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Measuring Managerial Skills using a Forced-Choice Questionnaire

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MEASURING MANAGERIAL SKILLS

USING A FORCED-CHOICE QUESTIONNAIRE

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A forced-choice scale for measuring managerial skills was developed to estimate five types of managerial skills namely, decision making, leadership, conceptual ability, human relations and communication. There were 70 items in the scale presented in triadic form. Triads were formed by matching preference values of the items. Scoring keys were developed through repeated item analysis. The reliability and concurrent validity of the scales were found to be quite satisfactory. A factor analysis of the scales revealed two basic factors underlying the managerial skills, namely: (1) Planning and Analytical ability, and (2) Organizing and Directing ability.

The validity studies conducted in the present investigation are concurrent in nature. It would be good if the predictive validity of the scale is established.

MANAGERIAL EFFECTIVENESS AND NEEDED SKILLS

The men and women who manage have long been the subject of study by researchers who are interested in management science. The success of an organization depends to a large extent upon its ability to procure or to develop managerial talent. Hence an assessment of the degree to which such talent is present in the management personnel of an organization or their potential to acquire it assumes special importance.

Ghiselli (1963) in an attempt to specify the qualities of a successful manager, observed that proficiency in executive and managerial jobs is most effectively indicated by tests of intellectual ability, perceptual accuracy and personality or interest. Campbell, Dunnette, Lawler & Weick (1970) proposed "the person, the process and the product" model of managerial behaviour. The model shows that

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a manager's job behaviour is a function of ability, motivation and opportunity. The "person" in the model refers to the individual manager's characteristic traits and abilities, while the "product" represents organizational results such as profit and productivity. The "process" is the manager's on-the-job behaviour and activities.

Hersey and Blanchard (1977) hold that there are at least three areas of skill necessary for carrying out the process of management. These are: technical, human and conceptual skills. Dubwicz and Fletcher (1982) investigated the performance of 81 middle managers whose potential for senior management positions was being assessed. Younger subjects were assessed to have greater potential and the managerial grade was not relevant. The findings of the study suggest that intelligence tests are useful for screening candidates and that past experience appears to have little effect on performance.

Binsted (1986) believes that effective management implied a high level of ability to act, to get things done and to make things

happen. this ability to act requires not only knowledge but also high levels of various skills. Some of these skills will be interpersonal (involving interaction with others). Other skills may be more intellectual, for example, the analytical aspect of problem solving.

The results of these studies indicate that overall managerial effectiveness can be expressed in terms of the personal qualities possessed by managers such as high intelligence, good verbal skills, sound judgment in handling managerial situations, organizing ability, disposition towards interpersonal relationships, risk taking ability. Managers' on-the-job behaviours and activities have seldom been studied. These on-the-job behaviours and activities are described by Campbell et al (1970) as the 'process' in their model of managerial behaviour which may be used in evaluating the effectiveness of managerial performance.

The objective of the present investigation was to develop a scale for measuring managerial skills by taking into account on-the-job behaviour and activities of managers. Certain managerial skills are required for effective performance of managerial functions. Therefore, if a scale is developed taking into account on-the-job behaviours and activities of managers, it is expected that this will indirectly measure the person's managerial skill. Most of the available tests in this area have been developed in the West and need modification to suit the Indian situation.

The usual inventory approach where the subject just indicates "like", "dislike" and "indifferent", "applicable" or "inapplicable" was ruled out in the present study because such instruments are susceptible to conscious or sub-conscious faking. It was decided to develop a forced-choice scale to reduce the scope of faking considerably. In a forced-choice scale, the subject has to choose his answer from among several alternatives, each of which is presumably equally attractive or

unattractive. Thus, the subject does not get any clue to enhance his score in a positive direction by examining the answer choices, so the chance of faking gets reduced.

METHOD

Development of the Scale :

Some of the literature in the area of management was studied to identify specific behaviours and activities relevant to managerial work. Secondly, a logical analysis of managerial functions was done by examining the responses given by a group of 100 managers on the functions they have to perform in their jobs. Based on the literature and the responses given by the managers, the skills required for performing the most important managerial functions were identified and these are presented below:

<i>Important Managerial Function</i>	<i>Corresponding Managerial Skill</i>
I. Planning	Decision Making
II. Directing, Supervision & Organizing	Leadership
III. Motivating	Human Relations
IV. Liason work, Negotiation	Communication
V. Innovation	Conceptual Skill

It was decided that the five types of managerial skill enumerated above would be covered by the forced-choice questionnaire to be developed. In the forced-choice scale the statements would be presented each with three possible answers. 200 statements were written out covering the five areas of managerial skills. These statements were given to a group of 80 managers of different organizations from different parts of India to estimate their personal preferences. A three-point scale was prepared for this purpose. From the responses thus obtained, preferences indices, quality indices and critical ratios were calculated. It was found that out of 200 statements, seven had insignificant critical ratios and these were dropped. Some

statements were slightly modified and four new statements were added to the list.

Second, another group of 15 managers were given these 200 statements to rate them twice according to their preference expressed on a 3-point scale first from their personal point of view, and then from a social point of view, i.e., whether the statements were socially desirable or not. The correlation between the two ratings was found to be .90 which indicated that the statements had more or less similar personal preference and social desirability values.

By matching the preference indices and quality indices, 100 triads were formed which made up the experimental version of the scale. Ten possible combinations of skills were obtained with 3 in each. To maintain a more or less equal number of triad answers, in each combination, several statements pertaining to each managerial function were repeated twice or thrice. The relative position of the statements was determined randomly in the scale with the help of random number of tables.

This experimental version of the forced-choice scale was administered to a group of 214 managers who belonged to three different levels of management working in different industries and in banks. The data were collected from four different regions of India. The subjects were asked to give two answers for each item i.e., one statement which was "most applicable" to him or her and another which was "least applicable".

Item analysis and development of the scoring keys :

The data thus collected were used to conduct iterative items analysis in order to develop scoring keys. Much care was exercised in setting up these tentative scoring keys. Three experienced managers were asked to classify the items under the following five dimensions: (1) decision making, (2) leadership, (3) conceptual skills, (4) human relations, and (5) communication. On the basis of their responses, tentative scoring keys were set up and the answer sheets were evaluated. Then an items analysis was conducted. The purpose of the items analysis was to make the scales as independent as possible and at the same time to make each of them internally homogeneous as much as practicable. To attain this dual goal, the intercorrelation between the scales and the reliabilities of the scales were calculated before and after each revision.

After each item analysis, the scoring keys were revised. The answer papers were again evaluated with the help of the revised scoring key and then another item analysis followed. The process was repeated until the scoring key was more or less stabilized i.e., the two sets of scores obtained by using successively revised scoring keys were highly correlated.

This procedure was gone through for each of the five scales and the final correlation between the scores obtained, using successively revised scoring keys is shown in Table 1.

Table 1 : Correlation between the successive revision of the five managerial skill scales

Successive Revisions	Decision making	Leadership	Conceptual skill	Human Relations	Communication
Tentative X First revision	.82	.72	.82	.88	.85
Tentative X Second revision	.86	.75	.88	.89	.83
First revision X Second revision	.86	.89	.86	.90	.94

The results presented in Table 1 indicate that from the very beginning the selection of items for different scales had been more or less correctly made.

Final Version of the Forced - Choice Scale :

The experimental version of the scale had to be modified as it was rather lengthy and so some items which were not included in any of the scoring keys, as seen in the item analysis, had to be deleted from the scale. The final version of the scale consisted of only 70 triadic items.

Survey Sample :

This final version of the scale was

administered to a group of 110 managers working in different organizations located in the Eastern and Northern parts of India. There were 17 managers from the top level, 60 from the middle and 33 from the lower levels of management. Their ages ranged from the early twenties to the late fifties with a mean age of 35.72 years. Biographical information like the subjects' age, job position, monthly income, etc., was also collected.

Results and Discussion

The answer papers were scored and the correlation coefficient, means, standard deviations and the maximum possible scores for the five scales are presented in Table 2.

Table 2: Intercorrelations, means, standard deviations and the maximum possible scores for the five managerial skills in the final version of the forced-choice scale (N = 110)

	Decision making	Leadership	Conceptual skill	Human Relations	Communication
Decision making	1.00	-. 07	.28**	-. 61**	-. 42**
Leader-ship		1.00	-.24**	.19*	-. 40**
Conceptual			1.00	-. 60**	-. 26**
Human relations				1.00	.14
Communication					1.00
Mean	17.97	12.70	9.50	15.08	12.14
S.D.	5.31	3.89	3.92	5.68	4.88
Maximum possible score	42	29	38	43	49

* Significant at .05 level

** Significant at . 01 level

From Table 2 it is clear that the decision making skill is significantly related to conceptual skill. Leadership and human relations skills are also found to be related. Some of the negative values are quite high, indicating an inverse relationship between the scales. Such a trend in the relationship was also observed with the experimental version of the scale. This could be further clarified by the factor analytical study of the various scales.

Reliabilities of the Scales :

The odd-even reliabilities of the five scales were calculated by dividing the five scales simultaneously into two halves. The product moment correlation coefficients were calculated between these two parts and was corrected either by using Angola's correction formula (when the two parts were unequal) or by the Spearman-Brown formula (when the two parts were equal). The reliability

coefficients were also calculated by the rational-equivalence method. The results

obtained are presented in Table 3.

Table 3 : Reliabilities of the five scales of managerial skill

	Decision making	Leadership	Conceptual	Human relations	Communication
Odd-even reliability	.68	.55	.59	.74	.64
Rationalequivalence reliability	.65	.55	.55	.71	.63

The above table indicates that the reliability values for the five scales are high enough to ensure consistency of the scores.

Validity of the Scales:

The validity of the scale is another important issue. This was established by correlating the scale with some other standardized instruments intended to measure the same quality.

The relationship of the scale with the Self-Description Inventory of Ghiselli (1971) was obtained for a group of 110 managers holding top, middle and lower management position. The four traits, decisiveness (+.23**), intelligence (+.17), working class affinity (+.22), and need for self-actualization (+.25) were found to be significantly related to decision making skill. Conceptual skill was found to be significantly related to supervisory ability (+.20**), self-assurance(+23***) decisiveness (+.19**), working class affinity (+.19**), achievement motivation (+.28***), and need for self-actualization (+.25***). The human relations skill was found to be significantly related to the need for job security (+.18*)

The Miner Sentence Completion Scale (multiple choice version, 1977) which measures managerial motivation was also correlated with the forced choice scale of managerial skill. The scale was administered to 101 lower level managers along with the forced-choice scale. It was found that persons having leadership skill possessed managerial motivation (+.33***) and were more positively

and significantly oriented to authority figures (+.27***), more competitive in certain aspects of games (+.17*), more desirous of standing out in a differentiated manner and more efficient in administrative type of activities (+.20**) than the others (+.17*). Persons possessing conceptual skill were also found to possess managerial motivation (+.26***) and were more competitive in certain aspects of occupational or work related activities (+.21**) and more assertive and desirous of directing and exercising power over others (+.17**). Thus, the results reveal that leadership and conceptual skills are significantly related with managerial motivation.

The relationship of the forced-choice scale with a situational measure, for example, the Group Task measure was determined for a group of 104 lower level managers. In the Group Task test the subjects were assigned to different groups and each group had to solve a problem as a group within an hour. At the end of the task, the independent ratings of the three examiners were added to obtain an average for each subject for each of the six traits assessed through the Group Task rating. The product-moment correlations were computed between the forced-choice scale and the examiner's average group task ratings. Decision making skill was found to be significantly related to traits like ability to follow directions (+.20**), ability to plan (+.20**), communication (+.22**), and the total grade give by the examiners (+.18*). Communication skill was found to be

significantly related with the ability to follow directions (.19**), cooperativeness (+.25***), application (+.19**), leadership (+.21**), and communication (+.19**). The total grade given by the examiners was found to be significantly related (+.24**) to leadership skill. But, it was observed that the human relations skill was significantly and negatively related to all the traits measured through the Group Task. Perhaps the reason for this is that persons possessing human relations skills are more concerned for people rather than for the task and hence this skill is found to be negatively related to those managerial qualities which usually account for the successful execution of a task.

Factor Analysis of the Scale:

To analyse the components of the managerial skill scales, a factor analysis was carried out. The intercorrelation between the five scales already calculated was used for this purpose. A principal component factor analysis with the varimax rotation extracted two factors. The first factor accounted for 44% of the total variance and the second for 29% of the variance. The sorted rotated factor loading matrix is presented in Table 4.

* p < .10 ** p < .05 ***p < .01

Table 4: Sorted rotated factor loading matrix of the five managerial skill scales

Scales	Factor I	Factor II
Human relations	-.88	.00
Conceptual skill	.78	.00
Decision making	.76	.28
Leadership	-.30	.83
Communication	-.36	-.82

Factor I can be identified as "planning and analytical ability" because it is observed from Table 4 that scales like decision making and conceptual skills had high positive loadings on Factor I. The human relations skill had

the highest negative loading on this factor. Leadership and Communication skills were also found to have a small negative loading on this factor. This shows that decision making and conceptual skills are situated at one pole while the human relations skill is at the opposite pole. This can be explained by the task versus people orientation model of managerial effectiveness (Blake & Mouton, 1964; Hersey & Blanchard, 1977). On the basis of our results it may be stated that persons who have the ability to make decisions and analytical competence are often not much concerned with motivating people or maintaining a cordial relationship with other people in the organization.

Factor II can be termed "Organizing and directing ability". Leadership skill shows a high positive loading on Factor II while Communication skill shows a high negative loading on this factor. The decision making skill also shows a small positive loading on Factor II. From the results it can be concluded that persons who have Leadership skill can organize, direct and control others for the achievement of organization goals, but they either cannot communicate effectively or do not accept this as an important managerial quality.

Unfortunately, a comparative factor analytical study of managerial skill is not readily available in the literature. And hence it cannot be concluded that these two factors obtained are factors *per se*. However, for the sample studied here, this is true.

Conclusion

It can be mentioned here that no study is free from limitations. this is also true for the present investigation. From the validity studies conducted so far on different groups, it can be said that the concurrent validity of the forced-choice scale is fairly high. But, the human relations skill was observed to be negatively related to most of the other skills. Perhaps the human relations skill is a comparatively new concept which has not

yet been given adequate importance in many organizations in India. And most of the instruments used here for validation purposes may not have taken this skill into consideration.

It would be good if the scales given here are validated against ratings made by supervisors and peers which will also give an estimate of the predictive validity of the scale. But, with our limited time and resources, these indices could not be obtained. It is hoped that, in future, investigation will be carried out in this direction.

References

1. Binsted. D (1986), *Development in interpersonal skills Training*. Gofar Publishing Company, England.
2. Blake, RR & Mouton, J S (1964), *The Managerial Grid*, Houston, Ex: gulf Publishing.
3. Campbell, J P; Dunnettee, M D; Lawler, E E; Weick, K E (1970), *Managerial Behaviour, Performance and Effectiveness*, New York, McGraw-Hill, Inc.
4. Dubwicz, V & Fletcher, C (1982, Sept.), The Relationship between previous experience, intelligence and background characteristics of participants and their performance in an assessment centre. *Journal of Occupational Psychology*, Vol. 55(3).
5. Ghiselli, E. E (1963), *Managerial Talent*. *American Psychologist*, 8.
6. Ghiselli, E. E (1971), *Explorations in Managerial Talent*, Pacific Palisades, California, Goodyear Publishing Company Inc.
7. Hersey, P & Blanchard, K M (1977), *Management of Organizational Behaviour: Utilizing Human Resources*, Third Edition, N.J., U.S.A, Prentice Hall Inc.
8. Miner, J B (1977), *Motivation to Manager: A ten year update on the 'Studies in Management Education' research*, Atlanta, Georgia, Organizational Measurement Systems Press.