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THE UNDERLYING SELECTION CRITERIA
FOR MIDDLE MANAGEMENT POSITIONS:
A FACTOR ANALYTIC STUDY

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ABSTRACT

A sample of middle managers was asked to rate the importance of thirteen variables used in the selection of candidates into middle management. These thirteen selection variables were developed from previous research on managerial selection by the senior author and from research conducted at General Electric by another investigator.

The set of decision variables was subjected to factor analysis in order to recover the fundamental structure of the decision space used to select middle managers. The analysis yielded encouraging results because certain factors were clearly indicated. Three fundamental decision factors were suggested: leadership-administrative skills, technical competence, and capability-willingness to work. These three factors are discussed in terms of their relevance to previous research on managerial selection.

BACKGROUND

This study is one of several flowing from the senior author's work on international managerial selection decisions. Most of the data was collected through interviews and questionnaires sent to divisions of international corporations abroad. The financial support for the data collection came through the Institute of International Commerce, Graduate School of Business Administration, The University of Michigan.

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Introduction

Management is the key occupational group within organizations, and the success of an organization depends upon the supply and effectiveness of this critical occupational category. According to Campbell, the flow of high-level manpower into managerial functions is far below current demands, and an acute problem for management is that of locating and selecting enough competent managerial talent to meet the demands in the years ahead.^{1/} A basic responsibility of management, therefore, is that of determining who will be selected or promoted into positions within the managerial hierarchy of the organization.

What are the selection criteria that managers, as personnel decision makers, utilize as they evaluate the qualifications of candidates for managerial job openings? Are there certain qualifications of those persons being considered for management jobs that influence managers as they proceed to make personnel-staffing decisions? These questions are difficult to answer because of the direction empirical research has taken into the selection-decision process. Quinn, Tabor, and Gordon summarized it well when they stated:

Personnel psychology has emphasized what should be done at the expense of investigating what is done in selection decisions. The emphasis has^{2/} been primarily prescriptive rather than descriptive or predictive.

Research into problems of managerial selection has progressed along three main avenues: (a) Describing the manager's job, (b) Defining and measuring

^{1/} J.P. Campbell, M.D. Dunnette, E.E. Lawler, and K.E. Weick, Jr., Managerial Behavior Performance and Effectiveness (New York: McGraw-Hill, 1970).

^{2/} R.P. Quinn, J. M. Tabor, and L.K. Gordon, The Decision to Discriminate (Ann Arbor: Institute for Social Research, Survey Research Center, The University of Michigan, 1968), p. 54.

managerial effectiveness, and (c) Developing predictors of managerial effectiveness. We introduce another dimension worthy of consideration: the study of the behavior of managers as personnel decision makers in the selection-decision process. Specifically, this study seeks to isolate the underlying selection criteria that managers utilized when they determined whom to select for a middle-management position.

A brief review of the three main streams of research on managerial selection follows. Defining what managers do as they perform their jobs has proved to be difficult for investigators. Managerial jobs are not standardized nor are they static. The personality of the manager, the nature of the individuals interacting with the manager, the job demands, the job environment, and the organizational level are some of the variables that interact with each other and, consequently, present the researcher with the difficult and complex task of developing valid and comprehensive descriptions of managers' jobs. Perhaps this explains why few studies of managerial behavior have been reported and why the sum total of such research has been modest.

Typical of research focusing on the identification of the basic dimensions of managerial behavior was that of such investigators as Georgopoulos and Mann, and Sayles and Hemphill. According to Georgopoulos and Mann, managers, regardless of their level in the organization, must have some minimum level of skill in three areas: technical, human relations, and administration.^{3/} The effective combination of these skills varies among organizational levels, and the relative importance of each of these managerial skills is likely to vary across organizational levels.

^{3/} B.S. Georgopoulos and F.C. Mann, The Community General Hospital (New York: MacMillan Co., 1962).

Sayles also studied managers' behavior, and although there appears to be some overlap between his categories and the skill factors identified by Georgopoulos and Mann, there is still some divergence.^{4/} Sayles suggested that managers' behavior can be classified along three dimensions: (a) Participation in external workflows. That is, managers spend a large portion of their time interacting with other managers or peers. (b) Leadership. This aspect of the manager's job is centered on the manager's ability to get his immediate subordinates to respond to him as leader and initiator. (c) Monitoring. This dimension of the manager's job is concerned with the method or methods the manager selects to apprise himself of how his internal and external relationships are proceeding and to identify stress and strain that require his intervention.

A more differentiated approach for describing any executive job was developed by Hemphill.^{5/} He clustered managerial activities as follows: (a) Providing staff service in nonoperational areas, (b) Supervision of work, (c) Internal business control, (d) Technical aspects with products and markets, (e) Human, community, and social affairs, (f) Long-range planning, (g) Exercise of broad power and authority, (h) Business reputation, (i) Personal demands, and (j) Preservation of assets.

A second stream of research has been concerned with defining and measuring job effectiveness. For a long time, the criterion problem has been the central area of research, and progress has not been rapid toward a complete understanding and resolution of the issues spawned by the criterion issue. An

^{4/} L. Sayles, Managerial Behavior Administration in Complex Organizations (New York: McGraw-Hill, 1964).

^{5/} J.K. Hemphill, Dimensions of Executive Positions, Personnel Research Monograph No. 98 (Columbus, Ohio: Bureau of Business Research, Ohio State University, 1960).

excellent overall discussion of the criterion problem was presented by Campbell et al. in their recent survey of business and behavioral science literature on managerial effectiveness.^{6/} According to them, the most profitable means for defining and measuring managerial effectiveness is that of inquiring as to the varieties or combinations of organizational circumstances, personal characteristics, and behavior patterns that are likely to be perceived as effective managing. That is, what do managers do that lead to success or failure, and what are the recognizable signs of effective managing? Campbell et al. argued that effective management behavior is related to optimization, and such job behavior he defined:

as any set of managerial actions believed to be optimal for identifying, assimilating and utilizing both internal and external resources toward sustaining, over the long term, the functioning of the organizational unit for which a manager has some degree of responsibility.^{7/}

Thus the effective manager was defined as an optimizer; measures of managerial effectiveness should therefore provide accurate means for observing and recording the frequency with which those activities considered critical to the organization's continued functioning were accomplished.

The third major area of research into problems of selection focused on the development of predictors of managerial effectiveness. In the main, researchers attempted to link predictors such as work-ability tests, objective personality inventories, and personal-data information with measures of managerial effectiveness. In a thorough review of the literature pertaining to the efficiency with which various kinds of methods predict managerial success, Korman reported that much of psychometric technology utilized to

6/ Managerial Behavior Performance and Effectiveness.

7/ Ibid., p. 105.

predict managerial job effectiveness has proved to be of limited value, whereas judgmental prediction by peers or superiors seemed to support its usefulness in managerial selection.^{8/}

Except for research on the methods by which managers combine predictor information, few studies are available on the behavior of managers as personnel decision makers. One study of managerial behavior in the selection-decision process that does have relevance for this investigation was carried out by Bassett.^{9/} The objective of that research project was to study how managers make selection decisions when they are filling key positions. Bassett reported that managers attempt to identify, calculate, reduce, and hedge the personal risk which is inherent in making the decision, and they seek to reach a selection decision which eliminates this risk or reduces it to an acceptable or controllable level.

The investigator also studied managers' judgments regarding the importance or influence that various types of candidate qualifications had on the selection decisions. The research showed that knowledge-of-the-work factors were ranked as more important than such managerial skills as "leadership" or "administrative ability" even though the appointments were to management-level positions.

In a different setting Miller extended Bassett's research by investigating several dimensions of managers' behavior as managers proceeded toward making a selection decision for an international assignment.^{10/} Miller found that

^{8/} A. Korman, "The Prediction of Managerial Performance: A Review," Personnel Psychology, 21 (1968), pp. 259-322.

^{9/} G.A. Bassett, Selecting Managers: A Study of the Personnel Decision Process, Behavioral Research Personnel Management & Exempt Compensation, Personnel and Industrial Relations (General Electric Co., 1968).

^{10/} E.L. Miller, "The International Selection Decision: A Study of Some Dimensions of Managerial Behavior in the Selection Decision Process," Journal of International Business Studies, 3 (Fall, 1972), pp. 49-65.

managers responsible for making overseas staffing decisions judged technical or job-specific qualities and professional-managerial attributes to be of primary relative importance as selection criteria.

Our study was undertaken because of the emphasis that research has placed on problems of selection and, specifically, because of the lack of empirical research about how managers make selection decisions for management positions. In particular, this investigation has examined the underlying dimensions along which candidates are evaluated for entry into middle-management positions. That is, are there certain clusters of candidate attributes that tend to be fundamental as selection criteria in the judgment of managers? The thrust of this study, therefore, was the search for constructs in a group of relevant attributes, and as such it made use of factor-analytic techniques.

Procedure

Sample

The sample was composed of a group of 121 middle managers from different industries. The financial industry composed the largest single grouping with 43 percent of the sample in this class. Public utilities comprised 36 percent of the sample; manufacturing contributed 13 percent, and 8 percent of the managers in the sample were from miscellaneous industries. The data were collected by means of questionnaires distributed during the spring of 1971 while the subjects were participating in an executive-development program sponsored by the University of Michigan Graduate School of Business Administration.

The subjects were asked to supply data regarding their most recent decision which involved the selection of a candidate into the middle-management ranks. The particular instruction on the questionnaire read as follows: "Would you please answer the questions in regard to the most recent appointment that you have made to a position that involves supervisory or managerial responsibilities." The candidates were generally being selected into staff-management positions.

Instrument

The particular variables of interest for this study were a set of decision criteria and their perceived importance in evaluating candidates for middle-management positions. These variables were part of a larger questionnaire study. Each variable was rated on a five-point scale from "very important" to "not important at all." The instructions to the subjects and the thirteen decision criteria were as follows:

Of the factors listed below, please indicate the importance or amount of influence that you attached to each when evaluating the various candidates. Please respond with respect to all the factors listed.

1. Candidate's willingness to accept the assignment.
2. His direct knowledge of this particular job.
3. His reputation.
4. Candidate's proven performance in a similar job.
5. His knowledge of the company, its policies, and its products.
6. His past performance in other assignments.
7. Candidate's willingness to accept responsibility of the job.
8. His general perceptiveness and grasp of problems.
9. His leadership skills--ability to command the respect and direct the efforts of others.
10. Candidate's administrative skills--ability to plan, organize, etc.
11. His knowledge, experience, or education in depth for this kind of work.
12. His potential--this job will help to prepare him for more responsible positions.
13. Candidate's ability to work well with employees and customers.

These thirteen decision criteria were refinements of questions used in previous research. Bassett used similar variables in a study of the personnel-selection process in General Electric Company,^{11/} In an extension of this

^{11/} Selecting Managers.

research to the international setting, Miller elaborated Bassett's questionnaire,^{12/} The form of the questionnaire used in our study was a modification of Miller's international instrument to the domestic setting.

Method

In an attempt to isolate the fundamental decision space, a factor analysis was performed on the thirteen variables. Factor analysis is a procedure for attempting to discover which variables can be meaningfully combined into a single variable or factor. Its objective is the creation of a few hypothetical variables (factors) from a multitude of real variables with a minimal loss of information. Based on intercorrelations, it combines real variables into factors. Variables which are highly correlated are likely to comprise the same factor; variables which are not correlated are likely to contribute to different factors.^{13/}

Results

Three factors were extracted which explained approximately 73 percent of the common variance in the data. Table 1 shows the matrix of varimax-rotated factor loadings for the variables. The first factor explained 50 percent of the variance, the second factor explained 14 percent, and the third factor contributed 9 percent.

^{12/} "The International Selection Decision."

^{13/} A technical discussion of factor analysis is beyond the scope of this paper; however, the following details may be of interest. The communality estimates were the squared multiple correlations between each variable and the remaining variables. Factors were extracted until the eigen value dropped below one. These are common conventions for using the technique. The program itself is contained in the OSIRIS package at the University of Michigan's Institute for Social Research.

TABLE 1

Factors and Factor Loadings

Variable	Leadership- Administrative Skills Factor 1	Technical- Competence Factor 2	Capability- Willingness Factor 3
1. Candidate's willingness to accept the assignment	.00	-.11	<u>.39</u>
2. His direct knowledge of this particular job	.10	<u>.67</u>	.00
3. His reputation	.33	.13	.31
4. Candidate's proven performance in a similar job	.00	<u>.56</u>	.13
5. His knowledge of the company, its policies, and its products	.17	.32	<u>.44</u>
6. His past performance in other assignments	.27	.31	<u>.56</u>
7. Candidate's willingness to accept responsibility of the job.	<u>.50</u>	.13	<u>.47</u>
8. His general perceptiveness and grasp of problems	<u>.61</u>	.23	.08
9. His leadership skills--ability to command the respect and direct the efforts of others	<u>.64</u>	.14	.17
10. Candidate's administrative skills--ability to plan, organize, etc.	<u>.66</u>	.34	.09
11. His knowledge, experience or education in depth of this kind of work	.26	<u>.59</u>	-.05
12. His potential--this job will help to prepare him for more responsible positions	<u>.59</u>	-.00	.06
13. Candidate's ability to work well with employees and customers	<u>.51</u>	-.06	.38

The factor loadings shown in Table 1 represent the varimax-rotated solution. The first factor was judged to underlie primarily the following set of variables: "Candidate's leadership skills," variable 9; "Candidate's ability to work well with employers and customers," variable 13; "Willingness to accept responsibility of the job," variable 7; "His administrative skills," variable 10; and "Candidate's general perceptiveness and grasp of problems," variable 8; and "Candidate's potential," variable 12. A minor influence was also contributed by variable 3, "Candidate's reputation."

The second factor was felt to underlie primarily the following variables: "Candidate's direct knowledge of this particular job," variable 2; "Knowledge, experience, or education in depth for this kind of work," variable 11; and "Proven performance in a similar job," variable 4. Minor influence was also exerted by "The candidate's knowledge of the company," variable 5, and "His administrative skills," variable 10.

The third factor was generally associated with the following variables: "Candidate's willingness to accept the assignment," variable 1; "Willingness to accept responsibility of the job," variable 7; "His past performance in other assignments," variable 6; "Knowledge of the company," variable 5; and "Ability to work well with employees and customers," variable 13.

Discussion

Several interesting results emerged from the factor analysis:

1. The first and most potent factor appeared to be "Leadership-administrative skills." The highest loadings on this factor were the attributes related to administrative and leadership qualities as well as perceptiveness, potential, and ability to work well with employees and customers.

The second factor involved a rather distinct set of attributes which could be summarized as a "technical competence" construct. The relevant variables here were direct knowledge of the job, proven performance in a similar job, and knowledge and education for the specific type of work. The encouraging aspect of the second factor was that the relevant variables did not load significantly on any of the other factors.

The third factor was not as clearly explicable as the first two. It generally was felt to involve a combination of the candidate's past performance and his willingness to take on future work. In a sense it could be referred to as "capability-willingness" factor or as a "can do-will do" factor.

While the interpretation of factors is always judgmental in nature, there were some aspects of the analysis which contributed to the authors' subjective confidence and which should therefore be noted. First, the factors were generally named based on loadings greater than or equal to .40, a convention advocated by Nunnally.^{14/} Second, the original data were generated by a group of subjects who were reasonably homogeneous with regard to their positions in the organizations, age, sex, and education. Furthermore, they were all making relatively similar decisions. Thus, the opportunity for spurious factors to arise from the data because of heterogeneity in the subjects was minimized. Last and perhaps most important, the higher correlations (.50) were among the variables which were used to infer a given factor.

Although an important part of behavioral science research with particular measures is the explication of underlying constructs, it is also important

^{14/} J.C. Nunnally, Psychometric Theory (New York: McGraw-Hill, 1967).

to demonstrate relationships among constructs. It thus seems appropriate to conclude with a short discussion of the possible links between the findings presented in this study and the relevant work done by previous authors.

2. An interesting observation derived from the factor analysis was the degree of similarity that existed among the three factors isolated by the analysis and the behavioral dimensions of managerial jobs as reported in that body of research concerned with describing managerial positions. Georgopoulos and Mann reported that management jobs require some minimum level of competence in technical, human-relations, and administrative-skill areas. Two of the factors composing the underlying selection criteria used by the managers in this study appeared to encompass these managerial attributes reported by Georgopoulos and Mann. That is, the subjects considered "Leadership and Administrative Skills" and "Technical Competency" to have been fundamental selection criteria utilized for appointing persons to middle-management positions. Furthermore, the underlying selection criteria identified in this investigation seemed to support the results of both Bassett's and Miller's previous research. In those studies, "technical, job specific" attributes and "professional managerial" qualities were considered by the appointing managers to have been of primary importance in their judgments of candidates' qualifications.

These results began to give some insight into the attributes of candidates that managers considered to be of influence and importance in making selection decisions and into the underlying selection criteria utilized in making a managerial-selection decision. Tangentially this investigation did contribute toward a better understanding of how personnel decision makers use the information they have available on a person who is being considered for a job.

3. Perhaps one of the most provocative aspects of this investigation was the derivation of the factor defined as "Capability-Willingness." This factor appeared to bear some relationship to McMurry's delineation of the two perspectives by which candidates should be evaluated for a job opening.^{15/} McMurry, on the one hand, pointed out a "can-do" dimension which involved an applicant's education, training, skills, and experience. On the other hand, the factor titled "will-do" embodied the candidate's basic character make-up, motivation, and emotional maturity. In a general way, the "Capability-Willingness" factor isolated by the factor analysis combined McMurry's two dimensions. Rather than a skill or competency variable, the "Capability-Willingness" factor was concerned more with a qualitative judgmental aspect of the person's ability to perform the job. That is, the personnel decision maker considered the candidate's past performance and his willingness to accept the responsibility and the job assignment to be instrumental in terms of predicting his effective performance in the job for which he was being considered.

Conclusion

This investigation sought to isolate the underlying selection criteria managers used when appointing persons to middle-management jobs. This research is only an initial step toward a more thorough understanding of managerial behavior in the selection-decision process. Perhaps the value of this research is its attempt to present the relationship between the underlying criteria by which candidates are evaluated for appointment into middle-

^{15/} R. N. McMurry, Tested Techniques of Personnel Selection (Chicago: The Dartnell Corporation, 1955).

management jobs and the relevant work done by previous research on these problems of selection. It is hoped that other researchers interested in the problems of selection will turn their attention toward the behavior of the personnel decision maker at the time that an individual is being considered for a job. In this way, we can move from the prescriptive discussion of selection decisions toward descriptive and predictive models of the selection-decision process.