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VALIDITY STUDY OF TESTS FOR
EXECUTIVE SELECTION

by

Mirza S. Saiyadain
Arun Monappa

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MIRZA S. SAIYADAIN

ARUN MONAPPA

INDIAN INSTITUTE OF MANAGEMENT, AHMEDABAD

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M.S. & A.M.

ABSTRACT

Several reasons have been offered for the depressed values of coefficients of correlation between performance evaluation scores and test scores for tests that otherwise seem to have high validity. Most of these studies have concerned themselves with only the first year performance measure. This study was undertaken to broaden the validity design by including performance measures of 3 subsequent years. Data were collected on the test and performance scores of executives from three organizations. The results indicate that though test scores may not show significant relationship with the first year performance appraisal score, they do show positive and significant relationship with 2nd and/or 3rd year performance appraisal scores. The rationale of the results are discussed. Analysis of the test and performance appraisal scores of those who left organizations at various stages have also been carried out to examine the rationale.

INTRODUCTION

From their genesis in China around 2200 B.C. till today, psychological tests have undergone tremendous research both in their theory and practice. A large variety of tests is available. The seventh Mental Measurement Year Book (Buros, 1972) lists 1157 tests and a variety of indicators based upon them. The first Mental Measurement Handbook of India (Long & Mehta, 1966) lists 368 tests developed in India or adapted and standardized from foreign tests.

Shanthamani and Hafeez (1975) have studied the extent of the usage of psychological tests for personnel selection in India. Their report revealed that out of 14 companies studied 83% used psychological tests for selection with weightages varying from 40 per cent to 70 per cent. The same report showed that of 200 companies 65 per cent used psychological tests of one kind or the other for selection. Even those not using the tests considered them useful. Most definitions of psychological tests have taken into account their objective and standardized nature as well as the representativeness of actual behaviour in their contents. Details of this definition are discussed elsewhere (Monappa & Saiyadain, 1975). What actually is measured by these tests is still debated in some quarters. In recent years, however,

the concern has shifted to establishing the validity of tests and demonstrating their job relatedness, and as a result attempts have been made to identify and/or develop criterion variables.

The results of validity studies on psychological tests both in India and elsewhere are contradictory; some studies have found psychological tests to be effective tools in predicting performance whereas others have failed to establish such a relationship.

Ghiselli (1966) found in the foreign studies on psychological tests conducted between 1920-66, an average validity coefficient of .19. The studies of Lent, Aurbach, and Levin (1971) and Smith, Niedzwiedz, Davis, and Kniesner (1973) further supported this finding. However, a subsequent survey of the studies extended to 1973 by Ghiselli (1973) showed the average coefficient to improve to .22 as against .19 in his early survey (Ghiselli, 1966).

Govindrajan (1971) in a study on Indian samples used a battery of 12 tests to discriminate between "good" and "bad" mechanics, and found that only three tests could discriminate between good and bad mechanics. Similarly Monappa and Saiyadain (1976) study on samples from three organizations found a lack of relationship between test scores and performance

measures. Test scores were found to predict neither the overall performance nor the individual elements of it nor the specific clusters of performance elements.

On the other hand, studies carried out by the Psychometric Research and Service Unit of Indian Statistical Institute during 1970-73 in seven companies in both the public and private sectors showed contrary results (Chatterjee and Mukherjee, 1974). The validity analysis showed that the test scores predicted the performance much better than other selection components. In Kardak's (1971) study, a test constructed on the lines of the Wonderlic Personnel Test was administered to 24 junior officers in a bank. The test scores were correlated with confidential reports and the bi-serial coefficient was found to be .68.

Some tests possess very high face validity but fail to show significant relationship with performance when tested for predictive validity. The following pages critically examine some of the reasons for low correlations.

1) The most serious reason is criteria. Despite tremendous advancement concerning the nature and methodology of testing, criteria have remained the weak link between predictor-criterion relationship. Smith, et al., (1973) have

provided a list of the criterion characteristics that should be taken into account in most cases. Their survey revealed that judgement in the form of supervisory rating is used most often (85 out of 118 studies). Because of the halo effect and central tendency errors, supervisory ratings have been questioned and pointed out to be one of the several factors contributing to depressed correlation (Monappa & Saiyadain, 1976).

Several alternate methods have been suggested. Gnyton's (1969) survey identified a combination, of salary, investments, debts, club membership, and positions in managerial hierarchy as indices of success. Various attempts have been made to suggest models for developing criteria. Craven's and Woodruff's (1973) Model of Sales Territory Performance for Salesman, and Lent, et al (1971) Significant Batting Average Methods are two examples.

2) The validity coefficients may be an underestimation of the predictive power of the test because test scores are correlated with "global" performance criteria (Ghiselli, 1973). In other words, a single test administered during selection measures only one or few traits of the several required for the job, while criterion is a sum total of the performance on the job requiring all the necessary traits. Hence the correlation between the two may just be an "artifact", a product of a single test measuring a single trait and several performance measures which are not

tapped by a test during selection.

3) A third reason could be lack of operational validity. The three components of testing programme are test administration interpretation, and application. Validation of these components leads to a better predictability of test scores. Byham and Temlock (1972) have quoted an example of operational validity from a policy statement of a corporation.

Personnel test will be used under conditions which promote their maximum possible contribution to selection and placement decisions and fair opportunity to all test takers. Therefore two aspects to this policy (a) determining the validity of a test for a given position and (b) insuring through proper administration, interpretation and application of tests that valid prediction is in practice achieved (p.654).

Monappa & Saiyadain (1976) suggested that test anxiety or test wiseness may depress the value of coefficient.

Although the training of the person administering the test is important its significance has often been deemphasized. For example, Pocuval (1973) claimed that it is not necessary to have the services of a professional in test administrations. Manuals that come along with the test are sufficient to guide any layman to administer the test. Unfortunately, however, a part of the problem of validity lies precisely in this "unauthorized" practice. On the other hand, certain tests/^{authors}insist that the use of the test be restricted to "registered approved

users" who have undergone training in administering the test (Odams & Smithers, 1973). Shanthamani and Hafeez (1975) very strongly suggested that tests should be administered by trained personnel.

4) Validity coefficients are based on a small group of applicants selected for the employment. This is a curtailed sample and not the total population that originally applied with a different mean and standard deviation. The higher the cut off score for selection, the higher the average and the lower the standard deviation. On the other hand, the validity statistics in which we are interested are those that apply to the total population of applicants. Because of this incompatibility the degree of relationship is depressed. Hence the test that really was valid now appears to be less valid. The rather small size of the "qualified" group makes the results somewhat mistakable. Restriction of range as this phenomenon has come to be known is one of the major factors in lowering the validity coefficients. Thorndike (1949) suggested statistical methods to project the degree of coefficient for unrestricted groups.

Partly because of some of these problems, several researchers in the West have started suggesting alternate methods to testing. For example, from three studies conducted on engineering salesmen, production supervisors, and field representatives, Buel (1972) showed that the biographic information can differentiate

above and below average performers. Although he calls it an alternate to testing but he does not give results based on test scores.

In view of the strict regulations of the Federal Control Compliance and Equal Employment Opportunity Commission in USA*, several other authors have suggest looking into alternate methods of tapping abilities so far measured by psychological tests. Lipset (1972) suggested that the information from various selection tools and techniques can be reduced to four managable aspects of applicants background: Work experience, educational activities, extra-curricular activities, and personal factors relating to marriage, family life, financial circumstances, and life style. He however, cautioned that if valid tests were readily available it would be appropriate to use them. Wernimont and Kirchner (1972) suggested an alternative in terms of relying on the accumulated experience of management people in making selection decisions.

Suggestions for alternative methods to test have probably arisen because the outcome reflects insufficient preparations for a testing programme. Selection tests to be

* The genesis of these laws in USA does not seem to be very different in spirit from the distinction of "deprived class" in India. Empirical and objective tests used have to take into account such disparities.

meaningful require that organizations should have established their own norms for various samples and levels, have frequent updating of tests, lay a scientific basis for the use of scores on tests, and organize training programmes for the administrators. Some of these things seem to be lacking at least in India. Shanthamani and Hafeez (1975), for example, in their study, pointed out that except for one, none of the companies had developed their norms. Fifty per cent had been using the same test for the last 5-15 years. Some seemed to have used a cut-off score while others used a minimum score.

Those who suggest alternate methods to testing accept that the usefulness of psychological tests will continue to be in jeopardy unless tests or people become more predictable. Both in their opinion seem to be rather unrealisable at least at the present. And hence the suggestion for alternate methods. But as O'Leary (1972) pointed out "An employer who discontinues valid employment test not only increases expense by high employees turnover and poor performance but he may increase the probability of unfair employment practices through human judgement in interviews and reference checks" (p.172).

This research studies a way to increase the usefulness of psychological tests for personnel selection by expanding the scope of validity designs and including in it adjacent performance

appraisals.

Most of the validity coefficients are calculated with reference to the first year performance measure which itself may possibly not be very valid. The first few months on the job, particularly for those for whom it is the first job, can be quite painful. Adjustments have to be made and for some it means a change in their life style. By the time the employee is adjusted and performing at his normal rate, the performance evaluation is around the corner. This along with the problems inherent in the performance appraisal can have a significant effect on the validity coefficients.

To study the effectiveness of psychological tests for personnel selection, validity designs need to be slightly modified. In addition to correlating test score with the first year performance, they should also be correlated to subsequent performance measures before a decision to accept or reject the test is made. Such a procedure will have the advantage of not only looking at the short term but also the long term effectiveness of tests. It will take into account some of the problems inherent in the first performance evaluation.

Correlating test scores with performance in subsequent years has not been studied largely except for two studies, one done in India and the other in USA.

Wernimont and Kirchner (1972) for example, correlated tests scores (15 tests of Edwards Personnel Preference Schedule Scale) with subsequent performance measures for the next 10 years and found varying degrees of relationships. For some sub-tests like aggression, achievement exhibition, affiliation, autonomy, heterosexuality, succorance, and deference, the association increased over the years from negative to positive and some time significant, while for other subjects (change, dominance, order, introception, endurance, nurturance, and abasement) it decreased and in fact became negative in direction, some of them being statistically significant.

Chatterji and Mukerjee (1974) in their study found a multiple correlation of .60 between test scores and later performance criteria whereas the corresponding figure for interview, group discussion, and application evaluation was .30. In fact individual correlations with various test segments ranged from .30 to .47 while for the other three components they ranged from -.01 to -.51 (mark all negative). However, no comparative data on associations with the earlier performance is given and hence it is difficult to conclude whether this represents an improvement over the other.

This study is an extension of the first study conducted by the authors (Monappa and Saiyadain, 1976). The first study

showed that test scores had no relationship with the performance in the first year. Some points cropped up while discussing the results with the organizations who provided the data. . Essentially they showed concern with the first year ratings and their representativeness, with the prediction of the long term performance as against the immediate performance and with the accepting or rejecting a test as the basis of its association with the first year performance only. This study was thus, undertaken to extend the scope of the first study in associating test scores with the performance ratings of subsequent years.

METHOD

Three manufacturing organizations (A,B and C) in the private sector identified through a pilot study (Monappa and Saiyadain, 1976) were studied. In addition to producing consumer and industrial products, they were engaged in the distribution trade. The technology in these organizations varied from batch production to continuous process.

The sample was drawn from management trainees, selected during 1963-72, who had completed the training, were placed in the regular cadre as first level executives and had already put in one year of regular service.

Data on their test scores and the performance evaluations[@] of the second and third^{*} year after confirmation was collected unobtrusively from their personal files. Data were limited to the third year evaluation because the sample was considerably reduced after the third evaluation; several of the employees either left the job or were promoted, and secondly, the same organizations, particularly organization C, introduced a new

* Henceforth these performance evaluations measured would be referred to as first, second, third evaluations respectively.
@ Done by immediate supervisors

system and form of performance appraisal. Table 1 gives the distribution of the sample over the three appraisal years.

Table 1
Distribution of Samples Over Three Years

Organizations	Performance Appraisal Years		
	First	Second	Third
A	18	17	16
B	54	24	14
C	18	18	9
Overall	90	59	39

Exhibit 1,2 and 3 give the performance evaluation form which remained the same over the three years. The number of performance indicators (elements) used for evaluation ranged from 8 to 32 in the organizations. The scales used for each one of these indicators also varied. Organizations A and B used a 4-point rating scale, while organization C used a 5-point scale.

Although these organizations had used other tests and personality inventories for selecting management trainees, the

psychological test was the only common one across the three organizations. The specific psychological test used was the Wonderlic Personnel Test or an adapted version of it. This test consists of 50 items designed specially for people applying for business and industrial positions. In addition to its use for selection, it has been used for promotion and placement.

The Wonderlic Personnel Test was so named to lessen the hesitancy and fear taking the tests, in persons. Furthermore, in this test, when an applicant does not meet the critical scores he is not turned down because of "lack of mental ability" (Wonderlic, 1959). All the necessary directions are given on the first page, and sample questions indicate clearly the type of questions the applicant will find within test. The 50 items on each form constitute the examination and are answered by the respondents without interruption.

RESULTS

Table 2 gives the correlations between the test scores and successive performance for the three organizations.

Table 2
Degree of Relationship Between Test
Scores and Performance Measures

Organizations		Performance First	Appraisal Second	Years Third
A	r = df =	.26 16	.96** 15	.45 [●] 14
B	r = df =	.24 52	.62** 22	.67** 12
C	r = df =	.11 16	.14 16	.83** 07

● P < .05

** P < .01

The values of coefficients are graphically presented in Figure 1.

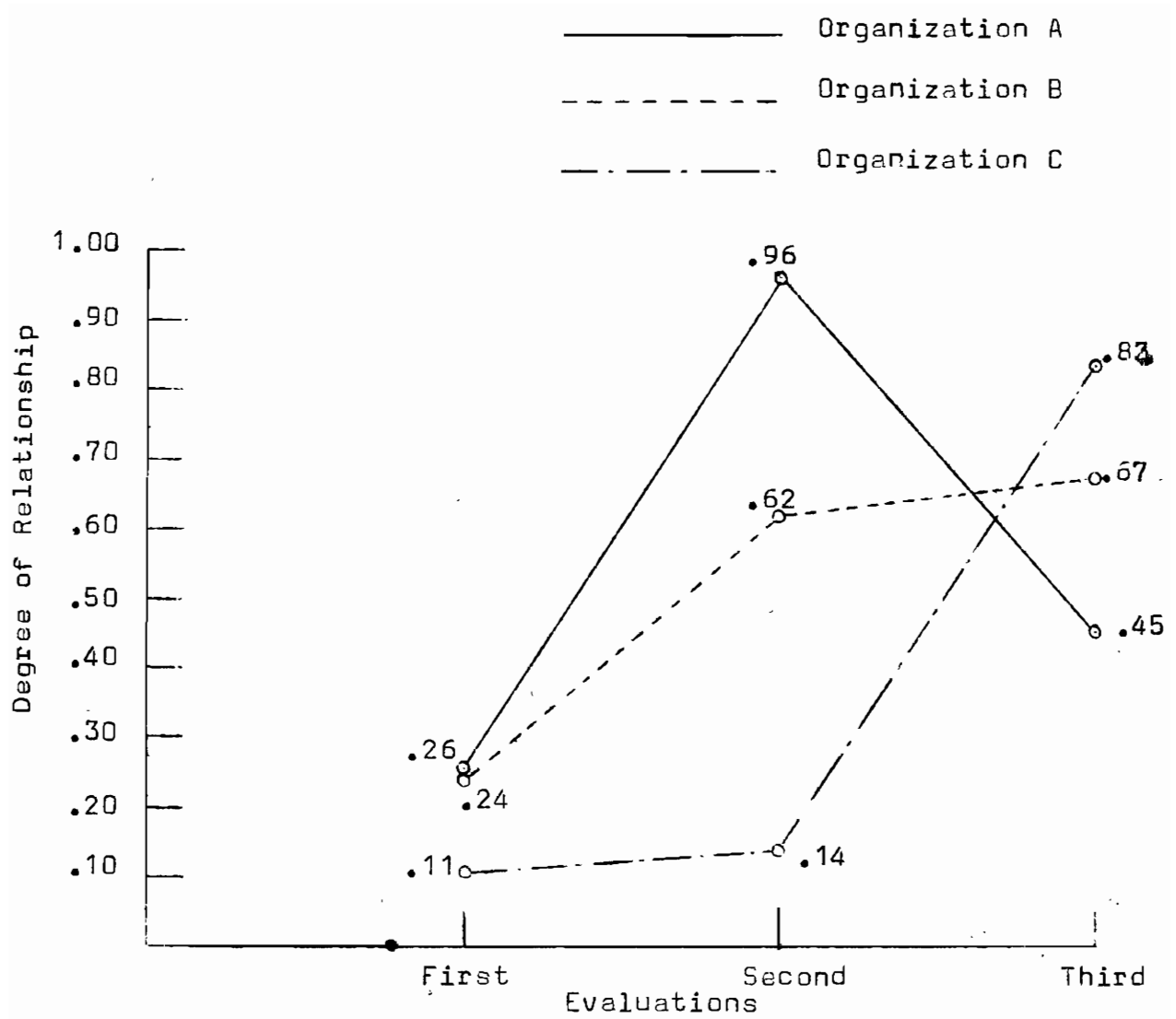


Figure 1: Degree of Relationship Between Test Scores and Performance Measures

The results in Table 2 and Figure 1 suggest the following:

The test scores may not correlate with performance one or even two years after confirmation (Organization C) but they show a high degree of positive relationship with performance appraisal. up to a point beyond which the degree of relationship decreases. In organization A, the test scores correlated positively but not significantly with the first performance appraisal but they correlated positively and significantly with the second year performance appraisal. However, with the third year performance appraisal, not only did the degree of relationship drop but it also lost its statistical significance showing a curvilinear relationship between test scores and successive performance appraisals.

To find out whether test scores were associated with the overall performance more than the individual elements of performance individual performance elements used by the three organizations were correlated with test scores. Table 3 gives the values of coefficients.

Table 3

Degree of Relationship Between Various
Performance Elements and Test Scores

Performance elements	Degree of Relationship Years		
	First	Second	Third
<u>ORGANIZATION A</u>			
1. Comprehension and conformity with policies	.14	.81 ^{**}	.08
2. Attitude towards work	.22	.48 [*]	.30
3. Knowledge and execution of responsibilities	.22	.56 ^{**}	.12
4. Organizational ability	.25	.28	.44
5. Judgement	.04	.55 [*]	.43
6. Ability to make decisions	.20	.77 ^{**}	.51
7. Initiative	-.02	.26	.35
8. Delegation	.28	.50 [*]	.29
9. Ability to communicate	.26	.43	.53 [*]
10. Employee relations	.17	.06	.68 ^{**}
<u>ORGANIZATION B</u>			
1. Acceptability	.25	.35	.38
2. Maturity	.23	.38	.37
3. Relational skill	.21	.54 ^{**}	.58 [*]
4. Communication skill	.32 [*]	.46 [*]	.34

Performance elements	Degree of relationship years		
	First	Second	Third
5. Ability to derive benefit	.08	.39	.64*
6. Ability to contribute to learning situation	.29*	.65**	.76**
7. Initiative	.07	.37	.70**
8. General	.17	.44*	.40
<u>ORGANIZATION C</u>			
1. Appearance	.08	.09	.45
2. Personality	.06	.34	.10
3. Initiative	.04	.25	.47
4. Judgement	.03	.09	.21
5. Resourcefulness	-.24	.10	-.08
6. Open mindedness	.18	-.07	-.21
7. Knowledge of work	-.12	.15	.70*
8. Interest	.08	-.12	.05
9. Quantity of work	-.14	-.17	.50
10. Accuracy of work	-.01	-.09	.09
11. Character	.07	.02	.38
12. Loyalty	.04	.03	.31
13. Dependability	.08	-.05	.50
14. Co-operation	.36	.03	.78*

Table contd.

Performance elements	Degree of relationship years		
	First	Second	Third
15. Analytical ability	-.07	.49*	.70*
16. Ability to formulate a subject	-.22	.14	.39
17. Originality	.27	.07	.78*
18. Willingness to accept responsibility	.03	-.17	.76*
19. Ability to develop and train others	.38	.25	.67*
20. Ability to delegate work	.39	.47*	.67*
21. Supervisory ability	-.22	-.05	.24
22. Suitability for present assignment	-.16	-.04	.37
23. Capacity for growth	.03	.13	.64
24. Health	-.23	.14	.05
25. Living standards	-.23	.14	.05
26. Social intercourse	.78	.22	.54
27. Sociability	.10	.34	.42
28. Summary appraisal of employee	.01	.08	.70*
29. Importance of his job	.01	.20	.58
30. Value of employee	.01	.33	.50
31. Opportunity for advancement	-.23	.29	.10
32. Attendance	-.21	.08	-.36

* $p < .05$

** $p < .01$

In organization A, the test scores correlate significantly with comprehension and conformity with policies, attitude towards work, knowledge and execution of responsibilities, judgement, ability to make decisions, and delegation only in the second year. These performance elements were not found to be related to test scores in the first or third years. On the other hand, ability to communicate and employee relations showed statistically significant relationship with the test scores only in the third year.

In organization B, ability to contribute to learning situation was found to be consistently correlated with the test scores in all the three years. Ability to derive benefits and initiative associated only in the third year while relational skill was associated in the last two years. The communication skill was found to show statistically significant relationship in the first two years.

Knowledge of work, co-operation, originality, willingness to accept responsibility, ability to develop and train others, and overall appraisal showed significant relationship with the test scores only in the third year in organization C. Analytical ability and ability to delegate showed significant relationship in the last two years. The rest of the performance elements showed no relationship whatsoever with test

scores across the three evaluation years.

The following conclusions can be drawn from this analysis:

1. Some elements did not correlate with the test scores suggesting that test scores are associated with some and not all performance elements.
2. Only in the second and/or third year did some elements show statistically significant relationship with the test across except in case of one where it was so in the first and second years.
3. Some elements which could successfully associate with the test scores only in the second year fell through in the third year.
4. In one case, the test scores consistently correlated with successful performance across the three years.

Exhibit 4,5 and 6 give the inter-element coefficients of correlations. A close scrutiny of these coefficients revealed that some elements correlate with others, suggesting that they probably measure one and the same thing. The three organizations in the sample, except organization B that has clustered its eight measures in four categories, tend to treat each of these elements as independent. However, the significant relationship among some of them seemed to jeopardize such an assumption. To further ascertain empirically the interelements relationship B coefficients (Harmon, 1967) were calculated. The clusters that emerged were correlated with the test scores. Table 4

presents those that showed statistically significant association. Exhibit 7 gives the complete results.

Table 4
 Relationship Between Clusters of Performance
 Elements and Test Scores

Clusters	B-Coefficients		r
	Second	Third	
<u>ORGANIZATION A</u>			
(5,8)	183.36	-	.52*
(5,9)	-	158.10	.50*
<u>ORGANIZATION C</u>			
(19,21)	-	277.36	.76*
(3,30)	-	261.21	.70*
(9,23)	-	260.99	.66*
(18,24)	-	250.57	.76*
(17,26,28)	-	232.18	.89*

* P < .05

** P < .01

B-coefficient did not reveal any significant cluster for organization B. For organization A only two clusters showed a significant relationship with the test scores. Judgement (5) in association with delegation (8) and again with ability to communicate (9) showed significant relationship

with test scores in the second and third years respectively.

In organization C, the significant relationship between some of the clusters and test scores emerged only in the third year. Ability to develop and train others (19) in association with supervisory ability (21); initiative (3) and value of employee (30); quantity of work (9) and capability for growth (23); willingness to accept responsibility (18); and health (24) and originality (17); social intercourse (26); and overall appraisal (28) were clusters that showed statistically significant relationship with the test scores.

Of course some of these clusters may not theoretically be valid and hence, their relationship may not be very consequential. For example, in organization C, willingness to accept responsibility and health were two components that showed significant B-coefficient but their contents did not seem to be conceptually related. How much of this statistical relationship can be relied upon is an open question?

In some cases the degree of freedom was so low that large coefficient values were required to reach the conventional levels of significance. To increase the sample size we covered both test and performance scores into standard scores. to have a basis for combining data from these three

organizations and use them as a single sample. Table 5 gives the degree of relationship between converted test scores and performance measures.

Table 5
Degree of Relationship Between Test Scores
and Performance Measures (Standard Scores)

Performance measures	r	df
1st	-.07	88
2nd	.52**	57
3rd	.75**	39

** $P < .01$

Figure 2 presents the values of coefficients.

Table 5 and Figure 2 once again confirm that the test scores for the sample of this study although they fail to correlate with the first performance appraisal, show a strong relationship with the subsequent performance appraisal.

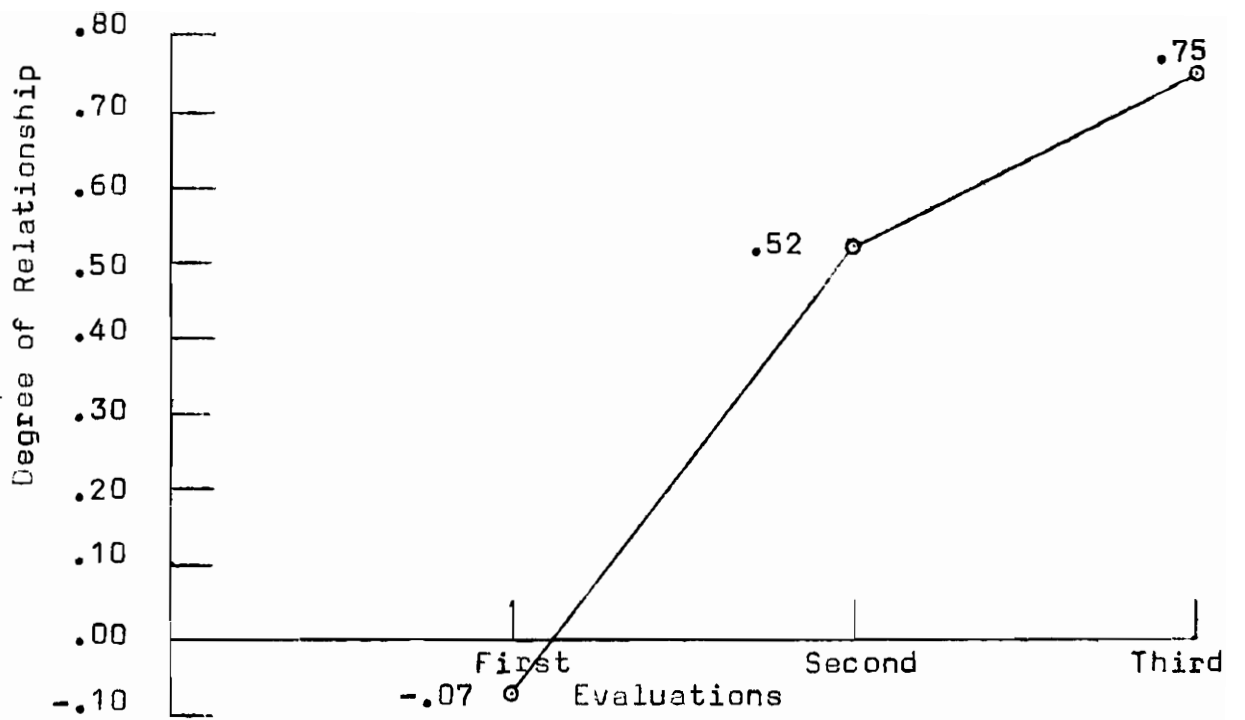


Figure 2: Degree of Relationship Between Test Scores and Performance Measures (Standard Scores)

DISCUSSION

The results clearly suggest that the validity coefficients indicating the degree of relationship between test scores and first performance appraisal scores can be misleading. It seems that the low coefficients might be an artifact which may disappear if test scores are correlated with subsequent performance appraisal scores. The first year performance appraisal scores do not seem to associate with the test scores but the same test scores show significant correlation with second and/or third year performance appraisal scores.

However, even if a test is once found to be highly associated with the performance appraisal score, there is no life time guarantee that it will show the same relationship again. Sometimes job contents and technology change over the years (seldom without awareness) and the feeder institutions where personnel are recruited, may not remain the same over the years. Overall socio political changes might bring about changes in the quality of education, training, and general attitude of the masses thus changing the labour market even if feeder institutions remain the same. Hence it is possible that a test that may show high validity coefficient one year may not do so the next year. Our results, to some extent, indicate this

possibility, particularly for organization A. Where the test score did correlate significantly with the second year performance appraisal score, but did not correlate with the third year performance appraisal score. A frequent follow up study of the selection test should be made. The practice is non-existent. Shanthamani and Fafeez (1975) point out that 50 per cent of the organizations have been using the same test for the last 5-13 years and only .8 per cent have any follow up and development of norms.

The tests predict only a segment of the total abilities required to perform a job successfully. Assuming that both the test and performance measures were pretested for validity and reliability one would expect that the test scores would correlate highly with ^{the} same segments of the performance measure than with the total performance (Ghiselli, 1973). In fact, as discussed in the introduction, one reason why some really "good" tests fail to show significant relationship with criterion measure is because they are correlated with the total criterion measure rather than the relevant segment. Our results suggest that the tests used by the sample organizations do in fact associate highly significantly with some of the criteria

segments either individually (table 3) or in association with others (Table 4) than the total criteria scores (Table 2).

More specifically, this study focussed on broad basing the validity coefficients by including the subsequent performance measures in it to find out if over the years there is an increasing decrease in the variability in performance appraisal scores and hence improvement in the validity coefficients. The following paragraphs extensively discuss this issue.

One of the several reasons for low validity coefficients is the restriction of range, i.e., a small size of "qualified" group with high mean and low standard deviation on the test scores as compared to the total population of those who took the test. When test scores of this select group are correlated with their performance scores the validity coefficients get low, because the performance scores are distributed over the full scale with low mean and high standard deviation. In other words, the performance scores do not present a situation of restriction of range. High variability in performance appraisal score would mean that a large number of people who were not fit for the job were selected, or alternatively those who would have been suitable were rejected.

Difference in the range of variability in the two measures thus depresses the value of validity coefficient. However, if the test scores of restricted group are associated with the performance score of restricted group the chances are that the range of variability in the two measure being not very discrepant may increase the value of validity coefficient. Our results show that the degree of relationship between test scores and subsequent performance measures enhances while the sample size decreases.

Most typical of follow up validation studies is a decreasing smaller size of sample. Poor and exceptional workers on the job are either discharged or promoted or leave their jobs voluntarily over the years. This leaves the sample smaller. If the correlation with subsequent performance show a significant positive relationship it can be because of this attrition. The "misfit" do not any more "pollute" and hence the correspondence between predictor and criterion goes up.

To further establish this point we need to study the trend in means and standard deviation estimates as well as the degree of relationship between test and performance appraisal scores of the curtailed samples.

a) The means and standard deviation estimates of performance appraisal score should show a certain trend with subsequent restrictions of samples. Here the means might stay more or less the same but the standard deviation estimates may decrease with each subsequent restriction of sample. This suggests the decrease in variability in performance among the employees either because poor performers improved over the years or because poor (and possibly good) performers left the organization/unit.

The mean and standard deviation estimates of performance appraisal score for the three organizations over the three years are given below:

Organizations		Performance Appraisal Years		
		First	Second	Third
A	\bar{X} =	22.94	23.65	24.06
	SD =	4.83	4.15	3.85
	N =	18	17	17
B	\bar{X} =	22.70	24.63	24.00
	SD =	5.83	4.26	3.92
	N =	54	24	14
C	\bar{X} =	119.50	124.33	120.11
	SD =	15.85	14.64	10.67
	N =	18	18	9

The aforementioned data suggest that though the variability among means is marginal in both the positive and negative direction, the standard deviations estimates of the three evaluations in the three organizations consistently decrease. This suggests that over the years an increasingly homogeneous performance sets in the organizations.

A similar trend is noticed in the means and standard deviation estimates of test scores implying that again over the years the extreme test scorers get eliminated and only those who score more or less similarly stay. The test score data are given below:

Organizations		Test Score Years		
		First	Second	Third
A	\bar{X} =	121.33	122.88	123.31
	SD =	6.11	6.03	5.91
	N =	18	17	16
B	\bar{X} =	35.21	34.29	35.29
	SD =	5.68	5.35	3.92
	N =	54	24	14
C	\bar{X} =	30.94	30.94	29.88
	SD =	5.84	5.84	5.05
	N =	18	18	9

b) A similar trend was observed when both performance appraisal and test scores were curtailed according to the next sample size. In other words the means and standard deviation estimates of test scores and performance appraisal scores of only those who stayed in the organization till the second/or third year evaluation showed a trend whereby means changed marginally, while the standard deviation estimate consistently decreased. This is consistent with the results of the study by Wernimont and Kirchner (1972) where though the average rating increased over the first three years and then stabilized, variance in rating decreased over time. Our data are presented below:

Organization		First curtailed according to the second	First curtailed according to third	Second curtailed according to third
<u>A</u>	Test Scores	\bar{X} = 122.88	123.31	123.31
		SD= 6.03	5.89	5.89
	Performance scores	\bar{X} = 23.11	23.06	23.94
		SD= 4.91	4.37	3.75
		N= 17	16	16
<u>B</u>	Test Scores	\bar{X} = 35.54	35.28	35.28
		SD= 5.13	3.86	3.45
	Performance Scores	\bar{X} = 19.25	16.78	24.56
		SD= 5.91	4.29	3.45
		N= 24	14	14
<u>C</u>	Test Scores	\bar{X} = -	29.88	29.88
		SD= -	7.02	7.02
	Performance Scores	\bar{X} = -	120.77	120.44
		SD= -	13.44	10.23
		N= -	9	9

If the degree of relationship between test scores and performance measure reaches statistically significant levels in the second and/or third years, it means that this smaller sample should have been selected. To be certain whether this select sample really is a better performer not only in the second and third years but also in the first year, correlations between their test scores and performance appraisal scores for the three years were calculated as given below:

Organization		First curtailed according to second	First curtailed according to third	Second curtailed according to third
A	r =	.586*	.564*	.731**
	N =	17	16	16
B	r =	.321	.668**	.805**
	N =	24	14	14
C	r =	-	.238	.258
	N =	-	9	9

* $P < .05$

** $P < .01$

Not all the coefficients are statistically significant. The values and levels of coefficients for organizations A and B are in the expected direction while those for organization C are not possibly because of the small sample size.

In organization A, the performance appraisal scores of curtailed sample show significant positive correlations with the score over the three years suggesting thereby that the small group of people who stayed on in this organization performed in consonance with their test scores. The same is true for organization B except that here When the first year sample size was curtailed to the size of the third year, the degree of relationship between test and performance appraisal score reached a statistical level of significance.

c) On the other hand, the degrees of relationships between test scores and performance appraisal scores for those who left the organization at one stage or the other, with one exception, turned out to be insignificant. In one case the coefficient was negative. These coefficients for organizations B and C are given below. The coefficients for organization A were not possible because of a very small sample size (N=1 or 2).

Organization		First curtailed according to second	First curtailed according to third	Third curtailed according to third
B	r =	.789*	.222	-.097
	N =	30	40	10
C	r =	-	.014	.112
	N =	-	9	9

* $P < .01$

It is not very clear why the degree of relationship between test scores and first year performance appraisal scores of those who left after the second year appraisal in organization B is significant. There could be several reasons. Those who left had relatively low performance appraisal score and comparatively lower scores on the test or relatively high scores on both the test and performance appraisal. A second possibility could be a random attrition from the full range of test and performance appraisal scores.

d) Comparison of the means and standard deviation estimates of the two samples (those who stayed and those who left) shows that those who left had lower mean ($\bar{X}=19.25$) and high standard deviation ($SD=5.91$) on the first year performance appraisal score

as compared to those who stayed ($\bar{X}=25.63$; $SD=1.96$), while their means and standard deviation estimates on test scores more or less remained similar ($\bar{X}=35.54$; $SD=5.13$ stay group and $\bar{X}=34.93$; $SD=6.06$ left group). Though the attrition was random for test scores, more persons with extreme performance appraisal scores (more from the lower extreme) left the organization. Such is not the case with other similar comparisons.

e) The overall test and performance appraisal scores of the samples from the three organizations were combined by converting them to standard scores. The degree of relationship between the test and earlier performance appraisal scores of those who stayed were found to be significant beyond conventional levels. Thus the scores of the first year performance appraisal and the tests curtailed according to the size of sample that stayed on till the second year evaluation when correlated showed a coefficient of .426 which is significant at .01 level for 39 degrees of freedom. Similarly the relationships between test scores and first and second year performance appraisal score of those who stayed till the third year evaluation were .558 and .634 respectively. Both were significant at .01 level of significance for 37 degrees of freedom.

The results of this analysis suggest that over the three organizations those who stayed performed well successively in consonance with their test scores. This is further supported by the insignificant validity coefficients of those who left the organizations at various stages.

f) The coefficients between test scores and performance appraisal scores (converted) of various years of those who left the organizations at various stages were calculated. For those who left the three organizations after the second year the correlation between the test and first year performance appraisal score was .123 which is statistically insignificant. For employees who left their job after the third evaluation, the degree of relationship between the test score and first year performance was .789 which for 28 degrees of freedom is significant at .01 level. It may be noted that these employees belonged to organization B and the explanation given earlier will seem to hold true in their case also. However, the degree of relationship between the test scores and second year performance appraisal score of those who left after the third appraisal, is not only negative but also insignificant. The value of coefficient was $-.032$.

What we have been discussing so far is the rationale of significant association of test scores with subsequent performance scores. We have analysed the results in following 6 ways:

- (a) We have looked at the means and standard deviations of of the performance appraisal scores as well as the test scores over three years period;
- (b) Means and standard deviations of the test and performance appraisal scores of the 3 years are curtailed progressively according to the subsequent attrition in the sample. In other words, had the curtailed sample been the only one in preceeding years what would have been the scores and what would have been the degree of relationship between test and performance appraisal scores of these peoples;
- (c) The projected degree of association between test and performance appraisal scores of those who left the organizations in subsequent years was discussed;
- (d) A comparison of means and standard deviations of test and performance appraisal scores of those who stayed on and those who left the organization was made

(e-f) The test and performance appraisal scores of the combined sample of those who stayed (e) and those who left (f) were compared.

The alphabets indicated here correspond to the various segments of discussion in the preceding pages (see discussion from page 31-38).

CONCLUSION

By and large the analysis shows a definite trend. It explains that those who continuously perform well tend to stay in an organization, while those who are extreme performers leave their organizations. The explanation is ex-post facto but the results seem to support it.

In a recent paper, McClelland (1973) has raised several issues concerning the validity of selection tests, and has suggested the following six principles/criteria for validity tests.

1. Tests should measure a sample of the criteria (behaviour analysis) rather than paper pencil, multiple choice abstract items.
2. Tests should measure the changes and growth in the characteristics they assess.
3. The characteristics measured by a given test should be made known to potential testee who can develop proficiency in them.
4. Tests should measure general rather than specific competencies.
5. Tests should involve operant as well as respondents' behaviour. They should not have one question and one correct answer but one question and several correct answers, one of them better than the others.
6. Test should sample operant thought pattern to get maximum generalizability to various action outcomes.

The generalizability, operationalization, and developing of a testing technology most suited to these criteria may not be an easy exercise. Till such a system is developed, one should look at more parsimonious ways to establish the validity and job relatedness of selection tests.

This study suggests that to understand the usability of selection tests, correlating them with only the first year performance will not be sufficient. They should be correlated with one or two subsequent performance appraisal scores. If the follow up is limited to one year and tests are validated on only first year performance appraisal score, the validity coefficient may not be very reflective of either the discriminatory power of the test or the performance appraisal. To get the maximum mileage from the selection test, it should be validated on first and subsequent performance appraisal scores, otherwise a very valid test may not be accepted because of its poor relationship with the first year performance appraisal score only.

Such a procedure may probably entail rigour and continuous research which some companies might be able to afford and others may not. In fact Ash and Krockner (1975) after reviewing literature on personnel selection conclude,

"small organizations unable or unwilling to establish the validity of the tests they use will give up the uncritical off-the-shelve use of tests." However, those seriously interested in selecting the "right" personnel have to put in extra efforts to be sure that the tests that they use really help them to make a valid selection decision.

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EXHIBIT 1

APPRAISAL FORM

Name of the employee:

Department/Branch :

TRAITS	R A T I N G S			
	A	B	C	D
1. Knowledge & comprehension of the job				
2. Method				
3. Industriousness				
4. Accuracy				
5. Output				
6. Interest in work				
7. Responsibility/Dependability				
8. Ability to get along with others				
9. Ability to communicate				
10. Punctuality				

REMARKS: To be more effective on the present job, he/she should

1. Be given additional instructions :
2. Be given additional experience such as :
3. Study such subjects as :
4. Change his/her attitude as follows :
5. Any others :

Date:

Signature:

Exhibit 1 contd.

EMPLOYEE APPRAISAL

TRAITS AND RATINGS

1. KNOWLEDGE AND COMPREHENSION OF THE JOB

Consider whether the employee knows all details of the job expected of him/her and how quickly he/she grasps directions.

A = Outstanding knowledge and quick understanding.

B = Good knowledge and understanding with little explanation.

C = Satisfactory knowledge but slow in grasping.

D = Unsatisfactory knowledge and poor grasping.

2. METHOD

Consider the employee's approach to job, i.e., the way he/she tackles the job.

A = Exceptionally methodical

B = Methodical

C = Fairly methodical

D = Non-methodical

3. INDUSTRIOUSNESS

Consider the degree to which the employee applies himself/herself to the job. Is he/she hardworking or not?

A = Very energetic and industrious

B = Energetic and industrious

C = Industrious

D = Not industrious

Exhibit 1 contd.

4. ACCURACY

Consider accuracy and thoroughness

A = Exceedingly accurate

B = Accurate

C = Reasonably accurate

D = Makes many errors

5. OUTPUT

Consider the employee's output under normal conditions.

A = Gives exceptionally high output

B = Gives regularly above average output

C = Gives average output

D = Gives below average output

6. INTEREST IN WORK

Consider the employee from the point of interest he/she evinces in the work.

A = Keenly interested in the work

B = Interested in the work

C = Taking only minimum interest in the work

D = Lacking interest in the work

7. RESPONSIBILITY/DEPENDABILITY

Consider whether the employee can be depended upon for the successful discharge of his/her duties.

A = Highly dependable and responsible

B = Accepts but does not seek responsibility

C = Cannot be completely depended on

D = Unwilling to accept any responsibility

Exhibit 1 contd.

• ABILITY TO GET ALONG WITH OTHERS

Consider the employee's behaviour towards others.

A = Possesses exceptional ability to get along with others

B = Liked and respected by all his colleagues and subordinates.

C = Occasionally gets along well with others

D = Rarely gets along well with others

9. ABILITY TO COMMUNICATE

Consider the employee's ability to communicate with others.

A = Very clear and precise

B = Clear in expression but lacks precision

C = At times ambiguous

D = Mostly ambiguous

10. PUNCTUALITY

Consider the employee's punctuality incoming to office.

A = Always on time

B = Mostly on time

C = Sometimes on time

D = Rarely on time

ORGANIZATION B

EXHIBIT 2

SUGGESTIONS FOR MERIT RATING

NOTE: The successful operation of the X.X.X. programme depends to a considerable extent on our capacity to assess selected candidates. We are, therefore, keen to have your co-operation in filling in this Form as conscientiously as possible and in maintaining the confidential nature of these Ratings. If you experience any difficulty in rating, or have suggestions or criticisms to offer, please feel free to forward them.

- 1 This report will be kept entirely confidential. Do not, therefore, hesitate to give us your true reactions.
- 2 The person has to be appraised on all the eight characteristics on a four-point scale. In the scale, 'A' refers to "outstanding", 'B' to "Good", 'C' to "Fair" and 'D' to "Poor" performance on ~~that~~ attribute. Cross any one of the four letters in the light of your impressions.
- 3 Each attribute is defined. The definition is suggestive rather than exhaustive. If, after rating the person on a given attribute, you feel you have certain additional remarks to make, note them under "General Remarks" at the end of the Rating Form .
- 4 Rate the person for the entire period under review and not merely in terms of your recent or immediate impressions about him.
- 5 Whenever possible try to recall specific instances to support your rating on a given attribute.
- 6 Guard against the "generosity error". The purpose of this Form is to obtain an 'objective' assessment, not necessarily a 'good' assessment about the person.
- 7 Guard against the 'halo effect'. Do not let your rating on one attribute influence your rating on the other attribute.
- 8 Whilst rating the person take into consideration the extent of opportunity given to him for demonstrating his potential on a given attribute.
- 9 Ratings are not given in a vacuum. A person has to be rated against the background of the normal standard of performance expected.

MERIT RATING FORM

Name of person :

Designation :

Period covered by report :

Appraisal

PERSONAL CHARACTERISTICS:1. Acceptability

Consider carriage, manngers, poise,
tact expression, courtesy, etc.
Does he create on the whole a
favourable general impression?

A B C D

2. Maturity

Consider emotional make-up.
Does he normally appear stable
and relaxed? Does he usually
keep his emotional expressions
under control? Can he take
criticisms and set-backs without
getting unduly disturbed?

A B C D

SOCIAL EFFECTIVENESS:3. Relational Skill

Consider ability to get along
with people. Is he liked and
respected? Does he have a sym~~o~~pathetic
and understanding approach to people?
Can he listen to others without bias?
Do others show a willingness to
associate themselves with him?

A B C D

4. Communication Skill

Consider skill in expression. Does he
use good English? Can he present ideas
accurately in an orderly sequence and
in a convincing and effective manner?

A B C D

Exhibit 2 contd.

APPROACH TO LEARNING SITUATION:

5. Ability to derive benefits from learning

Consider the extent of willingness and skill shown in getting the maximum benefits of training. Is he eager, attentive, persistent and quick at grasping things? Can he see deeply into a situation, process, method, etc., or is he content with superficial explanations?

A B C D

6. Ability to contribute to learning situation

Consider his ability to evaluate what he has been taught or what he has observed himself. Does he show concern with mere information or does he try to look at things from new angles showing vision and imagination? Has he offered constructive criticisms or suggestions? Has his general behaviour contributed in any way to the efficiency and good relationship in the concern?

A B C D

WORK PERFORMANCE:

7. Initiative

Consider extent of willingness shown in assuming responsibilities. Has he shown any remarkable urge to work or accept obligations? Has he shown a spirit of enterprise and a tendency towards development of his own?

A B C D

8. Consider manner in which he carried out duties and responsibilities. What degree of intelligence, speed, accuracy, resourcefulness, etc. does he show in performing tasks entrusted to him? How is he on executive skill, viz. given the opportunity can he plan efficiently, arrive at workable solutions and put them into practice?

A B C D

Exhibit 2 contd.

GENERAL REMARKS ABOUT THE RATEE

Signature of Reporting Officer:
Name of Reporting Officer :
Designation of Reporting Officer:
Date

CONFIDENTIAL

NAME _____ PERIOD OF REPORT FROM _____ TO _____
 DIVN/DEPT/PLACE _____ DESIGNATION _____
 DUTIES ASSIGNED _____
 AGE _____ SERVICE _____ SALARY Ra. _____ GP. _____
 QUALIFICATIONS (INCL. ANY RECENTLY ACQUIRED) _____

PREPARING THE REPORT

This report is designed to help executives appraise each employee, his work performance and potential abilities. When completed, it records this appraisal for the executives and employers' use and, compared with previous reports, indicates the employee's progress.

It helps executives in the guidance, placement, transfer, promotion and salary adjustment of all employees.

To serve these important purposes the report must be prepared in a careful and thorough manner. Here are some suggestions :

- Be sure that all information at the top of this page is completed.
- Consider only one item at a time and rate only in relation to the requirements of the employee's job level.
- Base your ratings on direct knowledge and employee performance on the job. If you have supplementary information or pertinent off the job data, use the remarks section on the last page.
- Have the ratings reflect typical current performance : avoid being influenced by recent instances of success or failure which are not typical.
- Do not rate any item which is not applicable or which you have not had the opportunity to judge, instead, draw a line through any such items.
- Circle the applicable rating area in items 29, 30 and 31 (branch office, department or section).
- In rating item 31 consider both the individual's potential ability and capacity for development as well as the job opportunity in the rating area. (A high rating indicates both good opportunity and capacity to handle more important jobs).
- Use the "remarks" section on the last page for any amplification, additions or explanations; Note any special aptitudes or Qualities; Record a brief summary of the job progress review with the employee including your favourable comments as well as your reprimands, warnings or comments on his shortcomings or failures; Note any action you recommend.
- Append your Counselling Record Note.
- Mark 'S' (meaning SIGNIFICANT) in RED against the item which has a significant bearing to present job.

<p>1. Appearance :</p> <p><input type="checkbox"/> Makes a definitely favourable impression</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Good</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Makes a poor impression; Careless about appearance</p> <hr/> <p>2. Personality :</p> <p><input type="checkbox"/> Convincing, impressive and pleasant</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Convincing and impressive</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Unconvincing and unimpressive</p>	<p>3. Initiative :</p> <p><input type="checkbox"/> A self-starter; Does not require more than general instructions</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Occasionally takes the initiative but usually requires specific instructions</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Waits to be told; Not a self-starter</p> <hr/> <p>4. Judgment :</p> <p><input type="checkbox"/> Conclusions sound</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Judgment dependable in matters of a routine nature</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Judgment not always sound</p>
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MARK 'S' FACTORS

<p>5. Resourcefulness :</p> <p><input type="checkbox"/> Seldom fails to find a satisfactory solution to almost any problem</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Usually overcomes ordinary difficulties</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Sometimes unable to cope with ordinary difficulties</p>	<p>11. Character</p> <p><input type="checkbox"/> Integrity-courage of convictions-strong-mindedness-excellent</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Satisfactory</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Not strong</p>
<p>6. Open-Mindedness :</p> <p><input type="checkbox"/> Receptive to other people's ideas; Considers the facts without bias</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Receptive to suggestions but somewhat influenced by tradition</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Resentful of suggestions; Tends to be narrow-minded</p>	<p>12. Loyalty :</p> <p><input type="checkbox"/> Clearly devoted</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Satisfactory</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Doubtful</p>
<p>7. Knowledge of Work :</p> <p><input type="checkbox"/> Thorough knowledge of job</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Reasonably well informed on job</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Limited knowledge of job</p>	<p>13. Dependability :</p> <p><input type="checkbox"/> Exceptionally persevering and thorough; Inspires confidence</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Conscientious; Follows instructions</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Requires constant supervision</p>
<p>8. Interest in Work :</p> <p><input type="checkbox"/> Anxious to learn; Eager to do more than required</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Carries on work as required</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Indifferent; Continually has to be prodded</p>	<p>14. Cooperation :</p> <p><input type="checkbox"/> Goes out of way to be helpful; Especially anxious to cooperate</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Works well with others; Willing to cooperate</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Interested solely in his own job; Not concerned with work of others</p>
<p>9. Quantity of Work :</p> <p><input type="checkbox"/> Unusually high output</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Output equal to average for the job</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Output consistently below average for the job</p>	<p>15. Analytical Ability :</p> <p><input type="checkbox"/> Excellent in analyzing complex situations</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Reasonably quick to grasp essentials</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Does not recognize relative values</p>
<p>10. Accuracy of Work :</p> <p><input type="checkbox"/> Accurate and thorough</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Meets requirements of job</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Errors rather frequent</p>	<p>18. Ability to formulate a subject verbally and in writing :</p> <p><input type="checkbox"/> Logical, crystal clear</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Just ordinary</p> <p><input type="checkbox"/></p> <p><input type="checkbox"/> Muddlehead</p>

MARK 'S' FACTORS

<p>17. Originality</p> <p><input type="checkbox"/> Possesses creative ability and skill in appraising new ideas; Frequently makes constructive suggestions</p> <p><input type="checkbox"/> Has fair degree of imagination; Occasionally makes constructive suggestions</p> <p><input type="checkbox"/> Seldom contributes new ideas or recognizes opportunities for improvements</p>	<p>23. Capacity for further development:</p> <p><input type="checkbox"/> Shows indication of promising future with the employer; Excellent potentialities</p> <p><input type="checkbox"/> Should develop beyond present job at average rate of progress</p> <p><input type="checkbox"/> Capability of advancement doubtful; Seems to have reached limit</p>
<p>18. Willingness to accept responsibility:</p> <p><input type="checkbox"/> Eager to increase usefulness; Actively seeks responsibility</p> <p><input type="checkbox"/> Accepts but does not seek responsibility</p> <p><input type="checkbox"/> Tries to evade responsibility</p>	<p>24. Health:</p> <p><input type="checkbox"/> Excellent—no disabilities</p> <p><input type="checkbox"/> Ordinary</p> <p><input type="checkbox"/> Delicate to weak</p>
<p>19. Ability to develop and train others:</p> <p><input type="checkbox"/> Interested in progress of others; Outstandingly successful in developing them</p> <p><input type="checkbox"/> Reasonably successful in developing others</p> <p><input type="checkbox"/> Only mildly interested in developing others</p>	<p>25. Living Standard:</p> <p><input type="checkbox"/> Extravagant</p> <p><input type="checkbox"/> Normal for means</p> <p><input type="checkbox"/> Stingy</p>
<p>20. Ability to delegate work:</p> <p><input type="checkbox"/> Recognizes importance of and carries out successfully the delegation of responsibilities to those with capacity</p> <p><input type="checkbox"/> Confined mainly to routine matters; Hesitant about entrusting responsibilities to others</p> <p><input type="checkbox"/> Seems unable to utilize adequately those who have capacity for assuming responsibility; Strictly an individualist</p>	<p>26. Social Intercourse:</p> <p><input type="checkbox"/> Keeps business entertaining; Unusually well connected</p> <p><input type="checkbox"/> Sociable; Reasonably well connected</p> <p><input type="checkbox"/> Evades all social contact</p>
<p>21. Supervisory ability—getting things done:</p> <p><input type="checkbox"/> Most satisfactory in organizing and planning work; an able leader</p> <p><input type="checkbox"/> Usually gets work out on time; Has tendency to be satisfied with things as they are</p> <p><input type="checkbox"/> Requires considerable prodding to get work out; Lacks leadership qualities</p>	<p>27. Sociability:</p> <p><input type="checkbox"/> Sense of mutual relations and friendliness with others—exceptional</p> <p><input type="checkbox"/> Satisfactory</p> <p><input type="checkbox"/> Indifferent to unsatisfactory</p>
<p>22. Suitability for present assignment:</p> <p><input type="checkbox"/> Exceptionally well suited to job by reason of interest, knowledge of work and ability</p> <p><input type="checkbox"/> Qualifications and performance equal to the job</p> <p><input type="checkbox"/> Not well adapted to present work</p>	<p>28. Summary appraisal of employee:</p> <p><input type="checkbox"/> Outstanding</p> <p><input type="checkbox"/> Satisfactory</p> <p><input type="checkbox"/> Unsatisfactory</p> <p>Note: The rating must be consistent with the rest of the report.</p>

MARK 'S' FACTORS

<p>29. Importance of employee's job in branch office, department, or section :</p> <p><input type="checkbox"/> Major</p> <p><input type="checkbox"/> Medium</p> <p><input type="checkbox"/> Minor</p> <p>(Circle the applicable rating area)</p>	<p>31. Opportunity for advancement in branch office, department, or section :</p> <p><input type="checkbox"/> Excellent</p> <p><input type="checkbox"/> Good</p> <p><input type="checkbox"/> Limited</p> <p>(Circle the applicable rating area)</p>
<p>30. Value of employee to branch office, department, or section</p> <p><input type="checkbox"/> Maximum</p> <p><input type="checkbox"/> Medium</p> <p><input type="checkbox"/> Minimum</p> <p>(Circle the applicable rating area)</p>	<p>32. Attendance</p> <p><input type="checkbox"/> Excellent</p> <p><input type="checkbox"/> Good</p> <p><input type="checkbox"/> Poor</p>

REPORT PREPARED BY: _____
Signature (Name in Block)

Designation/Division/Place _____

REMARKS OF: BM/AISM/DpM (as applicable)

Signature: _____ Designation: _____

REMARKS OF GM:

Signature: _____ Designation: _____

MARK 'S' FACTORS

APPENDIX TO CONFIDENTIAL PERSONNEL REPORT

NAME _____

Period of Report From : _____ **To :** _____

DIVN./DEPT./PLACE : _____ **DESIGNATION** _____

Specific Instances of actual (a) outstanding (b) deficient performances :

Strong (c) aptitudes and (d) weaknesses :

Limiting factors such as health, habits, character, organisational obstacles or lack of opportunities which impede individual's performance :

What is he doing to improve himself both personally and in relation to his present position?

Capacity for further development: he is ready/not ready for advancement. He has the capacity to be developed for the position _____ in _____ months/years. He has aptitudes/preferences for the field of work of _____

Other comments:

Suggestions of training and work experiences designed to assist the individual in improving his current performance.

- (1) Assignments within his own Division/Department.
- (2) Assignments outside his own Division/Department.
- (3) Action taken/being taken re. above (1+2)

(4) Training Needs (Specify exactly)

Reported by: _____

EXHIBIT 4(A)

Inter Item Association Among Performance Factors

(Organization A)

First Year Performance

	1	2	3	4	5	6	7	8	9	10
2	.68									
3	.28	.37								
4	.70	.64	.54							
5	.44	.08	.16	.21						
6	.38	.38	.47	.56	.29					
7	.71	.91	.36	.62	.08	.27				
8	.59	.69	.40	.60	.49	.47	.55			
9	.25	.28	.35	.57	.15	.31	.20	.48		
10	.73	.41	.37	.62	.11	.48	.49	.31	.13	
Er	4.76	4.44	3.30	5.07	2.01	3.61	4.19	4.58	2.72	3.66

Performance factors numbers correspond with those given in Exhibit 1

EXHIBIT 4(B)

Inter Item Association Among Performance Factors
 (Organization A)
 Second Year Performance

	1	2	3	4	5	6	7	8	9	10
2	.50									
3	-.01	.54								
4	.37	.33	.35							
5	.26	.33	-.09	.18						
6	.64	.26	.19	.38	.30					
7	.64	.65	0	.38	.43	.34				
8	.30	.38	.08	.20	.73	.20	.49			
9	.52	.18	-.27	.26	.39	.39	.53	.28		
10	.15	.45	.46	.74	.33	.16	.45	.22	.09	
Er	3.38	3.62	1.62	3.19	2.95	2.86	3.91	2.88	2.64	3.05

Performance factors numbers correspond with those given in Exhibit 1

EXHIBIT 4(C)

Inter Item Association Among Performance Factors
(Organization A)
Third Year Performance

	1	2	3	4	5	6	7	8	9	10
2	.36									
3	.35	.62								
4	.26	.56	.45							
5	-.07	.25	.35	.17						
6	.30	.66	.53	.70	.42					
7	.15	.48	.41	.70	.24	.53				
8	.03	.47	.51	.33	.42	.39	.43			
9	-.15	.43	.52	.48	.75	.56	.43	.22		
10	0	.54	.22	.46	.52	.51	.42	.38	.58	
Er	1.45	4.37	3.96	4.11	3.12	4.63	3.79	3.18	3.97	3.66

Performance factors numbers correspond with those given in Exhibit 1

EXHIBIT 5(A)

Inter Item Association Among Performance Factors
 (Organization B)
 First Year Performance

	1	2	3	4	5	6	7	8
2	.63							
3	.68	.72						
4	.69	.55	.59					
5	.62	.65	.72	.57				
6	.67	.68	.77	.72	.77			
7	.47	.57	.60	.62	.73	.72		
8	.62	.59	.69	.62	.69	.78	.77	
Er	4.36	4.39	4.77	4.36	4.75	5.11	4.46	4.76

Performance factors numbers correspond with those given in Exhibit 2

EXHIBIT 5(B)

Inter Item Association Among Performance Factors
 (Organization B)
 Second Year Performance

	1	2	3	4	5	6	7	8
2	.51							
3	.51	.54						
4	.47	.32	.49					
5	.33	.33	.34	.52				
6	.44	.43	.78	.43	.45			
7	.39	.15	.67	.49	.23	.71		
8	.32	.30	.70	.35	.32	.65	.60	
Er	2.97	2.58	4.03	3.07	2.52	3.89	3.24	3.24

Performance factors numbers correspond with those given in Exhibit 2

EXHIBIT 5(C)

Inter Item Association Among Performance Factors
 (Organization B)
 Third Year Performance

	1	2	3	4	5	6	7	8
2	.41							
3	.76	.56						
4	.74	.37	.53					
5	.37	.61	.68	.02				
6	.65	.45	.76	.50	.55			
7	.80	.66	.80	.54	.72	.83		
8	.57	.52	.67	.23	.63	.19	.73	
Er	4.31	3.58	4.76	2.93	3.58	3.93	5.08	3.54

Performance factors numbers correspond with those given in Exhibit 2

EXHIBIT 7

RELATIONSHIP BETWEEN CLUSTERS OF PERFORMANCE ELEMENTS AND
TEST SCORES

Clusters	B-Coefficients			r
	First	Second	Third	
<u>ORGANIZATION A</u>				
1. (2,7)	165.27	-	-	.09
2 (1,10)	130.50	-	-	.17
3 (5,8)	-	183.36	-	.52*
4 (4,10)	-	179.1b	-	.29
5 (5,9)	-	-	158.10	.50*
6 (4,7)	-	-	131.77	.42
<u>ORGANIZATION C</u>				
1 (19,20)	465.23	-	-	.39
2 (25,26)	253.68	-	-	.25
3 (18,23,11,12,10,18)	195.23	-	-	.05
4 (1,2)	169.59	-	-	.07
5 (9,22)	168.21	-	-	.16
6 (4,17)	165.27	-	-	.16
7 (19,20)	-	220.96	-	.38
8 (25,26)	-	218.91	-	.14
9 (23,29)	-	199.61	-	.21
10 (12,13)	-	195.53	-	-.04
11 (6,10)	-	187.65	-	-.08
12 (9,32)	-	104.96	-	-.08
13 (8,14)	-	175.63	-	-.03

Exhibit 7 contd.

Clusters	B Co-efficients			r
	First	Second	Third	
14 (11,27)	-	155.17	-	.12
15 (5,28,22,2,1.)	-	154.36	-	.16
16 (18,31)	-	149.60	-	.06
17 (4,17)	-	142.80	-	.00
18 (5,21)	-	139.64	-	.33
19 (16,30,24)	-	138.62	-	.25
20 (3,30)	-	-	2109.89	.51
21 (2,25)	-	-	556.96	.22
22 (27,32)	-	-	355.78	.16
23 (5,22)	-	-	321.15	.26
24 (19,21)	-	-	277.36	.76*
25 (3,30)	-	-	261.21	.70*
26 (9,23)	-	-	260.99	.66*
27 (8,12)	-	-	252.04	.22
28 (1,16)	-	-	151.78	.48
29 (18,24)	-	-	250.57	.76*
30 (13,31,10)	-	-	239.51	.34
31 (7,16)	-	-	237.53	.59
32 (17,26,28)	-	-	232.18	.89**
33. (11,20)	-	-	217.46	.64

* $P < .05$; ** $P < .01$