Marketing Strategies	52.0	84.6
Consumer Behavior	63.2	7.7
Work Measurement	78.5	38.5
Wage and Salary Administration	77.6	38.5
Business Law	68.6	76.9
Governmental Regulating Agencies	72.6	76.9
Labor Relations	87.9	53.8
Short-Term Forecasting	70.4	46.1
Selection and Training of Personnel	84.8	61.5
Production Quality Control	73.99	53.8
Industrial Safety	79.8	23.1
Effect of Human Capabilities and Limitation on the Working Environment	71.3	46.2
Procurement of Raw Materials and Supplies	64.1	23.1
Plant Location	45.7	53.8
Production Planning	75.8	69.2
Inventory Management	76.7	30.8
Cost Control	92.4	38.5
Project Planning and Control	77.1	23.1
Modes of Domestic Freight	37.7	23.1

TABLE 36

COLLEGIATE MANAGEMENT CURRICULAR REQUIREMENTS COMPARED TO MANAGERIAL RESPONSES TO BUSINESS-RELATED COMPETENCIES

(Median = 71.975%)

	Managerial Responses	Schools Requiring Curricular Area	Total
Number of Percentages Above the Common Median	22	17	39
Number of Percentages At or Below the Common Median	13	18	31
Total	35	35	70

Chi Square = .926, 1 df

.05 Level of Significance = 3.84

The limiting factor to this analysis was the description of courses. Some schools publish a much more detailed description of their course offerings than do others. Unless the outcome was mentioned in the course description of the required courses, the assumption was made that the school did not require that curricular area as part of management training.

Summary

The objective presentation of the data collected via a survey of selected industrial executive and middle managers in Tennessee includes consensus indices developed for the curricular areas included in the survey instrument. Statistical analyses utilizing the Kolmogorov-Smirnov two-sample test reveal industrial classifications for which there are significant differences in the pre-employment training requirements. Chi square and Fisher test analyses reveal curricular areas where the significant differences occurred. Chi square values were obtained by using the extension of the median test to determine significant differences in (1) the projected middle management requirements for different industrial classifications in Tennessee, (2) the opinions of executive and middle managers in Tennessee industrial firms concerning the responsibilities of middle managers, and (3) the management curricular requirements in Tennessee collegiate schools of business and the competencies deemed important by industrial managers in Tennessee.

Conclusions were drawn from the results of the statistical analyses. These are presented in the following chapter. Also included in Chapter V are a summary of the study and recommendations concerning the business school curriculum as well as further research in business education related to this study.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The summary, conclusions, and recommendations resulted from a study to determine competencies needed by middle managers in Tennessee industrial firms. The intent of the study was not to develop a specific management curriculum but to provide guidance for management curriculum development in Tennessee colleges and universities.

Summary

The purpose of this study was to determine competencies needed by industrial middle managers in Tennessee and to decide which of these should be a part of the pre-employment training offered in Tennessee colleges and universities. Secondary objectives were to determine the responsibilities characteristic of the industrial middle manager's job and to compare management curricular requirements in Tennessee colleges and universities with recommendations of industrial executive and middle managers. An attempt was made also to determine the middle management personnel requirements in Tennessee industry during the next decade.

For the past twenty-five years, collegiate schools of business have experienced rapid growth. At the same time, severe criticism has been leveled at schools of business for not providing the training actually needed by managers. An extensive search of the literature

revealed studies pertaining to the needs of retailing middle managers, studies concerning characteristics needed by managers in industry, and training programs conducted for industrial managers by industrial firms. There was no previous study pertaining to competencies needed by Tennessee industrial middle managers.

Procedures

In order to determine competencies needed by middle managers in Tennessee industrial firms, the opinions of those presently employed as industrial executive and middle managers in Tennessee were sought. A survey instrument containing the outcomes of courses which are a part of the management curriculum in Tennessee colleges and universities was developed. Information which was deemed to influence managerial responses was also sought.

Selected sampling was considered appropriate for this project. Five industrial classifications were included in the study. These were: Apparel Manufacturing; Chemical and Allied Products; Textile Mill Products; Machinery, Except Electrical; and Newspaper Publishing. These classifications were chosen because there were representative firms employing approximately 500 or more people in each of the four metropolitan areas of Tennessee. These firms were contacted by letter to solicit their participation in the study. Selected managers (292) from the 21 firms which agreed to participate were asked to complete the survey instrument. The design of the survey instrument required a response of "Very Important", "Moderately Important", "Unimportant", or "To Be Developed on the Job Only" to 35 business-related competencies and 19 general education curricular areas.

A consensus index for each curricular area was computed by combining the responses of executive and middle managers in each industrial classification. Statistical tests chosen for analysis were the Kolmogorov-Smirnov, chi square, Fisher test of exact probability, and the extension of the median. The Kolmogorov-Smirnov identified significant differences among the cumulative responses of different groups within the survey sample. The chi square and Fisher tests indicated significant differences in curricular areas within the groups in which a significant difference in the cumulative responses had been revealed. The extension of the median test revealed significant differences in the variable responses which were considered to affect the manager's response to a particular competency. The extension of the median test was also used for comparison of the importance of competencies and management curricula in Tennessee colleges and universities. The significant level of probability for all tests was .05.

Results

Of the 292 survey instruments sent to the selected executive and middle managers, 223 were returned. The first three hypotheses were designed to determine any significant differences in opinion among the following groups: executive managers in one industrial classification and executive managers in each of the other industrial classifications; middle managers in one industrial classification and middle managers in each of the other industrial classifications; all executive managers responding and all middle managers responding.

Significant differences in executive managerial responses to competencies were revealed in (1) Apparel Manufacturing as compared to

Chemical and Allied Products and Textile Mill Products; (2) Chemical and Allied Products as compared to Machinery, Except Electrical; Newspaper Publishing; and Apparel Manufacturing; (3) Textile Mill Products as compared to Newspaper Publishing and Apparel Manufacturing; (4) Machinery, Except Electrical, as compared to Chemical and Allied Products; and (5) Newspaper Publishing as compared to Chemical and Allied Products and Textile Mill Products.

Significant differences in the responses of middle managerial participants were revealed in (1) Apparel Manufacturing as compared to Newspaper Publishing; (2) Chemical and Allied Products as compared to Newspaper Publishing; (3) Textile Mill Products as compared to Newspaper Publishing and Machinery, Except Electrical; (4) Machinery, Except Electrical, as compared to Textile Mill Products and Newspaper Publishing; and (5) Newspaper Publishing as compared with middle managerial responses in each of the other classifications. No significant difference was found in the comparison of all executive managerial responses and all middle managerial responses.

Chi square and Fisher test analyses revealed 32 curricular areas where significant differences of opinion occurred.

The fourth hypothesis was designed to determine differences in middle managerial personnel requirements in the different industrial classifications included in the study. The purpose of the fifth hypothesis was to compare the opinions of executive managers and middle managers concerning responsibilities of industrial middle managers. The last hypothesis compared the management curricular requirements of Tennessee colleges and universities with the competencies or curricular areas as ranked by the responses of all participants.

The extension of the median test revealed a chi square value of sufficient magnitude to indicate a significant difference in middle managerial personnel requirements in the different industrial classifications. Chi square values computed for the final two hypotheses were not large enough to reject the null.

Conclusions

Consensus indices developed for the competency areas suggest sufficient homogeneity among all industrial classifications included in this study to require inclusion of the following curricular areas in all middle management pre-employment training: business communications, both oral and written; basic managerial functions of planning, organizing, and controlling; human-relations-oriented management courses; and cost analysis and control. This conclusion concurs with findings of other studies. Gordon and Howell recommended that management principles and human relations should be a part of the training of future managers.[1] Albanito, in his study which included a survey of manufacturing managers, found that management and human relations were among the top-rated courses to be included in a management curriculum.[2] Economics emerged also as one of the top-ranked courses in Albanito's study[3] but was ranked fourteenth in importance by participants in this study.

The competency area which emerged as being more important to respondents in this research than in other studies reviewed was cost control.

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[1]Gordon and Howell, pp. 173-175.

[2]Albanito, pp. 100-101.

[3]Ibid.

Perhaps this can be attributed to the changes in the economy which occurred during the time that elapsed between earlier studies and this study.

The computations of the Kolmogorov-Smirnov tests indicate significant differences in pre-employment training needs of middle managers in some comparisons of industrial classifications. There emerge, however, some groups for which there is no significant difference in the pre-employment training needs. These groups are Apparel Manufacturing and Machinery, Except Electrical; and the Chemical and Allied Products and Textile Mill Products industries.

Chi square and Fisher test analyses of the competency areas revealed certain curricular areas which were judged more important as a part of the pre-employment training for middle managers in different industrial classifications. From these computations (Appendix H), the following conclusions emerge:

1. Apparel Manufacturing executive managers consider budget preparation, work measurement, and effective procurement of raw materials, supplies and services to be significantly more important than do Chemical and Allied Products executives.

2. Apparel Manufacturing executives consider budget preparation to be significantly more important than do Textile Mill Products executives.

3. Apparel Manufacturing middle managers consider production planning to be significantly more important than do Newspaper Publishing middle managers.

4. Chemical and Allied Products executives consider general chemistry to be significantly more important than do Machinery, Except Electrical, executives.

5. Chemical and Allied Products executives consider industrial safety and general chemistry to be significantly more important than do Newspaper Publishing executives.

6. Chemical and Allied Products middle managers consider business law, industrial safety, effect of human capabilities and limitations on the working environment, biology, general chemistry, and physics to be significantly more important than do Newspaper Publishing middle managers.

7. Textile Mill Products executive managers consider industrial safety and plant location to be significantly more important than do Newspaper Publishing executives.

8. Textile Mill Products middle managers consider production quality control and industrial safety to be significantly more important than do Newspaper Publishing middle managers.

9. Machinery, Except Electrical, executive managers consider internal and external sources of funds and their costs to the firm and United States History to be significantly more important than do Chemical and Allied Products executives.

10. Newspaper Publishing executive managers consider environmental influences on marketing activities, identification of marketing opportunities, planning and implementing competitive marketing strategies, consumer behavior, selection and training of personnel, classical studies, history of other nations, and survey of English and American literature to be significantly more important than do Chemical and Allied Products executive managers.

11. Newspaper Publishing executive managers consider planning and implementing competitive marketing strategies, consumer behavior, and elements of physics to be significantly more important than do Textile Mill Products executives.

12. Newspaper Publishing middle managers consider electronic data processing systems, elementary logic, and survey of English and American literature to be significantly more important than do Apparel Manufacturing middle managers.

13. Newspaper Publishing middle managers consider elementary calculus, electronic data processing systems, identification of marketing opportunities, planning and implementing competitive marketing strategies, consumer behavior, Governmental regulating agencies, anthropology, geography of the environment, history of other nations, and survey of English and American literature to be significantly more important than do Chemical and Allied Products middle managers.

14. Newspaper Publishing middle managers consider elementary calculus, electronic data processing systems, environmental influences on marketing activities, identification of marketing opportunities, planning and implementing competitive marketing strategies, consumer behavior, short-term forecasting, and survey of English and American literature to be significantly more important than do Textile Mill Products middle managers.

15. Newspaper Publishing middle managers consider statistical techniques, elementary calculus, electronic data processing systems, identification of marketing opportunities, planning and implementing competitive marketing strategies, and survey of English and American

literature to be significantly more important than do Machinery, Except Electrical, middle managers.

Characteristic of the Apparel Manufacturing industry is the production of highly competitive, seasonal products. Thus courses relating to the production function emerge as being important in the pre-employment training of middle managers in this industry.

The natural sciences, particularly general chemistry, are more important in the pre-employment training of Chemical and Allied Products middle managers.

Competencies relating to the production function are important in the training of Textile Mill Products middle managers. Characteristic of this industry is the production of goods which will be used by other industries in the production of consumer goods.

There is less difference in the pre-employment training needs of Machinery, Except Electrical, middle managers when compared with other industrial groups included in this study. Technical courses which provide a knowledge of materials used in manufacturing machinery are considered of value to middle managers in this classification.

The greatest difference in pre-employment training needs occurs in the Newspaper Publishing industry. The Newspaper Publishing industry is the only classification included in this study which deals directly with the ultimate consumer of the product it produces. Thus marketing-related courses are more important to middle managers in this classification than middle managers in other classifications. Also considered to be significantly more important by Newspaper Publishing respondents was a survey of English and American literature.

The Chemical and Allied Products, Textile Mill Products and Machinery, Except Electrical, respondents consider industrial safety to be more important in pre-employment training of middle managers than do Apparel Manufacturing and Newspaper Publishing respondents.

The ability to think logically and write clearly are competencies which are of great importance to middle managers in all industrial classifications. Slappey also found that businesses desire employees who can think and write clearly.[1] Respondents in Albanito's research stressed the role of the collegiate school of business in teaching students to think in a cogent, logical fashion.[2]

In Tennessee, opportunities for middle management in the next decade are very strong in the Textile Mill Products and Apparel Manufacturing industries and strong in the Machinery, Except Electrical, industry.

There is a general agreement among industrial executive managers and industrial middle managers in Tennessee concerning the responsibilities of industrial middle managers. The middle manager is most likely to be responsible for a particular function of the firm. Organizational size and structure affect the responsibilities of a middle manager in a particular firm.

Tennessee colleges and universities appear to be offering courses which provide competencies needed as a part of the pre-employment training of industrial middle managers. Since the instructor of a course determines largely the real outcomes of a course, the competencies

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[1]Slappey, pp. 89-90.

[2]Albanito, p. 110.

actually developed may differ from a course description. Thus the pre-employment training provided may not be as described.

Cooperative work experience has been largely unexplored by four-year colleges and universities in Tennessee as a part of the pre-employment training of managers. Executive and middle managers in Tennessee industrial firms view this as being an important aspect of middle managerial preparation. However, cooperative work experience did not emerge as being as important in the preparation of industrial middle managers as in the preparation of retailing middle managers. Both Carmichael and Patton found that the supervised internship is considered an integral part of the training of retailing middle managers.[1, 2]

The four-year collegiate school of business is the primary source of pre-employment training for industrial middle managers in Tennessee. Collegiate schools of business can also play an important role in the continuing education of middle managers. Richards noted the emerging role of the collegiate school of business as aiding managers in updating their knowledge of managerial concepts, particularly supervision and human relations. He concluded that middle managers can best be served in the future by schools which offer continuing education programs.[3]

Recommendations

While statistical testing is certainly not to be considered the only basis for management curriculum design, it does suggest considerations

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[1] Carmichael, p. 123.

[2] Patton, p. 109.

[3] Richards, p. 263.

to those whose responsibility it is to evaluate the management curriculum. From this study, the following recommendations emerge.

Curriculum

Collegiate schools of business in Tennessee should periodically evaluate the management curriculum to ascertain the extent to which it meets the pre-employment training needs of industrial middle managers.

A part of the management curriculum should be a core of courses which provide for development of competencies in both oral and written communications, basic managerial functions, human relations skills, and cost analysis and control.

The design of the four-year management curriculum should be such that the graduate emerges with a well-rounded education as opposed to a more technical type of training.

A core of electives should be provided to allow the student to pursue his special interests. Rather than making haphazard choices of electives, the student should be given counseling in order to undertake that which is commensurate with his abilities and interests.

A core of general education courses should be a part of the training of middle managers in all four-year institutions. Included in this core should be a requirement for elements of logic and psychology of the individual. The choice of the natural science should be from the areas of chemistry, physics, and/or biology.

Cooperative work experience should be investigated and considered as an integral part of the four-year management curriculum.

A strong liaison should be maintained by collegiate schools of business with those employed as industrial managers.

Periodic follow-up of graduates of collegiate schools of business should be undertaken by the school. Valuable information can be gained by inviting input from the graduate after his first year, third year, and tenth year from completion of the bachelor's degree.

Regional colleges and universities and local community colleges should be particularly attuned to the needs of industries located in the area which is served by the institution.

The collegiate school of business should assess its role in the continuing education of managers. Seminars and special courses held on campus or off campus for those already employed as industrial managers should be a part of the management curriculum.

Further Research

In relation to Kierulff's research which dealt with differences in administration of small and large firms,[1] a study should be undertaken to determine what significant effects the size of the industrial organization has upon pre-employment training needs of industrial middle managers.

The impact of the banking and insurance industries in Tennessee warrants research to determine the pre-employment training needs of managers in these areas.

As the Federal and state governments continue to increase their number of employees, a study should be undertaken to determine the competency needs of managers in the public sector in Tennessee.

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[1]Kierulff, pp. 39-44.

Research in these areas would be related to this study. Consequently, similar procedures for gathering data could be employed, and similar statistical methods could be utilized in analyzing the data. Such studies would provide further input for the development of the management curriculum in institutions of higher education in Tennessee.

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APPENDIX A

TENNESSEE INSTITUTIONS OF HIGHER EDUCATION OFFERING MANAGEMENT TRAINING

TENNESSEE INSTITUTIONS OF HIGHER EDUCATION

OFFERING DEGREES IN MANAGEMENT

Institution	Level of Degree				
	Cert.	Assoc.	Bachelor's	Master's	Doctorate
State Supported					
East Tennessee State University			x		
Memphis State University			x	x	
Middle Tennessee State University			x		
Tennessee Technological University			x		
University of Tennessee at Knoxville				x	x
University of Tennessee at Martin			x		
Jackson State Community College		x			
Motlow State Community College	x	x			
Roane State Community College		x			
Walters State Community College	x				
University of Tennessee at Nashville	x				
Volunteer State Community College	x				
University of Tennessee at Chatta.	x				
Chattanooga State Technical Community College	x	x			
Private					
Carson-Newman College			x		
Christian Brothers College			x		
David Lipscomb College			x		
Fisk University			x		
Tennessee Wesleyan College			x		
Vanderbilt University				x	x

Source: AN ACADEMIC PROGRAM INVENTORY FOR TENNESSEE'S HIGHER EDUCATION INSTITUTIONS

TENNESSEE INSTITUTIONS OF HIGHER EDUCATION

OFFERING DEGREES IN BUSINESS ADMINISTRATION--MANAGEMENT EMPHASIS

Institution	Level of Degree				
	Cert.	Assoc.	Bachelor's	Master's	Doctorate
State Supported					
Austin Peay State University			x		
East Tennessee State University			x	x	
Memphis State University				x	
Middle Tennessee State University				x	
Tennessee State University			x		
University of Tenn. at Chattanooga			x	x	
University of Tenn. at Nashville			x	x	
Cleveland State Community College		x			
Jackson State Community College		x			
Private					
Belmont College			x		
Bethel College			x		
Bryan College			x		
Christian Brothers College			x		
Freed-Hardeman College		x	x		
Lambuth College			x		
Lemoyne-Owen College			x		
Lincoln Memorial University			x		
Martin College		x			
Southern Missionary College			x		
Tomlinson College		x			
Trevecca Nazarene College		x	x		
Union University			x		
Vanderbilt University			x		

Source: AN ACADEMIC PROGRAM INVENTORY FOR TENNESSEE'S HIGHER EDUCATION INSTITUTIONS

APPENDIX B

LETTER OF INTRODUCTION

DIXIE YARNS, Inc.

SPINNERS · PROCESSORS · DYERS

CHATTANOOGA, TENNESSEE 37401

TO WHOM IT MAY CONCERN:

Mrs. Harriett McQueen has discussed with me her proposed study concerning competencies needed by middle managers in Tennessee industrial firms. I feel that the study is worthwhile and hope that you will participate in it as we will be doing.

Thank you for your cooperation.

Sincerely,

Grady E. Gant

Grady E. Gant
Vice President,
Industrial Relations

GEG/h

APPENDIX C

SURVEY INSTRUMENT

CHARACTERISTICS OF MIDDLE MANAGEMENT POSITIONS

IN SELECTED TENNESSEE INDUSTRIAL FIRMS

Curriculum Research Questionnaire

INDUSTRIAL CLASSIFICATION

Apparel Manufacturing ( )
Textiles ( )
Chemicals ( )
Newspaper ( )
Machinery, except electrical ( )

Number of employees in firm_____
(local plant only if firm has multi-locations)

( ) Executive Manager (vice-presidential level or above)

( ) Middle Manager (operating division and department heads--but not persons who directly supervise line workers--together with such staff persons as personnel and industrial relations managers, purchasing agents, analysts, and engineers)

Present number of middle management personnel_____

Projected need for middle management by 1987_____

BACKGROUND INFORMATION

Educational Background of Respondent:

High school graduate ( )
Attended college but did not graduate ( )
Two-year college graduate ( )
Bachelor's degree--business major ( )
Bachelor's degree--non-business major ( )
Master's degree ( )
Training other than college ( )
(Please specify)_____

_____

Age of Respondent:

25 - 34 ( ); 35 - 44 ( ); 45 - 54 ( ); 55 and over ( )

What are the primary responsibilities of middle managers in your firm?_____

_____

_____

Number of employees reporting directly to you_____

Please do not sign your name to this questionnaire. If you would like a copy of the results of this study, please indicate this on the enclosed form.

NEED FOR COMPETENCIES TO BE DEVELOPED THROUGH THE FORMAL EDUCATIONAL PROCESS

Please think about the competencies needed by a middle manager in his or her work and their importance as a part of college-level preparation. Then put an "x" in the appropriate place to indicate whether you think the subject is very important, moderately important, unimportant, or to be developed on the job rather than through formal education. Please check only one response for each competency, but please respond to each competency.

	Very Important	Moderately Important	Unimportant	On-the-Job
1. Oral communications (giving instructions, presentation of reports, etc.)	( )	( )	( )	( )
2. Written communications (business letter writing, report preparation, etc.)	( )	( )	( )	( )
3. Statistical techniques (linear programming, waiting line theory, game theory, etc.)	( )	( )	( )	( )
4. Elementary calculus (use of derivatives and integrals in business applications)	( )	( )	( )	( )
5. Accounting principles (preparation, reporting, and analysis of financial information)	( )	( )	( )	( )
6. Budget preparation	( )	( )	( )	( )
7. Manufacturing cost analysis	( )	( )	( )	( )
8. Basic economic concepts (relationship of free enterprise to the effective management of industrial firms)	( )	( )	( )	( )
9. Electronic data processing systems (implications for use in decision making)	( )	( )	( )	( )
10. Elementary statistical probability	( )	( )	( )	( )
11. Basic mangerial functions (planning, organizing, controlling)	( )	( )	( )	( )
12. Employee supervision	( )	( )	( )	( )
13. Employee motivation	( )	( )	( )	( )
14. Internal and external sources of funds and their costs to the firm	( )	( )	( )	( )
15. Environmental influences on marketing activities .	( )	( )	( )	( )
16. Identification of marketing opportunities	( )	( )	( )	( )
17. Planning and implementing competitive marketing strategies	( )	( )	( )	( )
18. Consumer behavior	( )	( )	( )	( )
19. Work measurement	( )	( )	( )	( )

	Very Important	Moderately Important	Unimportant	On-the-Job
20. Wage and salary administration	( )	( )	( )	( )
21. Business law (types of business ownership, common business transactions)	( )	( )	( )	( )
22. Governmental regulating agencies	( )	( )	( )	( )
23. Labor relations	( )	( )	( )	( )
24. Short-term forecasting	( )	( )	( )	( )
25. Selection and training of personnel	( )	( )	( )	( )
26. Production quality control (techniques of inspection and use of statistical methods) . . .	( )	( )	( )	( )
27. Industrial safety (control of hazards, safety regulations)	( )	( )	( )	( )
28. Effect of human capabilities and limitations on the working environment	( )	( )	( )	( )
29. Effective procurement of raw materials, supplies and services	( )	( )	( )	( )
30. Plant location	( )	( )	( )	( )
31. Production planning	( )	( )	( )	( )
32. Inventory management	( )	( )	( )	( )
33. Cost control	( )	( )	( )	( )
34. Project planning and control (emphasis on Network Methods for scheduling projects)	( )	( )	( )	( )
35. Modes of domestic freight	( )	( )	( )	( )
NON-BUSINESS COMPETENCIES				
36. Anthropology (survey of man's cultural background)	( )	( )	( )	( )
37. Classical studies	( )	( )	( )	( )
38. Geography of the environment	( )	( )	( )	( )
39. United States History	( )	( )	( )	( )
40. History of other nations	( )	( )	( )	( )
41. Contemporary issues in human services	( )	( )	( )	( )
42. Elementary logic (deductive and inductive reasoning)	( )	( )	( )	( )

		Very Important	Moderately Important	Unimportant	On-the-Job
43.	U. S. Government and politics	( )	( )	( )	( )
44.	Psychology of the individual	( )	( )	( )	( )
45.	General sociology	( )	( )	( )	( )
46.	Concepts of biology and their relationship to current and future social problems	( )	( )	( )	( )
47.	Ecology (man's place in the environment and the bases for environmental problems	( )	( )	( )	( )
48.	General chemistry (chemical principles and applications)	( )	( )	( )	( )
49.	Geology (the materials and structure of the earth)	( )	( )	( )	( )
50.	Elements of physics	( )	( )	( )	( )
51.	Survey of English and American literature	( )	( )	( )	( )
52.	Modern foreign languages	( )	( )	( )	( )
53.	Appreciation of art and music	( )	( )	( )	( )
	*******				
54.	Supervised cooperative work experience	( )	( )	( )	( )
55.	Other specified areas (please list)_____				

APPENDIX D

MATERIALS SENT TO INDUSTRIAL FIRMS INVITING THEIR PARTICIPATION IN THE STUDY

Letter Inviting Participation
Purpose of Study
Survey Instrument (Appendix C)

AUSTIN PEAY STATE UNIVERSITY
Clarksville, Tennessee 37040

June 9, 1977

At the present time I am engaged in research concerning pre-employment training needs of middle-level managers in Tennessee industrial firms. A description of the study and information being sought are enclosed.

The desired information is needed from 100 executive managers and 200 middle managers in 20 industrial firms in Tennessee employing approximately 500 or more people. Because of its size and industrial classification, the participation of your firm is very much needed and desired.

If you are willing to participate, I should appreciate receiving from your office the names of five executive managers and ten middle-level managers whom you feel would respond with the necessary information. I will then send each of them a description of the study and a questionnaire with a self-addressed stamped envelope to be returned to me. All information will be held in confidence; there will be no way of identifying the respondent by the questionnaire that he or she returns to me.

If you are interested in the results of this study, I will be very happy to make them available to you as well as to all who participate in the study.

I will appreciate very much your indicating your willingness to participate on the enclosed form. Thank you for your assistance in this project.

Sincerely yours,

(Mrs.) Harriett McQueen
Assistant Professor

Enclosures

Please Return to: Mrs. Harriett McQueen
Box 4576
Austin Peay State University
Clarksville, TN 37040

Date_____

NAME OF FIRM_____

( ) We Will participate in the middle management study. A list of 5 executive managers and 10 middle managers is (enclosed/being sent later).

( ) We will not participate in the middle management study.

( ) I would like to receive a copy of the results of the study.

Signed_____

CHARACTERISTICS OF MIDDLE MANAGEMENT POSITIONS IN SELECTED TENNESSEE INDUSTRIAL FIRMS

PURPOSE OF STUDY

To determine from the opinions of executive and middle level managers the pre-employment competencies needed by middle managers in Tennessee industrial firms.

To compare these competencies with the typical management curriculum in Tennessee colleges and universities.

Among the questions to be answered are:

1. What duties and responsibilities are typical of middle managers in Tennessee industrial firms?

2. Are there differences in pre-employment training needs for middle managers in different industrial classifications in Tennessee?

3. Can a core curriculum be ascertained for colleges and universities that is desirable for the development of middle managers? If so, is directed occupational experience a desirable part of the curriculum?

4. How does the management curriculum presently characteristic of Tennessee colleges and universities compare with curriculum recommendations of executive and middle management personnel in Tennessee industrial firms?

5. What are the projected middle management personnel requirements for Tennessee industrial firms for the next decade?

METHOD OF GATHERING DATA

This project is designed to gather information from executive management and those presently occupying middle management positions. Approximately 50 competencies have been placed on a questionnaire and managers will be asked to rate these as Important, Moderately Important, Unimportant, or To Be Developed on the Job. Five executive managers and ten middle-level managers from five industrial firms in each of the four metropolitan areas of Tennessee (a total of 100 executive managers and 200 middle managers) will be contacted to participate. Participation should require no more than 15 to 30 minutes of a manager's time.

APPENDIX E

MATERIALS SENT TO PARTICIPANTS IN STUDY

Letter Inviting Participation
Purpose of Study
Survey Instrument (Appendix C)
Request for Results of Study

AUSTIN PEAY STATE UNIVERSITY

CLARKSVILLE, TENNESSEE 37040

How well did your formal education prepare you for management in an industrial firm?

At the present time, research is being conducted to determine from the opinions of executive and middle managers the competencies needed by middle managers in Tennessee industrial firms. Your participation in this study will assist those of us in education who must periodically reevaluate our curriculum for its adequacy in meeting the needs of students as they prepare themselves for employment.

A description of this study is enclosed as well as a questionnaire concerning subjects most frequently included in a management curriculum. Your firm has agreed to participate in this study; thus I would appreciate it so much if you would take a few minutes now and respond to the competencies enclosed. Then return the questionnaire to me in the enclosed self-addressed stamped envelope.

Thank you for your assistance in this project.

Sincerely yours,

(Mrs.) Harriett McQueen
Assistant Professor

Enclosures

CHARACTERISTICS OF MIDDLE MANAGEMENT POSITIONS IN SELECTED TENNESSEE INDUSTRIAL FIRMS

PURPOSE OF STUDY

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I would like a copy of the results of the study concerning middle management in Tennessee industrial firms.

Name_____

Firm_____

APPENDIX F

PERCENTAGES OF RESPONSES TO CURRICULAR AREAS

Apparel Manufacturing
Chemical and Allied Products
Textile Mill Products
Machinery, Except Electrical
Newspaper Publishing
All Industrial Classifications

PERCENTAGE OF RESPONSE

Executive and Middle Managers--Apparel Manufacturing

(N = 35)

Curricular Area	Very Important	Moderately Important	Unimportant	To Be Developed On the Job
	%	%	%	%
Oral Communications	88.57	11.43	0.0	0.0
Written Communications	65.71	34.29	0.0	0.0
Statistical Techniques (linear programming, game theory, etc.)	5.72	57.14	37.14	0.0
Elementary Calculus	5.71	40.00	48.58	5.71
Accounting Principles	37.14	54.29	2.86	5.71
Budget Preparation	65.71	14.29	5.71	14.29
Manufacturing Cost Analysis	54.28	28.57	5.71	11.43
Basic Economic Concepts	28.57	45.72	17.14	8.57
Electronic Data Processing Systems	14.28	54.29	22.86	8.57
Elementary Statistical Probability	5.71	54.29	34.29	5.71
Basic Managerial Functions (planning, organizing, controlling)	77.14	11.43	2.86	8.57
Employee Supervision	57.14	20.00	0.0	22.86
Employee Motivation	62.86	22.86	0.0	14.28
Internal and External Sources of Funds and Their Costs to the Firm	14.285	48.57	22.86	14.285
Environmental Influences on Marketing Activities	14.29	42.86	25.71	17.14
Identification of Marketing Opportunities	22.86	34.29	28.57	14.28
Planning and Implementing Competitive Marketing Strategies	31.43	25.71	37.14	5.72
Consumer Behavior	25.71	37.14	22.86	14.29
Work Measurement	40.00	34.29	5.71	20.00
Wage and Salary Administration	40.0	45.71	8.57	5.70
Business Law	14.29	65.71	17.14	2.86
Governmental Regulating Agencies	20.00	60.00	11.43	8.57
Labor Relations	48.57	37.14	8.57	5.72
Short-Term Forecasting	31.43	42.86	11.43	14.29
Selection and Training of Personnel	62.86	11.43	5.71	20.00
Production Quality Control	40.00	31.43	2.86	25.71
Industrial Safety	31.43	45.71	11.43	11.43
Effect of Human Capabilities and Limitations on the Working Environment	25.73	37.14	20.00	17.14
Effective Procurement of Raw Materials, Supplies, and Services	28.57	45.72	5.71	20.00
Plant Location	20.00	34.285	34.285	11.43
Production Planning	60.00	31.43	0.0	8.57
Inventory Management	51.43	34.29	0.0	14.28
Cost Control	60.00	28.57	2.86	8.57
Project Planning and Control	31.43	45.71	14.28	8.57
Modes of Domestic Freight	5.71	45.72	17.14	31.43
Anthropology	0.0	22.86	77.14	0.0
Classical Studies	0.0	20.00	80.00	0.0
Geography of the Environment	2.86	37.14	60.00	0.0
United States History	8.57	31.43	60.00	0.0
History of Other Nations	2.86	20.00	77.14	0.0
Contemporary Issues in Human Services	0.0	57.14	37.14	5.72
Elementary Logic	25.715	45.71	25.715	2.86
U. S. Government and Politics	14.28	71.43	11.43	2.86
Psychology of the Individual	42.86	40.00	11.43	5.71
General Sociology	11.43	62.86	25.71	0.0
Concepts of Biology and Their Relationship to Current and Future Problems	5.72	45.71	48.57	0.0
Ecology	5.71	54.29	37.14	2.86
General Chemistry	5.71	45.71	45.71	0.0
Geology	0.0	25.71	74.29	0.0
Elements of Physics	2.86	45.71	48.57	2.86
Survey of English and American Literature	2.86	42.86	54.28	0.0
Modern Foreign Languages	2.86	25.71	71.43	0.0
Appreciation of Art and Music	0.0	28.57	71.43	0.0
Cooperative Work Experience	34.29	45.71	8.57	11.43

PERCENTAGE OF RESPONSE

Executive and Middle Managers--Chemicals and Allied Products

(N = 65)

Curricular Area	Very Important	Moderately Important	Unimportant	To Be Developed On the Job
	%	%	%	%
Oral Communications	96.92	1.54	0.0	1.54
Written Communications	78.46	21.54	0.0	0.0
Statistical Techniques (linear programming, game theory, etc.)	1.54	56.92	33.85	7.69
Elementary Calculus	0.0	30.77	67.69	1.54
Accounting Principles	26.15	64.62	3.08	6.15
Budget Preparation	52.31	30.77	1.54	15.38
Manufacturing Cost Analysis	46.15	38.46	4.62	10.77
Basic Economic Concepts	27.69	63.08	1.54	7.69
Electronic Data Processing Systems	9.23	70.77	4.62	15.38
Elementary Statistical Probability	7.69	55.38	32.31	4.62
Basic Managerial Functions (planning, organizing, controlling)	80.00	13.85	0.0	6.15
Employee Supervision	69.23	12.31	0.0	18.46
Employee Motivation	80.00	7.69	0.0	12.31
Internal and External Sources of Funds and Their Costs to the Firm	15.38	43.08	20.00	21.54
Environmental Influences on Marketing Activities	16.92	43.08	21.54	18.46
Identification of Marketing Opportunities	7.69	43.08	30.77	18.41
Planning and Implementing Competitive Marketing Strategies	7.69	32.31	43.08	16.92
Consumer Behavior	6.15	47.69	35.38	10.77
Work Measurement	23.08	60.00	4.62	12.31
Wage and Salary Administration	40.00	33.85	1.54	24.61
Business Law	7.69	49.23	40.00	3.08
Governmental Regulating Agencies	16.92	44.62	18.46	20.00
Labor Relations	66.15	26.15	0.0	7.69
Short-Term Forecasting	33.85	46.15	7.69	12.31
Selection and Training of Personnel	63.08	23.08	1.54	12.30
Production Quality Control	23.58	61.54	10.77	4.61
Industrial Safety	56.92	23.08	1.54	18.46
Effect of Human Capabilities and Limitations on the Working Environment	27.69	47.69	10.77	13.85
Effective Procurement of Raw Materials, Supplies and Services	18.46	35.385	10.77	35.385
Plant Location	6.15	33.85	41.54	18.46
Production Planning	38.46	36.92	9.23	15.39
Inventory Management	40.00	35.39	9.23	15.38
Cost Control	63.08	32.31	0.0	4.61
Project Planning and Control	18.46	60.00	9.23	12.31
Modes of Domestic Freight	3.08	27.69	36.92	32.31
Anthropology	3.08	20.00	73.85	3.08
Classical Studies	1.54	21.54	75.38	1.54
Geography of the Environment	0.0	47.69	50.77	1.54
United States History	3.08	49.23	47.69	0.0
History of Other Nations	0.0	33.85	66.15	0.0
Contemporary Issues in Human Services	6.15	60.00	32.31	1.54
Elementary Logic	38.46	56.92	4.62	0.0
U. S. Government and Politics	9.23	66.15	23.08	1.54
Psychology of the Individual	43.08	52.31	1.54	3.07
General Sociology	9.23	60.00	27.69	3.08
Concepts of Biology and Their Relationship to Current and Future Problems	4.62	33.85	58.46	3.07
Ecology	13.85	63.08	20.00	3.07
General Chemistry	24.62	58.46	15.38	1.54
Geology	0.0	29.23	69.23	1.54
Elements of Physics	18.46	60.00	21.54	0.0
Survey of English and American Literature	4.62	35.38	60.00	0.0
Modern Foreign Languages	1.54	16.92	80.00	1.54
Appreciation of Art and Music	1.54	27.69	70.77	0.0
Cooperative Work Experience	32.31	53.85	6.15	7.69

PERCENTAGE OF RESPONSE

Executive and Middle Managers--Textile Mill Products

(N = 41)

Curricular Area	Very Important	Moderately Important	Unimportant	To Be Developed On the Job
	%	%	%	%
Oral Communications	87.80	12.20	0.0	0.0
Written Communications	65.85	31.71	0.0	2.44
Statistical Techniques (linear programming, game theory, etc.)	7.32	48.78	31.71	12.19
Elementary Calculus	4.88	31.71	63.41	0.0
Accounting Principles	21.95	63.41	12.20	2.44
Budget Preparation	46.34	41.46	9.76	2.44
Manufacturing Cost Analysis	53.66	39.02	7.32	0.0
Basic Economic Concepts	31.71	51.22	9.75	7.32
Electronic Data Processing Systems	19.51	46.34	2.44	9.76
Elementary Statistical Probability	7.32	27.27	9.76	4.88
Basic Managerial Functions (planning, organizing, controlling)	68.29	26.83	2.44	2.44
Employee Supervision	73.17	12.20	0.0	14.63
Employee Motivation	70.73	17.07	0.0	12.20
Internal and External Sources of Funds and Their Costs to the Firm	14.63	53.66	21.95	9.76
Environmental Influences on Marketing Activities	4.88	46.34	34.15	14.63
Identification of Marketing Opportunities	4.88	29.27	43.90	21.95
Planning and Implementing Competitive Marketing Strategies	17.07	24.39	36.59	21.95
Consumer Behavior	14.63	53.66	24.39	7.32
Work Measurement	39.02	36.59	2.44	21.95
Wage and Salary Administration	39.02	43.90	12.20	4.88
Business Law	21.95	43.90	31.71	2.44
Governmental Regulating Agencies	29.27	53.66	9.75	7.32
Labor Relations	65.85	19.51	7.32	7.32
Short-Term Forecasting	21.95	36.59	19.51	21.95
Selection and Training of Personnel	58.54	29.27	2.44	9.75
Production Quality Control	41.46	26.83	12.20	19.51
Industrial Safety	58.54	24.39	0.0	17.07
Effect of Human Capabilities and Limitations on the Working Environment	26.83	48.78	12.195	12.195
Effective Procurement of Raw Materials, Supplies and Services	19.51	43.90	12.20	24.39
Plant Location	14.63	34.15	43.90	7.32
Production Planning	43.90	21.95	12.20	21.95
Inventory Management	46.34	24.39	12.20	17.07
Cost Control	48.78	39.02	4.88	7.32
Project Planning and Control	21.95	46.34	19.51	12.20
Modes of Domestic Freight	9.76	24.39	39.02	26.83
Anthropology	4.88	46.34	46.34	2.44
Classical Studies	2.44	19.51	75.61	2.44
Geography of the Environment	4.88	43.90	48.78	2.44
United States History	17.08	39.02	41.46	2.44
History of Other Nations	7.32	29.27	60.98	2.44
Comtemporary Issues in Human Services	24.39	43.90	29.27	2.44
Elementary Logic	41.46	46.34	9.76	2.44
U. S. Government and Politics	34.15	51.22	14.63	0.0
Psychology of the Individual	53.66	39.02	4.88	2.44
General Sociology	2.44	53.66	19.51	2.44
Concepts of Biology and Their Relationship to Current and Future Social Problems	4.88	43.90	48.78	2.44
Ecology	9.76	56.10	31.71	2.44
General Chemistry	4.88	46.34	39.02	9.76
Geology	2.44	12.19	82.93	2.44
Elements of Physics	2.44	29.27	65.85	2.44
Survey of English and American Literature	7.32	34.14	56.10	2.44
Modern Foreign Languages	0.0	29.27	70.73	0.0
Appreciation of Art and Music	2.44	26.83	68.29	2.44
Cooperative Work Experience	34.15	43.90	4.88	17.07

PERCENTAGE OF RESPONSE

Executive and Middle Managers--Machinery, Except Electrical

(N = 39)

Curricular Area	Very Important	Moderately Important	Unimportant	To Be Developed On the Job
	%	%	%	%
Oral Communications	97.44	2.56	0.0	0.0
Written Communications	76.92	23.08	0.0	0.0
Statistical Techniques (linear programming, game theory, etc.)	5.13	43.59	38.46	12.82
Elementary Calculus	2.56	23.08	69.23	5.13
Accounting Principles	35.90	53.84	5.23	5.13
Budget Preparation	43.59	43.59	0.0	12.82
Manufacturing Cost Analysis	43.59	41.02	5.13	10.26
Basic Economic Concepts	25.64	64.10	10.26	0.0
Electronic Data Processing Systems	7.69	69.23	15.38	12.82
Elementary Statistical Probability	2.56	48.72	41.03	7.69
Basic Managerial Functions (planning, organizing, controlling)	74.36	20.51	0.0	5.13
Employee Supervision	56.41	25.64	0.0	17.95
Employee Motivation	71.79	23.08	0.0	5.13
Internal and External Sources of Funds and Their Costs to the Firm	23.08	48.72	23.08	5.12
Environmental Influences on Marketing Activities	10.26	61.54	20.51	7.69
Identification of Marketing Opportunities	15.39	30.77	33.33	20.51
Planning and Implementing Competitive Marketing Strategies	12.82	35.9	30.77	20.51
Consumer Behavior	23.08	35.9	28.20	12.82
Work Measurement	28.21	51.28	12.82	7.69
Wage and Salary Administration	38.46	35.90	7.69	17.95
Business Law	23.08	46.15	25.64	5.13
Governmental Regulating Agencies	28.21	46.15	12.82	12.82
Labor Relations	48.72	33.33	5.13	12.82
Short-Term Forecasting	23.08	48.72	10.26	17.95
Selection and Training of Personnel	41.03	41.03	0.0	17.94
Production Quality Control	38.46	35.90	12.82	12.82
Industrial Safety	35.90	51.28	2.56	10.26
Effect of Human Capabilities and Limitations on the Working Environment	25.64	48.72	12.82	12.82
Effective Procurement of Raw Materials, Supplies and Services	25.64	43.59	15.385	15.385
Plant Location	12.82	33.33	41.03	12.82
Production Planning	25.64	48.72	10.26	15.38
Inventory Management	25.64	46.15	20.51	7.69
Cost Control	43.59	48.72	2.56	5.13
Project Planning and Control	25.64	56.41	12.82	5.13
Modes of Domestic Freight	7.69	38.46	43.59	10.26
Anthropology	0.0	33.34	64.10	2.56
Classical Studies	0.0	25.64	71.89	2.56
Geography of the Environment	0.0	51.28	48.72	0.0
United States History	15.38	41.03	43.59	0.0
History of Other Nations	2.56	56.41	41.03	0.0
Contemporary Issues in Human Services	17.95	61.54	17.95	2.56
Elementary Logic	43.59	46.15	10.26	0.0
U. S. Government and Politics	25.64	64.10	10.26	0.0
Psychology of the Individual	48.72	43.59	5.13	2.56
General Sociology	5.13	74.36	15.38	5.13
Concepts of Biology and Their Relationship to Current and Future Problems	0.0	35.9	58.97	5.13
Ecology	10.26	69.23	20.51	0.0
General Chemistry	2.56	48.73	46.15	2.56
Geology	0.0	41.03	53.85	5.13
Elements of Physics	17.95	51.28	25.64	5.13
Survey of English and American Literature	0.0	43.59	53.85	2.56
Modern Foreign Languages	2.56	30.77	61.54	5.13
Appreciation of Art and Music	2.56	23.08	71.80	2.56
Cooperative Work Experience	38.46	46.15	5.13	10.26

PERCENTAGE OF RESPONSE

Executive and Middle Managers--Newspaper Industry

(N = 43)

Curricular Area	Very Important	Moderately Important	Unimportant	To Be Developed On the Job
	%	%	%	%
Oral Communications	90.70	6.98	0.0	2.32
Written Communications	74.42	25.58	0.0	0.0
Statistical Techniques (linear programming, game theory, etc.)	11.63	60.47	20.93	6.97
Elementary Calculus	4.65	46.51	46.51	2.33
Accounting Principles	34.88	53.49	6.98	4.65
Budget Preparation	69.77	20.93	0.0	9.30
Manufacturing Cost Analysis	37.21	51.16	4.65	6.98
Basic Economic Concepts	32.56	58.14	4.65	4.65
Electronic Data Processing Systems	44.19	41.86	4.65	9.30
Elementary Statistical Probability	6.98	58.14	30.23	4.65
Basic Managerial Functions	76.74	20.93	0.0	2.33
Employee Supervision	67.44	13.96	0.0	18.60
Employee Motivation	74.42	11.63	0.0	13.95
Internal and External Sources of Funds and Their Costs to the Firm	30.23	39.54	9.30	20.93
Environmental Influences on Marketing Activities	32.56	37.21	25.58	4.65
Identification of Marketing Opportunities	46.51	27.91	16.28	9.30
Planning and Implementing Competitive Marketing Strategies	60.47	18.60	11.63	9.30
Consumer Behavior	53.49	30.23	11.63	4.65
Work Measurement	20.93	53.49	6.98	18.60
Wage and Salary Administration	44.19	27.91	9.30	18.60
Business Law	20.93	55.81	20.93	2.33
Governmental Regulating Agencies	37.21	34.88	18.61	9.30
Labor Relations	55.81	32.56	6.98	4.65
Short-Term Forecasting	34.88	48.84	11.63	4.65
Selection and Training of Personnel	72.09	16.28	0.0	11.63
Production Quality Control	20.93	41.86	6.98	30.23
Industrial Safety	20.93	48.84	9.30	20.93
Effect of Human Capabilities and Limitations on the Working Environment	13.95	48.84	13.95	23.26
Effective Procurement of Raw Materials, Supplies and Services	25.58	20.93	16.28	37.21
Plant Location	6.98	34.88	34.88	23.26
Production Planning	25.58	46.51	11.63	16.28
Inventory Management	34.88	44.19	11.63	9.30
Cost Control	58.14	34.88	2.33	4.65
Project Planning and Control	30.23	46.51	20.93	2.33
Modes of Domestic Freight	6.98	25.58	32.56	34.88
Anthropology	11.63	34.88	51.16	2.33
Classical Studies	6.98	41.86	51.16	0.0
Geography of the Environment	13.95	48.84	34.88	2.33
United States History	20.93	48.84	30.23	0.0
History of Other Nations	13.96	39.53	46.51	0.0
Contemporary Issues in Human Services	11.63	58.14	30.23	0.0
Elementary Logic	48.84	44.19	4.65	2.33
U. S. Government and Politics	20.93	67.44	11.63	0.0
Psychology of the Individual	51.16	44.19	4.65	0.0
General Sociology	23.26	55.81	20.93	0.0
Concepts of Biology and Their Relationship to Current and Future Problems	4.65	41.86	51.16	2.33
Ecology	18.60	48.84	27.91	4.65
General Chemistry	4.65	27.91	67.44	0.0
Geology	0.0	30.23	67.44	2.38
Elements of Physics	6.98	37.21	55.81	0.0
Survey of English and American Literature	23.26	55.81	20.93	0.0
Modern Foreign Languages	4.65	27.91	65.12	2.32
Appreciation of Art and Music	9.30	32.56	55.81	2.33
Cooperative Work Experience	39.53	32.56	4.65	23.26

PERCENTAGE OF RESPONSE

Executive and Middle Managers--All Industrial Classifications

(N = 223)

Curricular Area	Very Important	Moderately Important	Unimportant	To Be Developed On the Job
	%	%	%	%
Oral Communications	92.82	6.28	0.0	0.9
Written Communications	73.09	26.46	0.0	0.45
Statistical Techniques (linear programming, game theory, etc.)	5.83	53.81	32.39	8.07
Elementary Calculus	3.14	34.08	60.09	2.69
Accounting Principles	30.94	58.30	5.83	4.93
Budget Preparation	55.61	30.05	3.13	11.21
Manufacturing Cost Analysis	46.64	39.91	5.38	8.07
Basic Economic Concepts	29.15	57.40	7.62	5.83
Electronic Data Processing Systems	18.39	56.95	13.00	11.66
Elementary Statistical Probability	6.28	54.26	34.08	5.38
Basic Managerial Functions	75.78	18.39	0.90	4.93
Employee Supervision	65.47	16.14	0.0	18.39
Employee Motivation	73.09	15.25	0.0	11.66
Internal and External Sources of Funds and Their Costs to the Firm	19.28	46.19	19.28	15.25
Environmental Influences on Marketing Activities	16.14	45.74	25.11	13.00
Identification of Marketing Opportunities	18.39	34.08	30.49	17.04
Planning and Implementing Competitive Marketing Strategies	24.22	27.80	32.74	15.25
Consumer Behavior	22.87	41.70	25.56	9.87
Work Measurement	29.15	48.88	6.28	15.69
Wage and Salary Administration	40.36	36.77	7.17	15.70
Business Law	16.59	51.57	28.70	3.14
Governmental Regulating Agencies	25.56	47.09	14.80	12.56
Labor Relations	58.30	29.15	4.93	7.62
Short-Term Forecasting	29.60	44.84	11.66	13.90
Selection and Training of Personnel	60.09	24.22	1.79	13.90
Production Quality Control	31.39	42.15	9.42	17.04
Industrial Safety	42.60	36.77	4.49	16.14
Effect of Human Capabilities and Limitations on the Working Environment	24.21	46.64	13.45	15.70
Effective Procurement of Raw Materials, Supplies and Services	22.87	37.22	12.11	27.80
Plant Location	11.21	34.08	39.46	15.25
Production Planning	38.12	37.22	8.97	15.69
Inventory Management	39.46	36.77	10.76	13.01
Cost Control	55.61	36.32	2.24	5.83
Project Planning and Control	24.66	52.02	14.80	8.52
Modes of Domestic Freight	6.28	31.39	34.53	27.80
Anthropology	4.04	30.49	63.23	2.24
Classical Studies	2.24	25.56	70.85	1.35
Geography of the Environment	4.04	46.19	48.43	1.35
United States History	12.11	43.04	44.40	0.45
History of Other Nations	4.93	35.87	58.75	0.45
Contemporary Issues in Human Services	11.66	56.50	29.60	2.24
Elementary Logic	39.91	48.88	9.86	1.35
U. S. Government and Politics	19.73	64.12	15.25	0.9
Psychology of the Individual	47.53	44.85	4.93	2.69
General Sociology	14.35	60.99	22.42	2.24
Concepts of Biology and Their Relationship to Current and Future Problems	4.04	39.46	53.81	2.69
Ecology	12.11	58.74	26.46	2.69
General Chemistry	10.76	46.64	39.91	2.69
Geology	0.45	27.80	69.51	2.24
Elements of Physics	10.76	46.19	41.26	1.79
Survey of English and American Literature	7.62	41.70	49.78	0.90
Modern Foreign Languages	2.24	25.11	70.85	1.79
Appreciation of Art and Music	3.14	27.80	67.71	1.35
Cooperative Work Experience	35.43	45.29	5.83	13.45

APPENDIX G

LETTER SENT TO DEANS OF SCHOOLS OF BUSINESS IN TENNESSEE

AUSTIN PEAY STATE UNIVERSITY
Clarksville, Tennessee 37040

January 11, 1977

Dear

At the present time I am engaged in a study in which I need to know the characteristics of management curricula in Tennessee colleges and universities. A current catalog has been obtained from your school; However, I would like to know if there have been any changes in your management curriculum since the catalog was published.

If there have been no changes, please indicate this on the form below and return it to me. If there have been changes, please send me a copy of the revised curriculum.

Your assistance in this project is appreciated so much.

Sincerely yours,

(Mrs.) Harriett McQueen
Assistant Professor

SCHOOL:

There have been no changes in our management curriculum since the publication of our last catalog _____

We have revised our management curriculum. A copy of the revision is being sent to you. _____

Date_____ Signed_____

APPENDIX H

APPLICATION OF THE CHI SQUARE AND FISHER TESTS

(Significant Differences Only)

CONTINGENCY TABLES

EXECUTIVE MANAGERIAL RESPONSES
Chemical and Allied Products--Apparel Manufacturing

	15	9			7	9			8	9			3	3	
(6)			.66				.02	(29)			.03				.48
	4	1			12	1			11	1			16	7	
	15	10			4	7									
(19)			.32				.02								
	4	0			15	3									

Textile Mill Products--Apparel Manufacturing

	8	9			3	9						
(6)			.56				.02					
	3	1			8	1						

Machinery, Except Electrical--Chemical and Allied Products

	9	9			5	1			5	15			0	7	
(14)			.12				.03	(48)			.12				.05
	2	10			6	18			6	4			11	12	
	6	10			4	0									
(39)			.16				.04								
	5	9			7	19									

Newspaper Publishing--Chemical and Allied Products

	12	8			4	1			12	9			8	1	
(15)			.02				.16	(18)			.05				.003
	2	11			10	18			2	10			6	18	
	12	8			9	2			14	13			11	10	
(16)			.02				.004	(25)			.05				.18
	2	11			5	17			0	6			3	9	
	12	7			11	1			8	15			2	10	
(17)			.02				.00004	(27)			.26				.05
	2	12			3	18			6	4			12	9	

CONTINGENCY TABLES (continued)

Newspaper Publishing--Chemical and Allied Products

	8	3			0	1			5	15			0	6	
(37)			.03				1.16	(48)			.03				.04
	6	16			14	18			9	4			14	13	
	11	7			2	0			11	7			4	1	
(40)			.04				.34	(51)			.04				.16
	3	12			12	19			3	12			10	18	

Newspaper Publishing--Textile Mill Products

	13	5			4	0			8	8			1	6	
(15)			.03				.16	(27)			.48				.03
	1	6			10	11			6	3			13	5	
	12	6			9	1			2	7			1	1	
(16)			.18				.02	(30)			.03				1.02
	2	5			5	10			12	4			13	10	
	12	9			8	1			8	1			1	0	
(18)			.80				.03	(50)			.03				1.12
	2	2			6	10			6	10			13	11	

MIDDLE MANAGERIAL RESPONSES
Apparel Manufacturing--Newspaper Publishing

	15	27			4	15			16	28			7	13	
(9)			5.24				5.55	(42)			5.61				.80
	10	3			21	15			9	2			18	17	
	23	23			15	7			11	23			1	6	
(31)			1.36				6.19	(51)			4.86				1.87
	2	7			10	23			14	7			24	24	

(Newspaper Publishing--Chemical and Allied Products)

	19	13			2	0			27	38			15	4	
(4)			7.78				1.09	(9)			.32				14.39
	11	33			28	46			3	8			15	42	

CONTINGENCY TABLES (continued)

Newspaper Publishing--Chemical and Allied Products

(16)	20	25	.69		11	3	9.07					
	10	21			19	43						
(17)	22	19	6.26		15	4	14.39					
	8	27			15	42						
(18)	24	26	3.47		15	3	16.66					
	6	20			15	43						
(21)	25	27	4.02		7	3	3.14					
	5	19			23	43						
(22)	23	27	1.87		11	6	4.55					
	7	19			19	40						
(27)	23	37	.01		8	27	6.26					
	7	9			22	19						
(36)	14	10	4.13		4	2	.97					
	16	36			26	44						
(38)	18	22	.65		5	0	5.72					
	12	24			25	46						
(40)	13	15	.50		4	0	4.08					
	17	31			26	46						
(46)	12	20	3.91		2	2	.01					
	18	26			28	44						
(48)	10	39	18.80		2	10	2.07					
	20	7			28	36						
(50)	12	37	11.26		2	8	3.87					
	18	9			28	38						
(51)	23	18	8.84		6	2	3.21					
	7	28			24	44						

Newspaper Publishing--Textile Mill Products

(4)	19	10	4.27		2	1	0					
	11	20			28	29						
(9)	27	19	4.57		15	5	6.08					
	3	11			15	25						
(15)	18	16	.07		10	2	5.10					
	12	14			20	28						
(16)	20	8	8.10		11	1	8.44					
	10	22			19	29						
(17)	22	11	6.73		15	5	6.08					
	8	19			15	25						
(18)	24	19	1.31		15	5	6.08					
	6	11			15	25						

CONTINGENCY TABLES (continued)

Newspaper Publishing--Textile Mill Products

(19)	22	23	0		5	13	3.89	(27)	23	26	0.45	
	8	7			25	17			7	4		
(24)	26	17	5.25		10	8	.08	(51)	23	11	8.21	
	4	13			20	22			7	19		
(26)	21	22	0		5	13	3.89					
	9	8			25	17						

	8	18	5.50									
	22	12										
	6	3	.52									
	24	27										

Newspaper Publishing--Machinery, Except Electrical

(3)	23	13	4.24		5	2	.51	(16)	20	11	3.21	
	7	15			25	26			10	17		
(4)	19	8	5.47		2	1	.00089	(17)	22	11	5.30	
	11	20			28	27			8	17		
(6)	27	24	.01		23	11	6.59	(51)	23	12	5.35	
	3	4			7	17			7	16		
(9)	27	19	2.98		15	2	10.39					
	3	9			15	26						

	11	3	3.86									
	19	25										
	15	3	8.32									
	15	25										
	6	0	4.14									
	24	28										