

CHAPTER VIII

**UNIT V: INDIAN TELEPHONE INDUSTRIES Ltd.
BANGALORE.**

**Selection procedure of Assistant
Executive Engineers:**

A. The Applicants

B. The methods used for selection

**C. Description of the Tests used
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UNIT - V: INDIAN TELEPHONE INDUSTRIES, BANGALORE**SELECTION PROCEDURE OF ASSISTANT EXECUTIVE ENGINEERS:**

This study reveals that the selection of Assistant Executive Engineers for the Indian Telephone Industry, at Bangalore in the year 1973.

A. The Applicants:

The applicants were graduate engineers in branches like Mechanical, Electrical, Chemical, Electronics, etc., from different parts of India.

B. The methods used for selection:

As done in other selection programmes, a standardised objective test battery was first used as a tool for screening the applicants. Then the candidates were subjected to a second stage screening based on assessment of personality traits through Group Task.

C. Description of the tests used in selection:

These are five types. These tests were administered on about 4715 candidates in five different centres viz., Calcutta, Delhi, Bombay, Bangalore and Allahabad simultaneously. The answer papers were scored and the raw scores

were converted into stanine grades which mainly depend upon the performance of the group..The stanine grades of different tests were then added to get a composite stanine. Those candidates who secured 5 or more in the composite stanine grade, were called for personality assessment through Group Task. There were about 475 candidates who took Group Task in five different centres as mentioned above.

1. Part-I: Verbal Reasoning:

This test is to measure the candidate's reasoning ability in terms of language. This is one of the important aspect of general intelligence. 30 items were included in this part when the time limit was 20 minutes.

2. Part-II: Writing Ability:

It has two parts, (i) Organisation of Ideas and (ii) Editing Exercise. The first one aims at measuring the candidate's ability to identify the relation among a set of statements and to classify them as relevant or ~~irrelevant~~, main or supporting etc. Editing Exercise is a test of correctness and effectiveness of expression, in English. It measures the candidate's knowledge about acceptable usage in Grammar, word choice, sentence construction, punctuation, effective sentence etc. The two parts consist of 18 and 30 items respectively and time limits are 15 and 15 minutes respectively.

3. Part-III: Quantitative Reasoning and Data Interpretation:

It consists of 30 items on numerical reasoning. There are some items based on data presented in graphical and tabular form which the candidates are to understand before they can answer the related questions. Time allowed is 40 minutes.

4. Part-IV: Abstract Reasoning:

This test intends to measure the candidate's ability to reason in terms of abstract ideas. There are 49 items in this test and the time allowed is 30 minutes.

5. Part-V: Surface Development:

This test consists of 30 items which intend to measure how accurately the candidate can identify different solid surface when projected on two dimensional plane. The time limit is 30 minutes.

D. Description of the Group Task:

Here things like i) Ability to follow direction

ii) Co-operativeness

iii) Ability to plan

iv) Application and

v) Leadership are assessed by a group

of trained raters during the candidate's performance of a specific task designed for such purposes. Each rater gives his rating independently on a five point scale and the average

of the ratings represent the final assessment which is converted into stanine grade as done in case of aptitude tests. The total time required for this exercise is about two hours for each group of ten candidates, Here, also those who scored above stanine 4 were called for final interview.

E. Administration and Scoring:

First of all the means and standard deviation of the raw scores on different parts were calculated separately for different groups according to branches of specialisation which are presented in Table-1.

Table: 1 : Showing the means and standard deviations of raw scores on different parts of the aptitude test for different groups classified according to branches of specialisation.

Test	Part-I		Part-II		Part-III		Part-IV		Part-V	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Mech.	14.80	3.15	21.31	4.93	18.34	3.05	24.05	5.80	14.77	4.37
Chem.	16.09	2.75	21.89	3.35	19.24	2.74	24.68	5.27	14.71	4.94
Elec.	15.23	3.17	21.29	5.0	18.06	3.14	24.59	4.43	15.29	4.55
Electn.	15.56	3.29	21.92	4.53	18.10	3.07	24.73	5.46	15.56	4.43
Rest	14.42	2.87	20.57	4.59	17.58	2.48	23.68	4.99	13.45	4.22
Maximum Possible Score	30		48		30		49		30	

As the figures presented in Table 1 show that there were variations among the means of different groups for different parts, we were interested in testing the hypothesis that there was no difference among the means of different groups. In order to do this 100 cases were picked up at random from each group and the analysis of variance was conducted and it was observed that there was no significant difference among the groups.

In order to find out the relation among the tests the inter-correlations among the tests were calculated, which are presented in Table-2.

Table: 2 : Showing the intercorrelations among different parts of the aptitude tests.

Test	Part-I	Part-II	Part-III	Part-IV
Part II	.44			
Part III	.39	.30		
Part IV	.52	.40	.61	
Part V	.27	.29	.25	.51

All the coefficients are significant at the 1% level.

Moderately high correlation is observed between Abstract and Verbal Reasoning, Abstract and Quantitative Reasoning Abstract Reasoning and Surface Development.

The next step of the analysis was to find out the (i) difficulty and (ii) discrimination indices for each item of the aptitude test. The difficulty value indicates how difficult is the item with respect to the group in question and discrimination index indicates the power of the item to discriminate the good from the poor candidates.

The distributions of item difficulty and discrimination indices are presented in Table 3.

Table: 3 : Showing the frequency distributions
(i) item difficulty and (ii) item discrimination for different parts.

Range	Part-I		Part-IIA		Part-IIB		Part-III		Part-IV		Part-V	
	dif	dis	dif	dis	dif	dis	dif	dis	dif	dis	df	ds
6-10		3			7		3		9		2	
11-20		4	6		11		3		10		3	
21-30	2	9	9		10	1	12	8	12	1	11	
31-40	8	10	2	2	7	1	5	12	7	4	14	9
41-50	6	2	12		11		8		11		3	3
51-60	7	1	3		6		6		4		7	2
61-70	2				3	2	3		3		4	
71-80	2				2		5		2		1	
81-90	1						0					
91-100	1						2					

As some of the items were a bit defective, their values were not presented in the above distributions. From the figures presented in Table 3, it is apparent that though the difficulty values of the items were well spread, the discrimination indices of some of the items were not up to the mark.

F. Validity of the Selection Procedure:

In any selection, the validity or the predictive ability of the tests used is the most important issue. But in order to get a validity index one should collect reliable criterion measure. The selected candidates were appointed as Assistant Executive Engineers in different departments of the Indian Telephone Industry. Their job performance record was available after one year. The supervisors under whom the selected candidates worked rated them in those 5 different traits on which group task ratings were available. The average of these ratings was computed and then converted into stanine grades. It may be mentioned here that as different candidates worked under the supervision of different individuals, the job performance ratings might include the effect due to rater's bias. However, as no better criterion was available, this was used to obtain the predictive efficiency of the test grade as well as that of Group Task grade.

Though about 70 candidates were appointed by I T I in the year 1970, only for 45 such cases we could find the aptitude and group task grades mainly due to non-availability of selection test role numbers in cases where more than one candidate with the same name took the test.

For finding out the relation between scores obtained in the aptitude tests and the ratings based on job performance collected from the supervisors, the individuals were classified into two groups, High (securing grades 7,8 and 9) and low (securing grades 4, 5, and 6) on the basis of composite aptitude grades. Then the individuals were further classified in High (securing grades 5, 6, 7, 8, and 9) and Low (securing grades 1, 2, 3, and 4) according to the ratings obtained from the supervisors. Then a two way table was constructed which indicated what percentages of High group individuals (on the basis of aptitude grades) were rated High and Low with respect to their job performance rating. Similarly the corresponding percentages were calculated with respect to the Low group (on the basis of aptitude grades). These values are presented in Tables-4 and 5.

TABLE : 4 : Showing the percentage agreement between job performance ratings and composite grade based on Aptitude.

Job performance Rating	Aptitude composite	
	High	Low
High	67	4
Low	27	2

TABLE : 5 : Showing percentage agreement between job performance and Group task ratings

Job performance rating	Group Task rating	
	High	Low
High	62	7
Low	24	7

As observed from Table 4 and 5 there was perfect agreement between grades based on selection variables and job performance in 69 per cent of cases.

This is percentage itself can be considered to be encouraging though we feel that the predictive ability of the selection tools can be increased further by improving the selection tools as well as the job performance rating.