

CHAPTER

10 Procurement of Personnel

This chapter describes the first operative function of personnel management, namely, the procurement of personnel to man the organisation. In the case of a new industrial enterprise this function begins only after an industrial engineer has designed an effective man-machine system i.e., assigned each function to a man or machine. Assignment decisions are not fixed or immutable. These are always made at some point in time and relative to a particular state of development of engineering art. Therefore, they need to be continually evaluated. A function which could not be assigned to machine yesterday may become assignable today. That is why an industrial engineer's work is never done. It is also essential for the industrial engineer to sum-total the functions of every individual to see that they make up a job which is interesting, motivating, and challenging to him. This means that industrial functions which might be done better by machine should sometimes be assigned to man solely for the purpose of making the job complex enough to match his psychological needs.

Procurement of personnel involves 3 important steps :

1. Determination of the kind or quality of personnel needed.
2. Determination of the quantity of personnel required, and
3. Recruitment, selection and induction.

Determination of the Kind or Quality of Personnel

A knowledge of the nature and requirements of jobs is a fundamental prerequisite for determining the kind or quality of personnel needed. The securing of this knowledge entails three closely related steps : the analysis of jobs, the writing of job descriptions and the preparation of job specification.

Job Analysis

Job analysis is the process by means of which a description is developed of the present method and procedures of doing a job, physical conditions in which the job is done, relation of the job to other jobs and other conditions of employment. Job analysis is intended to reveal what is actually done as opposed to what should be done. Therefore, if a man is found doing some activity not required of that job, it should still form part of the job analysis except where the immediate removal of that activity is possible. The purpose of job analysis is not to describe an ideal but to show the management how at the moment a particular job is being carried out.

Various points on which information may be gathered for job analysis are as follows :

1. Job title
2. Alternate titles
3. Work performed
4. Equipment used
5. Tools used
6. Materials used
7. Reports and records made
8. Relation of the job to other jobs

9. Education (general, technical and on-the-job) required
10. Experience (type and duration) required
11. Physical effort required
12. Mental effort required
13. Visual attention required
14. Responsibility (in terms of typical damage, money value and normal consequences) for equipment, tools, materials and records and reports.
15. Discomforts
16. Hazards (in terms of typical injury and preventive measures taken)
17. Supervision (close or general) received
18. Supervision (close or general) given
19. Any other details (e.g., number of persons—men and women—employed)

Job Analysis Techniques

Some Important job analysis techniques are as under:

- (1) Functional Job Analysis,
- (2) Critical Incidents,
- (3) Job Elements,
- (4) Position Analysis Questionnaire, and
- (5) Physical Abilities Requirement.

Functional Job Analysis

This technique focuses on identifying the key competencies required for a job. A competency is defined as a behaviour rather than a skill or ability. In this technique trained professionals develop information about the job on the basis of workers' interviews, observation and training manuals in five stages as under:

First of all, the purpose, goals and objectives of the job are clarified. *Next*, tasks necessary to accomplish the job are identified. *Next*, performance standards are developed in terms of specific output. *Next*, competencies required to accomplish that output are identified in the following seven dimensions:

- (1) Data (Worker's involvement with information and ideas.)
- (2) People (Communication and interaction)
- (3) Things (Use of machines and tools)
- (4) Instructions (Amount of autonomy)
- (5) Reasoning (Use of concepts and decision making)
- (6) Mathematics and Language (Reading/writing/speaking).

Finally, training needs are identified and the training material is developed.

The chief *merit* of this technique is that the performance standards developed under it can form the base of a work sample test for selecting workers. The *demerit* is that this technique is too costly to be used by a small organisation.

Critical Incidents

Following are the steps involved in this technique:

First of all, the job analyst asks workers, supervisors, managers and others to think of the most recent examples of workers whom they saw performing at a very high and at a very low level and to describe their on-the-job behaviour.

Next, all incidents are collected. According to Flanagan an analysis of simple jobs requires 50 to 100 incidents, of skilled and semi-skilled jobs from 1000 to 2000 incidents and of supervisor jobs from 2000 to 4000 incidents.

Next, the collected incidents are transferred to index cards and informants are asked to group them independently into various categories which collectively describe the content of the job. For example, in the case of a sales person some such categories may be "promptness of service", "interaction with customers", "fairness", "self-confidence", and so on.

Next, independent groupings are compared and differences in categorisation are removed.

Finally, a detailed outline of the contents of job emerges. It gives an objective picture of what behaviours constitute a specific job.

The *merit* of this technique is that the information collected under it can also be used for other purposes such as performance appraisal and job design. The *demerits* are:

- Much of employees time is spent in recording incidents. Production thus suffers.
- Number of incidents should always be large lest some aspects of the job may be overlooked.

Job Elements

This technique focuses on describing a job in terms of various elements (such as knowledge, skills, ability, willingness etc.) that a worker uses in performing a specific job. The steps involved are as under: First of all, supervisors and workers meet in a brainstorming session to identify as many of the elements of the job as possible.

Next, each identified element is rated in terms of:

- its importance in selecting superior workers;
- its availability (in candidates) when making selections;
- its consequence of ignoring it when making selections.

Finally, on the basis of statistical analysis of the above ratings those elements which are most important in selecting superior workers are determined.

The *merit* of this technique is that the information about job elements collected under it serves as a base for developing curricula for training programmes. The *demerits* are that this technique is time-consuming and costly.

Position Analysis Questionnaire

Contrary to the above technique which assumes that jobs vary in their elements, this technique assumes that all jobs have common elements. The total number of these elements is 194 and they are classified under six categories as shown below:

Category	No. of Elements
1. Information input (Where and how does the worker get the information needed to perform the job?) Example: use of written material	35
2. Mental processes (What reasoning, decision-making, planning and information-processing activities are involved in the job?) Example: use of coding/decoding	14
3. Work output (What physical activities does the worker perform and what tools and devices are used?) Example: use of keyboard devices	49
4. Relationships with other persons (What relationships with other persons are required in the job?) Example: Interviewing	36
5. Job context (In what physical or social contexts is the work performed?) Example: Working in high temperatures	19
6. Other job characteristics, Example: Irregular hours	41

As in the foregoing technique here also the various elements of a job are rated by the job analyst, supervisors and workers and the job is described in terms of the relative importance of the above six categories.

The merits of this technique are its easy data collection and their replicability. The demerit is that the questionnaire is sometimes not comprehensible to the workers.

Physical Abilities Requirements

Unlike all the above techniques this technique focuses on collecting information about physical requirements of the job. Uncertainty about physical requirements results in women being discriminated against in selections for certain jobs and selected men proving themselves unfit and leaving the job later on.

In this technique supervisors and workers are asked to classify and rate tasks in terms of sensory, perceptual, cognitive, psychomotor and physical abilities.

How to obtain Data for Job Analysis

Following methods may be used to collect information for a job analysis:

(i) **Questionnaire.** This method is usually used to obtain information about jobs through a mail survey. The job incumbents who can easily express themselves in writing are asked to provide data about their jobs in their own words. This method is, therefore, best suited to clerical workers. But it is often a very time-consuming and laborious process to analyse the data obtained in this manner.

(ii) **Checklist.** This method requires the worker to check the tasks he performs from a long list of possible task statements. However, in order to prepare the checklist, extensive preliminary work is required in collecting appropriate task statements. While checklists are easy for the incumbent to respond to, they do not provide an integrated picture of the job in question. They are easily administered to large groups and are easy to tabulate.

(iii) **Interview.** In this method a group of representative job incumbents are selected for extensive interview—usually outside of the actual job situation. The interview may be carried out either individually or in a group to save time. The replies obtained from the interviewees are then combined into a single job description. This method though very costly and time-consuming helps in getting a complete picture of the job. Very often many such things are revealed about the job which were never previously known. Sometimes persons leaving the job are also interviewed to give their views about the job.

(iv) **Observation.** This method can be followed right on the job. The analyst observes the incumbent as he performs his work and questions him to get the required data. Besides being slow and costly, this method also interferes with normal work operations. Some employees do not like someone taking a hard look at their performance. However, if generally produces a good and complete job description. This method is particularly desirable where manual operations are prominent and where the work cycle is short. Working conditions and hazards can also be better described when observed personally by the analyst.

(v) **Participation.** In this method the job analyst actually performs the job himself. In this way he is able to obtain first-hand information about what characteristics comprise the job under investigation. This method is fairly good for simple jobs but in case of complex jobs advance training of the analyst becomes necessary. The method is also time-consuming and expensive.

(vi) **Technical Conference.** In this method information about the characteristics of the job is collected from the experts—usually the supervisors—and not from the actual job incumbents. One important drawback of this method is that the experts may at times show poor knowledge about the job which they are not actually performing themselves and may give answers based upon their past experience.

(vii) **Self-recording or Diary.** In this method the job incumbent is asked to record his daily activities each day using some type of logbook or diary. The method is good in that it systematically collects a great deal of information about the nature of and the time spent on various activities during the day by each incumbent. But it is very time-consuming and the incumbent may start complaining that he spends more time in writing his diary than in doing his job. This method is particularly useful for high-level managerial jobs.

(viii) **Critical Incident.** In this method the supervisor is asked to provide instances of on-the-job behaviour of people which he considers to be noteworthy. Such instances can be both of good and bad-on-the-job behaviour. The number of such instances can be as many as the supervisor can recall. These instances can provide information about critical aspects of the job, but the method does not provide an integrated picture of the entire task.

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The choice of a job analysis method depends upon the purposes to be served by the data. There is no one best way to conduct a job analysis. Wherever possible, multiple methods of job analysis must be followed.

Uses of Job Analysis

The following are the possible uses of job analysis:

1. Job analysis provides complete knowledge about jobs. Executives do not always have adequate knowledge of the jobs under their direction, even though they may come in daily contact with the men working under them. In many instances a strange faith is put in the job title as conveying all the information needed concerning the job. Thus "every one knows" that the major duty of a college professor is teaching. Yet he may spend more time dealing with administrative matters than he spends in teaching. In a study by Charters and Whitley when six secretaries to businessmen and executives were asked to compile a list of their duties they recalled 166 duties only but when 125 secretaries were asked to record their actual activities as they performed them, 871 different duties were mentioned.
2. Job analysis is the first step in the development of selection techniques. It is the best means of discovering the essential traits and personal characteristics leading to success or failure on the job. The design of application forms, the choice of psychological tests, the plan of items to be covered in interviewing applicants—all are best validated in terms of job content and requirements.
3. By giving a complete picture of a job, job analysis helps in developing such measures of job proficiency as would take into account all the elements of the work involved.
4. Job analysis precedes job evaluation which measures the worth of jobs within the organisation for purposes of establishing its base compensation. A satisfactory evaluation of jobs is not possible without a comprehensive job analysis.
5. Job analysis uncovers many organisational ills such as overlaps in authority and responsibility, ambiguities in the chain of command, and so on.
6. Job analysis may help to rearrange the work flow and to revise existing procedures when they are revealed as faulty.
7. By revealing the required skills and the knowledge for doing a job, job analysis determines the training needs of workers.
8. When considering an employee for promotion, job analysis may facilitate comparison of his current responsibilities with those of the post for which he is being considered. The two job descriptions can help in making a correct decision.
9. Job analysis helps in the development of effective tools and equipment.
10. Job analysis provides a common language in the employment field. It helps in giving the same titles to jobs involving exactly the same task in all organisations.
11. Job analysis can be used to develop appropriate design of job for improved efficiency and productivity. There are 2 distinct approaches to job design, viz.,
 - (a) Process-centred or equipment-centred approach, and
 - (b) Worker-centred or behavioural approach.

In the process-centred approach, which has immediate cost of production as the central consideration, jobs are designed by specialising activities, improving work methods, standardising the time of performing a specific task and making equipment and tools more effective and less tiresome. In fact, this is the classical method of increasing production by time and motion study and ergonomics.

In the worker-centred approach, which has team building and motivation of the workers as the central consideration, jobs are designed by according greater importance to human factors and locating areas of task conflicts. In fact, this is the behavioural method of increasing production by enriching the job content and making workers participate in deciding the allocation of work.

There is now a definite trend on the part of job designers to design jobs by integrating the two approaches.

Job Description

The results of a job analysis are set down in job description. The main points to be included in a job description are :

Determination of the Quantity of Personnel (Manpower Planning)

The second step in the procurement of personnel is the determination of the number of persons which should be hired. This forms part of *Manpower Planning*.

Manpower planning may be defined as a strategy for the procurement, development, allocation and utilisation of an enterprise's human resources. Procurement of personnel deals with the task of recruitment and selection of workers of the desired skill-mix. Training and development plans help in keeping and raising the skill-standards of workers. Manpower allocation plans help in mitigating shortages and surpluses in manpower supply through promotions and transfers. Manpower utilisation deals with the dynamics of leadership and motivation. Description of all these topics is given at relevant places.

Objectives of Manpower Planning

The objectives of manpower planning are mainly:

1. To ensure optimum use of human resources currently employed;
2. To determine future recruitment level;
3. To provide control measures to ensure that necessary resources are available as and when required;
4. To anticipate redundancies and avoid unnecessary dismissals;
5. To forecast future skill requirements to serve as a basis for training and development programmes;
6. To assess future housing needs of employees;
7. To cost the manpower component in new projects;
8. To decide whether any of the enterprise's activities, e.g., maintenance, be off-loaded or subcontracted.

Manpower Planning Process

Following are the steps involved in manpower planning process:

- (a) Analysis of the system,
- (b) Deciding the time horizon of the plan,
- (c) Forecasting the demand for and the supply of manpower,
- (d) Reconciliation, and
- (e) Preparation of action plans.

(a) Analysis of the System. Before embarking on the manpower planning exercise, it is essential to define the system in which the organisation works. The system can be either 'closed' or 'open-end'. A closed system is one which contains within its boundaries all actions, variables, information and relationships necessary for the achievement of its goals. Such a system has a high degree of predictability of its behaviour. This makes planning easiest in a closed system. An open-end system, on the other hand, is far more uncertain and unpredictable, causation is speculative, vital relationships are a matter of mere guess, and appropriate corrective actions are often unknown.

It should be remembered that manpower planning generally has to make its way in a vast open-end system (the national economy) which contains a number of complicated open-end sub-systems (firms, unions, families and individuals). It is, therefore, necessary that first of all a thorough analysis of this system is done in the following terms:

1. **Goals.** Goals should always be explicit. Manpower planning cannot go on efficiently until the goals of the organisation (e.g., profit, welfare, utility, etc.) are clearly defined and priorities assigned to them.
2. **Uncontrollable Variables or Constraints.** The planner must take account of all such variables (population, investment, union rules, etc.) which are beyond his control.
3. **Controllable Variables.** The planner must also identify those variables which are manipulatable, for example, productivity incentives or training or redundancy payments.
4. **Expectations about Behaviour.** All expectations about the behaviour and the environment and about the reactions which the planner's own behaviour and the behaviour of the system will provoke must be specified.

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(b) Deciding the Time Horizon of the Plan. The planner must determine in advance the time horizon of his plan since this will affect how much is changeable within the system. Generally, the shorter the time span contemplated, the less there is variable and the more there is fixed in the system. A reasonable accuracy can be expected in case of short-term forecasts up to two years. A useful technique is to roll on the forecast by a year at each annual revision, thereby keeping the length of the forecasting period unchanged whilst making any amendment necessary in the light of changing circumstances.

Short-term planning is generally done to find a temporary match between the existing individuals and the existing jobs. It aims at removing the anomalies in postings and placements. Long-term planning, on the other hand, is done to find a proper match between the future jobs and their future incumbents.

(c) Forecasting the Demand for and Supply of Manpower. The most crucial step of manpower planning is the forecasting of the demand and the supply of manpower, for the period for which the plan is outlined.

Forecast of Manpower Demand

The manpower demand forecast stems from the objectives of the organisation as represented in the company's plan. Hence to be able to forecast manpower demand in the future, the manpower planner must have a detailed knowledge of the company's future achievement targets. He should know:

- What new products, machines, techniques, processes, facilities and company locations will be added or reduced.
- What changes will be made in the existing organisation structure. Current trend in favour of lean structures could eliminate some existing management positions.
- How many positions will exist at each level and in each category.
- To what extent will qualifications for existing positions change. Job enrichment or enlargement could change the qualifications for certain positions.
- What skills will be required for each position. Innovations in technology could make existing skills obsolete.

The following steps are involved in the procedure for projecting manpower demand:

- (i) Selection of an appropriate basis for the calculation of manpower needs;
 - (ii) Calculation of the productivity ratio;
 - (iii) Making adjustment in the productivity ratio, and
 - (iv) Projection of manpower requirements.
- (i) Appropriate Basis.** Selection of an appropriate basis for the calculation of manpower needs is the critical first step. For a retail store, the appropriate basis may be the rupee volume of sales, for a company producing steel, it may be tons of steel, for a university it may be number of students. To be useful, however, the basis must satisfy one important requirement—the required manpower be proportional to the changes in the basis. Thus, for example, in a steel manufacturing company, 'tons of steel' will serve as a useful basis for the calculation of manpower needs if the number of workers is proportional to the output of steel.
- (ii) Productivity Ratio.** Calculation of the productivity ratio or output per individual is the second important step in the forecasting process. Productivity ratio can be calculated in a number of ways. The most typical method used by small companies is managerial judgement or copying of ratio of other concerns. Thus, the manager of a small insurance company may determine on the basis of his own judgement or on the basis of experience of other similar companies that he needs 12 persons in his office to process 360 proposals per week. This gives a productivity ratio of 30 proposals per individual per week. On the basis of this ratio, one can easily forecast the number of men needed to carry out a planned volume of work.

Productivity ratios may also be calculated with the help of statistical or work study techniques. Under statistical techniques regression analysis is the most popular technique. It provides a measure of the extent to which movement in the values of the two variables—manpower and output are correlated with each other. After finding out this measure, one can easily predict manpower requirements for a given level of production activity. Under work study technique standard hours required to produce one unit of output are calculated on the basis of work measurement done by industrial engineers. Once the standard hours per unit have been found out it is not difficult to forecast the number of workers required for producing the planned number of units.

(iii) *Adjustments in the Productivity Ratio.* Making adjustments in the productivity ratio for likely improvements in it resulting from planned advances in technology, changes in organisational structure, training and better utilisation of human resources is the third important step in the forecasting process. Our manpower projections for the target year must reflect the productivity anticipated at that time.

(iv) *Projecting Manpower Requirements.* Once an appropriate basis has been found out and productivity ratio computed, the projection of operative manpower need for the target year is not at all difficult. Having worked out this need for each section or department the organisation can proceed to find out the ratios between the number of operative and managerial personnel at various levels on the basis of certain assumptions about span of control, nature of work, technology and historical data. Finally, with the help of these ratios it can work out the projections for its managerial personnel.

Forecast of Manpower Supply

Manpower demand is one aspect of manpower forecasting. The other aspect is the supply of manpower to fulfil the demand. The supply of manpower may be obtained from internal sources or external sources.

(a) *Internal Supply Forecast.* This is to be based on a study of the existing manpower resources and the potential losses and changes in them due to internal promotions, turnover, etc. The study of the existing manpower resources of the organisation is called *manpower audit*. Three important sources of information in manpower audit are the manning table, replacement schedule and skill inventory. The *manning table* indicates the number of employees in each job. It may also denote the required training time and may classify employees according to sex, age, marital status and such other characteristics as may be significant and useful. One may study this table *vis-a-vis* the current level of operations to find out if there is any significant labour underloading and underutilisation or overloading and overutilisation. *Replacement schedules*, which are prepared department wise, give the name and age of each present job-holder and of the person who is regarded as immediately available as a replacement for the first. They may also name a second candidate and specify a date when he is likely to be ready for the position. *Skill inventory* contains each employee's record of his primary and secondary skills in the light of various jobs he has performed before and since joining the organisation.

One probabilistic or stochastic model which helps in forecasting internal supply is the Markov-chain analysis. In this model, first of all, probabilities are calculated of the movement of people from one job to another in the organisation or of leaving the organisation on the basis of past record over some specified time period. Then, on the basis of assumption that these probabilities would remain stable forecasts are made of future manpower supply in the organisation. In the following table internal supply forecasts for the coming year are made in respect of 4 types of jobs (A, B, C, and D) on the basis of their transition probabilities. Thus, for job A where the transition probabilities are that 70% of the employees stay on the job during a year, 20% shift to job B and 10% leave the organisation, it is expected that out of 300 employees 210 will stay on job A, 60 will shift to job B and 30 will quit the organisation by the end of the current year. Similarly for job B where the transition probabilities are that 80% employees stay on the job, 10% shift to job A and 10% quit, it is expected that out of 150 present employees 120 will stay on the job, 15 will shift to job A and 15 will leave the organisation. For

job C where the probabilities are that 60% stay on the job, 10% move to job D and 30% leave the organisation, of its 275 employees 165 will remain on the job, 28 will shift to job D and 82 will leave the organisation. For job D where the probabilities are that 90% stay on the job and 10% leave the organisation it is expected that 324 will remain and 36 will quit the organisation. Thus, the final forecasts of supply for each job are A = 225, B = 180, C = 165 and D = 352.

Markov-Chain Analysis of Manpower Supply

Job	Present number of employees	Staying on the job	Shifting to other job	Leaving the organisation	Forecasted No. for the coming year
A	300	210 (0.7)	60 (0.2)	30 (0.1)	210 + 15 = 225
B	150	120 (0.8)	15 (0.1)	15 (0.1)	120 + 60 = 180
C	275	165 (0.6)	27.5 (0.1)	82.5 (0.3)	165 = 165
D	360	324 (0.9)	—	36 (0.1)	324 + 28 = 352

(b) *External Supply Forecast.* The demand forecast and the internal supply forecast match only in the most exceptional circumstances. In an expanding situation the supply will be less than the demand. In a contracting situation the supply will exceed the demand. In the expanding situation attention is generally given to increasing the supply by recruitment although other internal means to alter the supply (such as amendment in transfer and promotion policies, change in skill-mix, etc.) can be used. To plan recruitment an external supply forecast is needed.

External supply forecast should be made in the light of several local and national factors operating in the labour market. Among the local factors the following are the most important:¹

- (a) Population density at various distances from the work place.
- (b) Local employment level particularly of the categories which are relevant for the operation of the organisation.
- (c) Availability of part-time labour.
- (d) Current competition for similar categories of labour from other organisations both local and national.
- (e) Output from the local educational system (general as well as technical).
- (f) Patterns of immigration and emigration within the area and between it and other areas.
- (g) Residential facilities available now and in future.
- (h) Local transport facilities and communication pattern.

Among the national factors special mention may be made of the following:

- (a) Trends in the growth of the working population.
- (b) Government training schemes and systems of technical, vocational, professional and general education and their outcome.
- (c) Immobility of labour due to resistance to 'outsiders'.
- (d) Impact of company's image, compensation structure and social security measures of certain types, e.g., unemployment benefits, layoff and retrenchment benefits, etc. on the manpower supply.
- (e) Cultural factors and customs, social norms, etc. affecting school leaving age, labour force participation of women, children and young persons capable of joining educational institutions as students.
- (f) Availability of people of required level of skills.

(d) *Reconciliation.* It may be that when the detailed work has been done the cost implications of the manpower plan are found not to be wholly compatible with the company's finances. If so, the manpower

1. Subrata Ghosh : *Personnel Management—Text and Cases*, Oxford and IBH, N.D. 1980, p.26.

needs and manpower programmes will have to be re-examined and re-assessed and a suitable reconciliation within the financial constraints achieved.

(e) **Action Plans.** On the basis of the analysis of manpower requirements, productivity and manpower costs action plans covering the following subjects be prepared:

- (a) Recruitment,
- (b) Redeployment (Transfer)
- (c) Redundancy,
- (d) Training,
- (e) Improvements in productivity, and
- (f) Improvements in the retention of employees.

In each of the above areas of the manpower plan, it will be necessary to estimate the costs involved so that they can be assessed against the potential benefits. It will also be necessary to indicate who is responsible for implementing the plan, for reporting the progress and for monitoring the results achieved.

Manpower Planning in India

Barring only few big organisations manpower planning has never been seriously done by Indian organisations in the past. It is by now a common knowledge that most of our public enterprises have been frequently criticised by the Parliamentary Committees for their overstaffing. In a study of 15 American subsidiaries and 15 local firms situated in India carried out by Anant R. Negandhi and Y. Krishna Shetty in 1970 it was found that only 20% of the American subsidiaries and 7% of the local firms undertook manpower planning.

In recent years, however, focus on manpower planning is increasing due to the following reasons :

1. Rapid changes in production technology, marketing methods and management techniques are changing the contents and contexts of jobs, causing widespread redundancies and necessitating retraining and redeployment of personnel.
2. Industries are facing shortage of talented and skilled manpower.
3. The profile of the workforce in terms of age, sex, education and social background is changing.
4. Various pressure groups (such as unions, politicians and sons of the soil) are demanding changes in recruitment procedures to serve their own ends.
5. New laws are being enacted with regard to working conditions, weaker sections, women and children, casual and contract labour, handicapped and scheduled castes.
6. The number of applicants for a vacancy is evergrowing. Sometimes, the ratio is as much as 1 : 100 or even more. This is increasing the expenditure and inconvenience involved in examining a large number of candidates for a few positions. Not only this. This has also increased the chances of incorrect matching of the job and the individual—the reason being that a man whose choice of employment is very limited accepts any job that falls to his lot irrespective of his attitude and suitability.
7. Lead time between receiving applications and recruiting individuals is becoming longer. The large number of applications that need to be processed and the equally large number of candidates who need to be examined and evaluated is an important source of delays.
8. There is increase in employee absenteeism and turnover. Not only the labour force which is drawn from the villages but even the urban educated are finding difficulty in adjusting themselves to the rhythm, discipline and social relationships in industrial undertakings, and to the new way of life in the community of which the undertakings form a part. Their acceptance of the new environment is proceeding at a slow pace and this is often expressed through absenteeism, high turnover and other acts of protest. Call centres in India are an instance in point.
9. There is greater demand for internal promotions and career planning.
10. Under the existing statutes dismissal of an employee is very difficult because it requires certain elaborate procedure involving considerable time and money to be followed by a manager. No manager likes to follow this procedure. This means a person once recruited is going to be around longer on any given job and it is not possible to rely on replacement to improve the quality of the work group. The management must count more on utilising the skills and abilities of the employees that are already present than on replacing them by more able ones.

The above reasons make systematic manpower planning and well-understood, fair and objective criteria for recruitment of special significance to us. Those few companies which do undertake manpower planning utilise not only historical data on manpower but also various forecasting methods to evaluate their future manpower requirements in terms of both quantity and quality. A brief description of how Hindustan Lever—a private undertaking—performs this function is given below :

First, with the help of a detailed organisation chart it is determined that how many people, at what level, at what positions and with what kind of experience and training would be needed to meet the business objectives during the optimum planning period of 5 years.

Second, an audit of internal resources is carried out. This indicates the number of persons who possess different or higher levels of responsibilities. It also reveals the overall deficit or surplus of personnel for different levels during the planning period.

Finally, taking into account the actual retirements and estimated loss due to death, ill-health and turnover, based on past experience and future outlook in relation to company's expansion and future growth pattern the final figures are arrived at.

The planning is done every year for the coming 5 years. For instance, a plan is made from the beginning of 2004 to the end of 2008 and the next year the plan covers from the beginning of 2005 to the end of 2009. This reduces inaccuracy in forecasting.

The overall responsibility for manpower planning lies squarely on the Board of Directors. Management at other levels are also involved in this process as they supply adequate data regarding their manpower requirements. The personnel department's function is to recommend relevant personnel policies in respect of manpower planning and to devise methods and procedures for determination of quantitative aspects of manpower planning.

This planning when done in respect of managerial categories in the company is called "*management review*".

Manpower strategy in the case of alliances

The desire to consolidate into bigger entities is becoming very widespread now a days. Various types of alliances in vogue include mergers, joint ventures, buy-outs, collaborations and subsidiaries. Several banks in India from across regions (north-south, east-west) are wanting to merge in a bid to create a larger market for themselves. Some notable joint ventures of recent years are Shriram-Honda, Ford-Mahindra, Telco-Benz, Pal-Peugeot, Hindustan Motors-Mitsubishi, and Government of India-Suzuki.

"You can merge with another organisation, but two drunks do not make a sensible person." Problems that generally crop up in the above types of inorganic growth are:

- Different organisational structures
- Divergent strategic visions of partners
- Cultural mismatch
- Different employee profiles
- Different human resource, dividend and investment policies
- Interference by either partner in operational management
- Grapevine and rumours leading to widespread fear and anxieties, among employees about job security, status and career prospects, role confusion, and uncertainty about change.

It is generally observed that organisations give more attention to legal and financial implications of alliances than to various other aspects of human resource management. Alliance between Procter & Gamble and Godrej broke down precisely because Godrej's senior managers could not adjust with the personnel policies of Procter & Gamble which they perceived as ruthless.

Most mergers and acquisitions follow a four-stage process of pre-deal, due diligence, integration planning and implementation. A successful merger and acquisition deal is where HR gets involved right from the first stage. HR can add value at this stage by assessing the culture of the target organisation and by mapping the management styles of the two organisations.



Sources of Recruitment

The sources of recruitment can broadly be classified into two : internal and external.

Internal sources refer to the present working force of a company. In the event of a vacancy, some one already on the payroll is promoted. Thus, at the Tata Engineering and Locomotive Company and at Hindustan Lever, outside recruitment is resorted to only when requirements cannot be met from *internal promotions*. Filling a vacancy from internal sources by promoting people has the advantages of increasing the general level of morale of existing employees, of reducing the cost of selection and of providing to the company a more reliable information about the candidate's suitability who has already worked with the company on a lower post. The major weaknesses of this source are that it results into inbreeding depriving the organisation of a fresh outlook, originality and initiative, offers limited choice, decreases morale levels of those not selected and generates infighting among the rival candidates for promotion.

Among the more commonly used *external sources* are the following:

(1) *Advertisement in Newspapers*. Senior posts are largely filled by this method. This method is, however, followed by companies in 3 different ways:

First, there are some companies which do not do their own advertising. On the other hand, they send their requisitions to certain specialised agencies which advertise positions in leading newspapers without divulging the name of the client company. The applications received from the candidates by the agencies are duplicated and mailed to the clients.

Second, there are some companies which although do their own advertising but give only box numbers. Box number advertisements generally do not draw good candidates who feel that it is not worthwhile to apply without knowing employer's name. Both first and second types are called *blind advertisements*.

Third, there are some companies which divulge their names in their advertisements.

(2) *Employment Exchanges*. An employment exchange is an office set up by the government for bringing together as quickly as possible those men who are in search of employment and those employers who are looking for men. Employment exchanges register unemployed people and maintain the records of their names, qualifications, etc. The employers on their part intimate the exchange about the vacancies which occur in their factories and types of employees they require for filling up these vacancies. Whenever any vacancy is intimated, the exchange selects some persons from among the employment seekers already registered with it and forwards their names to the employers for consideration.

(3) *Field Trips*. An interviewing team makes trips to towns and cities which are known to contain the kinds of employees required. Arrival dates and the time and venue of interview are advertised in advance.

(4) *Educational Institutions*. Sometimes recruiters are sent to educational institutions where they meet the members of the faculty and persons in charge of placement services who recommend suitable candidates. Some companies send representatives to professional meetings and conventions to recruit employees.

(5) *Labour Contractors*. In many industries workers are recruited through contractors who are themselves the employees of these organisations.

(6) *Employee Referrals*. Some companies with a record of good personnel relations encourage their employees to bring suitable candidates for various openings in the organisation. Companies offer rich rewards also to employees whose recommendations are accepted. Following are the advantages of this method :

(i) The candidate's choice of the organisation being based on more realistic information about the job received from the recommender increases job survival i.e., his stay in the organisation.

(ii) As the recommender rarely recommends an undeserving candidate because his reputation is at stake, the company mostly gets a qualified person.

(iii) For organisations such as call centres which face difficulty in finding suitable candidates for certain positions, this method is an excellent means of finding potential employees.

The disadvantage of this method is that cliques of relations and friends may be formed within the enterprise.

(7) *Unsolicited Applicants*. These are persons who gather at the factory gates to serve as casual workers or who send in their applications without any invitation from the factory. Sometimes already employed people may seek additional jobs. This is called *moon-lighting*. The number of unsolicited applicants at any point of time depends on economic conditions, the image of the company and the job-seeker's perception of the types of jobs that might be available. Such applications are generally kept in a data bank and whenever a suitable vacancy arises, the company intimates the candidate to apply through a formal channel. One important problem with this method is that job-seekers generally apply to a number of organisations and when they are actually required by the organisation either they are already employed elsewhere or are simply uninterested.

(8) *Labour Unions*. Organisations with 'closed shop' agreements with their unions are required to recruit union members only.

Evaluation of Alternative Sources

A company cannot fill all its vacancies from one single source. It must carefully combine some of these sources, weighing their cost and flexibility, the quality of men they supply, and their effect on the present work force. Following are some of the measures which can be used to assess how good or how poor various sources have proved to be:

(i) *Time Lag between Requisition and Placement*. The basic statistics needed to estimate the time lag are the *time-lapse data*. To take an example, a company's past experience may show that the average number of days from application to interview is 15, from interview to offer is 5, from offer to acceptance is 7 and from acceptance to report for work is 21. Therefore, if the company begins its recruitment and selection process today, the best estimate is that it will be 48 days before the new employee is added to the pay-roll. With this information, the 'length' of the pipe-line for alternative sources of recruitment can be described and suitable recruiting sources chosen.

(ii) *Yield Ratios*. These ratios tell us about the number of leads/contacts needed to generate a given number of hires in a given time. To take an example, suppose a company is contemplating expansion and needs 10 additional engineers in the next 6 months. On the basis of its past experience the company predicts as under : We must extend offers to 2 candidates to gain one acceptance. If we need 10 engineers we will have to extend 20 offers. Further, if the interview-to-offer ratio has been 3 : 2 then 30 interviews must be conducted and since the invitees to interview ratio is 4 : 3 then as many as 40 candidates must be invited. Finally, if contacts or leads required to find suitable candidates to invite are in 6 : 1 proportion then 240 contacts be made.

(iii) *Employee Attitude Studies*. These studies try to discover the reactions of present employees to both external and internal sources of recruitment.

(iv) *Correlation Studies*. These studies tell us about the extent of correlation which exists between different sources of recruitment and factors of success on the job.

(v) *Data on Turnover, Grievances, and Disciplinary Action tabulated according to different sources of recruitment*. These figures throw light on the relative merits of each source.

(vi) *Gross cost per hire*. This is arrived at by dividing the total cost of recruitment by the number of individuals hired.

Selection

Selection, as the name implies, involves picking for hire a sub-set of workers from the total set of workers who have applied for the job. Selections are done comparing the requirements of a job with the applicant's qualifications. An attempt is made to find a round peg for a round hole. In doing so naturally many applicants are rejected. This makes selection a negative 'function'. In contrast recruitment is a positive function because in it, an attempt is made to increase the number of applicants per job opening.

It is not always essential for an organisation to have a selection programme. The need to install such a programme arises only when there is a labour surplus or when there are individual differences



in job performance or when there is need to identify people with a *hobo syndrome*, i.e., tendency to frequently change jobs. This means that when there is a labour shortage or when the work is such that no large differences in job performance exist or when there is no problem of labour turnover there is no need to have a selection programme. The widespread notion that differences among workers in terms of job performance are always large is not true. For example, on a production line having a similarly paced activity there may be no differences at all in the output of workers. Further, social pressure of fellow workers may compel uniformity in their rate of production.

Selection Techniques

Following are some common selection techniques :

A selection technique is typically referred to as "predictor" because it helps in distinguishing between "good" and "poor" workers by predicting their future job success.

1. Application Scrutiny

The main purpose of application scrutiny is to identify those candidates who fit the job specification and can be called later for the interview and testing sessions. Organisations generally use different versions of the application form for different levels of workers. Thus, an organisation may have one application form for factory and clerical workers, another for middle level supervisors and still another for top-level managers. The items and their sequence on these forms vary. In deciding what items should be included in the application form one should answer the following questions:

- (a) Is the item necessary for identifying the applicant?
- (b) Does it help to decide whether the candidate is qualified—suitable for the job?
- (c) Is it derived from analysis of the job or jobs for which applicants are to be selected?
- (d) Has it been pre-tested on present employees and found to correlate with job success?
- (e) Will the information be used and how?
- (f) Is the application form the proper place to ask for it?
- (g) Does the question violate any State legislation?
- (h) To what extent will answers duplicate information to be obtained at another step in the selection procedure, for example, through psychological testing or medical examination?
- (i) Is the information needed for selection at all, or should it be obtained at induction or even later?
- (j) Is it probable that the replies of applicants will be reliable?

There is a high degree of similarity among the application forms of various companies. The type of information which they generally ask for is more or less the same. It relates to the applicant's sex, age, height and weight, his educational qualifications, experience and his participation in extracurricular activities. Still we can classify application forms as under :

(i) **Structured Application Form.** This is the usual stereotyped application form which structures information and tries to cram as much standard information into as little space as possible. (See Appendix).

(ii) **Unstructured Application Form.** In this form questions are so phrased that the applicant can respond to them by writing as he pleases. "Critical incidents" which the applicant considers illustrative of his performance at various times and under various circumstances are generally requested which reveal a great deal about the applicant's perception of himself, and of his responsibilities.

(iii) **Weighted Application Form.** Of the many items that may be included in an application form, some are frequently of more significance than others, in that they yield information that seems to distinguish good from poor employees in a particular job, and to correlate with established criteria of satisfactory performance. For example, a sales organisation may find that such items as age, previous experience, marital status, number of dependents, etc. are notably significant in distinguishing its good salesmen from those who are poor. These items may then form the core of the weighted application form. Different weights may be given to these items generally on the basis of past experience and a cut-off point established for the total. This permits rapid screening of all applicants by comparing their individual total scores with the cut-off point. Only those applicants whose total scores are above the cut-off point may be called for the interview and testing sessions. Others may be rejected. It should be noted, however, that there is no universal weighting which can be transferred *in toto* from one type of job to another. The system has to be tailored according to the need of the individual job. Further, the system can be developed only if fairly adequate personnel records are available in the organisation for its present and past employees.

2. Interview

An interview is a face-to-face, observational and personal appraisal method of evaluating the applicant where the interviewer who is higher in status is in a dominant role. If there were no differences of status and roles, it would be a meeting. Two interviews—preliminary and final—generally occur during the selection process. Where a large number of candidates are asking for application forms a preliminary interview becomes a necessity. Its purpose is not to make a detailed probe of qualifications but to refuse application forms to those who cannot be employed because of such reasons as overage, disqualifying physical handicaps, and lack of required experience or training. The final interview is generally conducted in two stages. In the first stage, some official of the personnel department makes a comprehensive appraisal of the candidates and recommends the successful ones to the line department which was made the requisition. In the second stage, the line official interviews these candidates and makes final selections.

Kinds of Interview

Interviews may be classified under 8 main categories, depending on their methods :

(1) **Direct Planned Interview.** This interview is a straightforward, face-to-face, question-and-answer situation intended to measure the candidate's knowledge and background. Although it also provides an opportunity for observing the candidate's personal characteristics and noting his attitudes and motivations but the penetration is usually superficial. The interviewer, however, does some advance planning. For example, he works out in his mind, if not on paper, what he hopes to accomplish, what kind of information he is to seek or give, how he will conduct the interview and how much time he will allot to a candidate.

(2) **Indirect Non-directive Interview.** In this type of interview the interviewer refrains from asking direct and specific questions but creates an atmosphere in which the interviewee feels free to talk and go into any subject he considers important. In such an atmosphere the information obtained by the interviewer is more likely to be an accurate representation of what the individual believes than if the employee is asked specified questions. The object of the interview is to determine what the individual himself considers of immediate concern, what he thinks about these problems, and how he conceives of his job and his organisation. The interviewer, therefore, plays mainly a listening role. He has to avoid expressing value judgments interrupting the applicant, and revealing his own attitudes and opinions. This type of interview is often used in situations other than hiring, such as counselling, processing of grievances, and exit interviews.

The difficulties of this type of interview keep many companies from using it. It requires a highly trained interviewer. It also requires more time than other methods. The advantage of this method is that the applicant tends to be more at ease, because he does not need to be so concerned about the right answers. There is usually no "right answer" to the non-directive questions.

(3) **Patterned Interview.** In this interview a series of questions which can illuminate the strategic parts of the applicant's background are standardised in advance and validated against the record of employees who have succeeded or failed on the job. Answers to these questions are compared with a critical score and used in determining who is to be selected. In the interview process these standard questions are asked as they are written; the order may be varied but not the phrasing of the questions.

(4) **Stress Interview.** In this interview the interviewer deliberately creates stress to see how an applicant operates under it. To induce the stress, the interviewer responds to the applicant's answers with anger, silence, criticism or a flurry of incisive follow-up questions. Events such as noise, interruptions, or change of schedule are introduced to see how determined and inventive an applicant can be. For sales candidates, the interviewer may play the part of a customer and have the applicant try to sell him some well-known products like soap, a blade, or a fan. The interviewer can add realism by acting uncooperatively and by raising objections.

(5) **Systematic Depth Interview.** In this interview the interviewer has a plan of areas he wishes to cover. Ordinarily, the interviewer exhausts one area before launching into the next so that he can be more certain of complete coverage. In this type of interview, an answer to any one question does not tell much about the applicant and can in fact be misleading. Each answer must be interpreted in the context of many other interrelated circumstances. So the interviewer must weigh the meaning of various answers.

(6) **Panel or Board Interview.** In the board interview, more than one person interviews an applicant at the same time. Areas of questioning are allocated to each interviewer before the interview starts. One possible disadvantage of this method is that on being stimulated by each other's questioning, interviewers may start competing with one another and thus create conditions of stress for the candidate.

(7) **Group Interview.** In this interview 5 or 6 applicants are placed together in a situation in which they must interact. The situation may be structured or unstructured. It is usual for the selector to remain silent throughout the discussion and make notes of the applicant's interactions unobtrusively. The applicant who verbalises better and who has a better personality is likely to be selected under such circumstances. Sometimes the applicants and the selectors may live together for a few days thus providing a chance to the selectors to know about the personal idiosyncrasies of applicants better. This is known as the "house party" technique.

(8) **Walk-in Interview.** In this interview candidates are not required to apply for the post before hand. They are asked to approach the employer for interview on the advertised date, time and place with their bio-data and a copy of their passport size photograph. Sometimes, more than one date is given for the interview and the candidate may walk in on any date of his choice after giving advance intimation of his choice to the employer.

Procedure for an Interview

Following steps are generally involved in an interview procedure :

(1) **Reviewing Background Information.** Pertinent information about the candidate should be collected and noted beforehand. This preparation saves time and mental effort during the interview and enables the interviewer to sketch in advance at least a general picture of the candidate.

(2) **Preparing a Question Plan.** Every interview should have a question plan. It is useful for inexperienced interviewers to have this written down in front of them so that questions can be ticked off as they are dealt with. The National Institute of Industrial Psychology (Great Britain) provides a 7-point plan for this purpose covering physical make-up, education and occupational attainments, basic intelligence, special aptitudes, intellectual and social interests, nature and domestic and social background.

(3) **Creating a Helpful Setting.** Most interviews have overtones of emotional stress for the applicant. Success in interviewing depends on reducing this stress. This can be achieved if the following conditions are present at the place of interview : privacy and comfort, atmosphere of leisure, freedom from interruptions, authentic feeling for and interest in the candidate.

(4) **Conducting the Interview.** Interviewing is much like fishing, where it is often necessary to change depth, lure and location in order to get a bite. It is, therefore, necessary to use a number of different approaches during the course of an interview.

(5) **Concluding the Interview.** In the final few moments the interviewer guides the interview to a close. After the candidate leaves, the interviewer looks over his notes, recalls his impressions, collates his observations and makes a provisional appraisal before seeing the next candidate. He fills up the interviewer's Rating Sheet meant for this purpose. A well-drafted Rating Sheet forces the interviewer

to think carefully on various factors relevant to the job. We give below a sample Rating Sheet. In this sheet the interviewer is required to evaluate the candidate on six traits relevant to the job. The form provides for the rating to be noted down in A, B, C and D for each trait along with brief notings. In some sheets the numerical equivalence of A, B, C, D for each trait is also given. In that case the interviewer is required to note down his rating in terms of this numerical equivalence. The scores against all traits are finally totalled.

SAMPLE Interviewer's Rating Sheet		
Name of Candidate.....		Position..... Deptt.
Give Ratings : A—Excellent, B—Good, C—Fair, D—Poor		
Traits	Brief Notings	Rating
Background		
Conversational Ability		
Personality		
Qualifications		
Experience		
Overall Suitability		
Special Remarks		
Recommended for the Position : Yes/No		
		Signature of Interviewer Date
Rejected / Active Consideration / Selected		
PERSONNEL DEPARTMENT <i>(Please return to Personnel Department after signing.)</i>		

Advantages and Limitations of Interviewing

Interviewing has two big advantages over other methods. These are as follows :

- It can fill information gaps and can correct questionable responses.
- It can effectively bring out the behavioural characteristics of the applicant. The interviewer can easily find out whether the applicant is likely to get along with others in the organisation or not, where can his talents be utilised most effectively, and so on.

It is sometimes contended that interviewing is an *unreliable tool of selection* because it has the maximum element of subjectivity. The same candidate may be rated differently by different interviewers. He may be rated as 'fit' by one interviewer and as 'unfit' by another. Hollingworth's study in which he found striking discrepancies in the rankings assigned by 12 sales managers to 57 applicants interviewed by them is cited in support of this contention. Following are some important reasons which generally account for this difference :

- Interviewer's Bias and his Pseudo-scientific Premises.** Interviewers differ in their bias related to sex, ethnic group, age, etc. Hence, they may match 'men and prejudices' instead of 'men and jobs'. Closely allied to bias are most of the premises of such pseudo-sciences as graphology, palmistry, phrenology, etc. Different interviewers may differently use their knowledge of these subjects in interviewing. One of them may reject a candidate because he looks like a criminal but the other may select him because he has a broad forehead.



2. Temporal Order of Interview Information. It has been found that interviewers typically make some tentative decisions about candidates early in the interview. Thus, if some 'unfavourable' information about a candidate comes up early before an interviewer, it may lead him to an early negative decision, and *vice versa*, although the total favourable and unfavourable information presented to him collectively may remain the same. In other words, the 'first impression' tends to persist. Thus, the same candidate may be rated differently by different interviewers depending upon the order in which the 'favourable' and 'unfavourable' information comes to them.

3. Temporal Order of Interview and Application Form Information. Where a candidate is being separately rated both on the basis of his application form and interview, the order in which the two informations are being rated is important. It has been found that when application forms are rated first, the ratings (whether favourable or unfavourable) are reflected consistently in the interview ratings—the reason perhaps being that the application form information is supposed to be relatively more objective. But when interview is rated first, the rating on the application form depends more on whether the interview rating is favourable or unfavourable: if favourable the rater is more likely to search for negative evidence in the application form rather than to confirm his earlier favourable rating; if unfavourable he is more likely to confirm his earlier unfavourable rating rather than to search for positive evidence.

4. Contrast Effect. An interviewer's rating of a candidate is also influenced by the impression of the preceding interviewee. Thus, what might be a good 'average' candidate may be rated as a better candidate if interviewed after a very poor candidate than if interviewed after a very good candidate.

5. Interview Structure. The same candidate may be rated differently by an interviewer in two different types of interviews—structured and unstructured. It has been found that in structured interviews, interviewers are more consistent in their ratings of a candidate than in unstructured interviews.

From the above description it is clear that only unsystematic and pseudo-scientific interviews have little dependability. In case of systematically planned interviews, the limitation of their being unreliable can be reduced. Newman, Bobbit and Cameron report correlations ranging from 0.8 to 0.89 between the ratings of pairs of interviewers when systematically planned interviews are used.

Despite the above statistical findings the fact remains that interviews cannot assess certain characteristics (such as creativity, dependability, honesty, punctuality, etc.) because these characteristics become manifest over a period of time. Nor can interviewer correctly know about a candidate's such acquired skills and abilities as ability to diagnose mechanical disorders, spell words correctly or assemble small parts.

3. Tests

Another important device used in selection is psychological test. A psychological test is designed to measure such skills and abilities in a worker as are found by job analysis to be essential for successful job performance.

Some important tests are : knowledge tests, ability tests, aptitude tests, personality tests and simulation exercises.

Knowledge Tests

Tests measuring knowledge or information are the easiest to develop and most appropriate to use for jobs that require knowledge of certain things. For example, test for measuring knowledge of taxation laws, audit regulations, accounting system, etc. could be constructed to gauge the knowledge of candidates for the position of Finance and Accounting Officer. Such knowledge tests become necessary when academic qualifications are not good indicators of the capability and knowledge of a candidate.

Ability or Proficiency Tests

Ability or proficiency tests are those which measure the skills and abilities already present in the testee at the time of testing. These tests check an applicant's claim that he possesses those abilities which are believed to be critical in the performance of his job. Ability tests are appropriate for lower level jobs where abilities are quantifiable. For example, a test of typing speed and stenography for stenographers, mechanical ability tests for mechanics, tests in research methods for researchers, etc. These tests are not suitable for assessing higher managerial abilities like planning, coordinating, organising, etc. These abilities can be assessed through simulation and other exercises.

Aptitude Tests

Aptitude tests are those which measure skills and ability that have potentiality for later development in the testee. These tests measure whether or not an individual has the capacity or latent ability to learn a given job quickly and efficiently.

Difference Between a Proficiency Test and an Aptitude Test

- (a) The purpose of a proficiency test is to find out what a testee can do now and how well he can do it. On the other hand, the purpose of an aptitude test is to find out what a testee can do in future. This test is a sort of prognosis about the testee's future accomplishment. There are a number of tests which may be termed both proficiency and aptitude tests depending upon their purpose. For example, a typing test is a proficiency test if it is used to measure an applicant's existing proficiency in typing. But the same test becomes an aptitude test if it is used to measure an applicant's potential to develop typing skill.
- (b) In the case of proficiency tests by closely reproducing the elements of the task in the test situation the proficiency of a testee can be easily and accurately measured. But in the case of aptitude tests an accurate measurement of aptitudes is somewhat difficult. The reason is that evaluating the potential abilities of an individual such as his present abilities and characteristics are measured as known to be significantly related to future achievement.
- (c) An individual's proficiency, being largely the result of his training and experience, varies from time to time. But this is not so with his aptitude or potentiality for learning. Being largely the result of an individual's heredity and growth, aptitude remains essentially the same regardless of the practice or use of the ability eventually learned. This does not mean that aptitude test scores of an individual will never change, but where they do, this represents a weakness in the test rather than a change in the person's aptitude.

Personality Tests

These tests, which are generally used in the selection of executives, measure the personality traits (such as honesty, cheerfulness, persistence, dominance, cooperativeness, etc.) of individuals. Three major types of these tests are Projective Tests, Interest Questionnaires and Preference Tests. Together these tests are called PIP tests.

- (a) *Projective tests* require the testees to respond to ambiguous stimuli. For example, in the Thematic Apperception Test they are asked to respond to rather indistinct drawings by writing a story telling what has led to the present scene, what is now happening, and what the outcome will be. It is hoped that in so doing the testees project themselves into the situation and reveal their innerself. These tests are commonly used in Assessment Centres. One important limitation of these tests is that they require the services of experienced psychologists.
- (b) *Interest tests* try to know how far the testees' interests match with the interest patterns of successful persons actually in that job. If the matching is good, it is hoped that the testee will get more satisfaction from his job. One important limitation of these tests is faking i.e., testee usually giving wrong responses in order to appear to be the kind of person for which the employer is looking. Faking is reduced to some extent by *forced choice technique* which is described in the chapter on Performance Appraisal.
- (c) *Preference tests* question testees about the characteristics which they would prefer to be present in their jobs. The Job Diagnostic Survey Questionnaire developed by Hackman and Oldham is an example of this type of tests.

Simulation Exercises

Since men who wish to obtain employment frequently claim experience they do not have, it is desirable to have tests which differentiate among them. The most accurate way to measure experience is to try men out on the work. One method to do this is to give temporary employment for a probationary period. This method is obviously costly, both because it involves excessive employment and because of the damage of machinery and injury to workers which it entails. The next best method is simulation exercise. Simulation exercise is a test which duplicates many of the operations and problems confronting the work on the job. Thus testing punchpress operators by means of a miniature and hazardless *fascimile* of the actual machine or managers by means of role-playing is a simulation test.

Advantages and Limitations of Psychological Tests

Psychological tests as a selection technique have definite advantages over other methods of selection. These are as under :

- They are less time-consuming and costly compared with interviews.
- They are more objective and impartial.
- They yield quantitative descriptions of aptitudes and characteristics. This enables the employer to quietly eliminate those candidates who possess too much or too little of a required characteristic.
- They uncover the whole pattern of a candidate's abilities and characteristics which is not easily detected by other selection techniques. This helps the employer in making the candidate's correct placement in the organisation.

One common weakness of all psychological tests is that unlike the scales used in the measurement of such physical characteristics as height, weight, etc. here we cannot have a zero point and equal intervals. For example, in a test of intelligence a person who does not answer any question correctly is not necessarily totally lacking intelligence. Similarly, a person who answers the first two questions correctly cannot be called twice as intelligent as someone who answers only the first question correctly.

Personality and interest tests suffer from one additional weakness. It is difficult in their case to obtain truthful answers from the applicant. An applicant's desire to get a certain job may force him to claim certain interests or personality traits which he does not possess. Even in the matter of proficiency tests they indicate only what a man should be able to do—they cannot measure what he will do.

In brief, tests alone are inaccurate predictors of job success. Tests are designed to supplement other screening methods, not to replace them. They are like a barometer which may provide an accurate measure of air pressure, but a prediction of future weather conditions based solely on this measure, may be relatively unreliable.

Use of Psychological Tests

Traditionally most of the industrial testing has been confined to blue-collar, sales and clerical jobs. Some important factors that have favoured the use of psychological tests for these jobs are as follows :

- Applicants for such jobs usually run in hundreds and sometimes in thousands. Tests can efficiently (at least in terms of time and cost) help in selecting or rejecting a proportion of applicants thereby reducing the number for interviews and other subsequent selection techniques.
- These jobs are easy to define and operationalise and the skills to be tested are of a routine and mechanical nature. Hence, the choice of selection tests poses no major problem.
- Because of continuous research in this area a body of knowledge is available that has been utilised for improving the testing programmes for these jobs.

The use of psychological tests in the selection of persons for managerial and supervisory jobs is very small. There are two reasons for this. First, the sample size of this category has remained so small that researchers have been unable to apply sophisticated statistical measures; this has created lack of confidence in the results. It has also retarded generalisability of the results. Second, it has been difficult to develop for these jobs adequate indices of success. Unlike the blue-collar jobs for which performance measures are more clear-cut, the executive group has no commonly agreed upon performance indices. Some feel that the trait of "consideration" (the degree to which executive is considerate to the feelings of others) is important. Others utilise "initiation of structure" as an index of performance. For some the satisfaction of subordinates is important, and for others it is actual output.

4. References

Requesting references is a widespread practice with substantial doubt as to its validity. References are usually obtained from the candidate's friends or from his previous employer. In as much as most people are reluctant to make reports that may hinder the chances of others, their opinions are not likely to result in accurate appraisals unless carefully controlled. Some organisations have found that by assuring the referee of absolute confidentiality and by informing him that one adverse vote in three does not disqualify, frank, reliable and valid references have been obtained. The telephone can serve as a useful

source of contribution. Men may give specific answers, on phone, to specific questions and their slight hesitations and pleasant evasions may convey significant information. Following is a Sample of Reference Check Form:

Sample Reference Check Form

Name of candidate :	Name of referee :
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Position being considered for:	Designation:
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Location:	Organisation:
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- HOW LONG DID THE CANDIDATE WORK FOR/WITH YOU?
- WHAT WAS THE POSITION HELD?
- WHAT TYPE OF JOB WAS HE/SHE PERFORMING?
- WHAT WERE HIS/HER REASONS FOR LEAVING THE ORGANISATION?
- WHAT ARE THE STRENGTHS OF THE CANDIDATE?
 - TECHNICAL:
 - MANAGERIAL (IF APPLICABLE):
- ANY AREAS FOR IMPROVEMENT?
- WOULD YOU RE-HIRE HIM/HER IF THE OPPORTUNITY ARISES?
- ANY COMMENTS ON HIS/HER MORAL CHARACTER?

For Official Use:

REFERENCE CHECK CONDUCTED BY:

5. Physical Examination

Physical examination reveals whether or not a candidate possesses the required stamina, strength and tolerance of hard working conditions. Major deficiencies may serve as a basis for rejection but minor deficiencies serve as a positive aid to selective placement and as indicating restrictions on the candidate's transfer to other positions. The basic purpose of a physical examination is to place selected candidates on jobs which they can handle without injury or damage to their health.

Combining Selection Techniques into a Battery

No single selection technique can measure all the abilities required on any job. Even the simplest of jobs is complex if one considers the combination of abilities required of an individual who is to remain on the job and do it well. Hence the need to use a battery of selection techniques rather than a single technique. This may be done in any one of the following ways :

1. Profile Matching. In this method the known "successful" employees are made to pass through each of the selection techniques. Their scores on each technique are then averaged to obtain the ideal profile of a successful worker. This profile is then used as a standard against which the individual profiles of all new applicants are compared and selections made. This may be done in any one of the following ways. It should, however, be remembered that each way results in different individuals being selected for the job.

- Individuals whose scores on all techniques are above the standard scores may be selected.
- Individuals whose scores show minimum deviations from the standard scores may be selected. For this purpose the deviations of an individual's scores from the ideal scores are first calculated. They are then squared and totalled. The lesser this total, the better the match.
- Individuals whose scores show maximum covariation with the standard scores may be selected. For this purpose the coefficients of correlation may be calculated between the scores of each individual and the ideal scores. The higher the coefficient, the better the match.

2. Multiple Cut-off. In this method a cut-off score, i.e., a minimum acceptable score, is established separately for each technique. Unless an applicant scores above this point on each technique he is not selected. In other words falling below the minimum on any technique disqualifies the individual. The cut-off scores usually vary with tightness or looseness of the labour market. The tighter the market the lower the cut-off score; the looser the markets, the higher the critical score can be. Individuals who score above all cut-off points are ranked on the basis of their total scores. This method thus seems to assume that for job success there is a certain minimum score which is needed in respect of each technique but beyond this minimum the scores become interchangeable so that if an individual has secured poor scores on one technique he can compensate them by securing rich scores on some other techniques.

3. Multiple Regression. In this method the multiple regression model is used for making selection decisions about individuals. With the help of data available on job performance and the performance in several selection techniques, the relative contribution of each technique in predicting job performance is found out. For example, in the equation $y = 2x_1 + 4x_2$ (where y stands for predicted job success and x_1 and x_2 stand for the different selection techniques) it is shown that the selection technique x_2 makes twice as much contribution as the selection technique x_1 in predicting job success (y). Hence an applicant whose scores on x_1 and x_2 are 5 and 10 respectively will be considered on the same footing as another applicant whose scores are 15 and 5. Each of them has a total score of 50.

4. Multiple Hurdle. In this method, the various selection techniques are arranged in a sequence as so many hurdles and an applicant must clear all these hurdles to reach the final stage where he is considered for selection. An applicant must secure above the given minimum score at each stage before he is considered for the next stage. Every stage is thus a device for weeding out applicants. At every stage the selector has to pause and think in terms of sequential decisions. At each stage he has to review the situation and decide whether to continue with the process and to continue consideration of the applicant or to reject him. In this way he goes on eliminating a certain number of applicants at each stage until the required number of candidates is selected. This can be shown by an inverted triangle as given below.

Successive Hurdles¹

1. Preliminary interview
2. Application scrutiny
3. Tests
4. Interview by Personnel Deptt.
5. References
6. Physical examination
7. Interview by line supervisor.

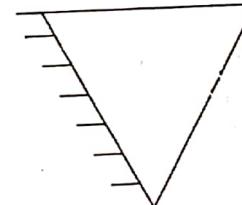


Fig. 10.1. Declining Number of Applicants at each stage.

The above method has the advantage of progressively decreasing the cost of selection as the number of applicants continuously goes down from one stage to the other. The disadvantage of this method is that an applicant is rejected simply because he does not perform above the minimum cut-off point at a given stage, although it is possible he might have done really well in the next stage. It is this characteristic of taking sequential decisions which distinguishes this method from the multiple cut-off method in which a decision to select or reject a candidate is taken after he has been through all the techniques.

1. The number and arrangement of these hurdles may differ from organisation to organisation.

Factors Determining the Functional Value of a Selection Technique

Following are the factors which determine the functional utility of a selection technique:

1. Reliability,
2. Validity,
3. Selection Ratio, and
4. Ability to increase the percentage of satisfactory employees.

Our discussion of these factors in the following pages, though primarily related to psychological tests is, in a general sense, applicable to other selection techniques also.

1. Reliability. This means that the test should give consistent results in repeated trials. If a person achieves a test score of 50 on one day and a score of 100 on the next, the test results are inconsistent and, therefore, unreliable. The unreliable test has little merit because it is as dependable as an elastic ruler. Of course, some difference in the individual's two scores is to be expected due to difference in his physical condition, incentive and attitude, distractions present during the testing and other similar factors on the two occasions.

The reliability of a test is determined in one of the following ways:

- (a) By giving the test to the same group at separate times and correlating the resultant series of test scores;
- (b) By giving 2 or more different (but equivalent) forms of the same test and correlating the resultant test scores; or
- (c) By the so-called split-half or odd-even method. In this method the test is given only once but the items are divided and scores on one half of the items are correlated with scores on the other half.

2. Validity. This means that the test should be able to measure what it purports to measure. There are basically four types of validity: face validity, content validity, construct validity, and criterion-related validity.

(a) **Face Validity.** This means that the test should 'look right' to the test taker. If the test-taker fails to see the relevance of the test to the job for which he has applied he may become derisive or may even feel insecure. Thus, a test designed to measure supervisory skill would lack face validity if it contained items which assess arithmetic knowledge.

(b) **Content Validity.** The test should be fully representative of the relevant domain. Content validity of a test would suffer if it under-represents the domain. Thus, a test of typing proficiency that requires the test taker to type only numbers would lack content validity since typing generally involves the use of almost all type writer keys not just those associated with numbers.

(c) **Construct Validity.** Abstract variables which cannot be directly observed, e.g., intelligence, aptitude, etc. are known as constructs. The value of such variables cannot be directly observed but can only be inferred from other observable variables. These other observable variables then become our operational definitions of these constructs. By construct validity of a test is meant the appropriateness of the operational definition of the construct.

(d) **Criterion-Related Validity.** This is the most important type of validity to look for or to achieve in a test. Criterion-related validity is the ability of a test to successfully predict an applicant's performance on a specific job as measured by a particular index of job success. A test that has been shown to predict successfully an index of job proficiency is said to be a valid test. Following is the procedure to judge the criterion-related validity of a test:

(i) **Job Analysis.** First of all, an analysis of the job is done in order to identify the known traits and skills required to perform its various components. For example, the human traits and skills required to perform the major components of a stenographer's job are ability to take dictation in shorthand, ability to transcribe it on a typewriter with accuracy, neatness and speed, ability to file letters and so on.

(ii) *Selection of a Test (or Predictor)*. In the second step a few such tests are selected as can measure the attributes important to job success. This choice is usually based on experience and previous research.

(iii) *Selection of a Criterion*. The third step involves choosing an indicator which measures the extent of how "good" or successful a worker is. This indicator is typically referred to as the criterion. Guion defines the criterion as simply "that which is to be predicted". A detailed description of criterion is given in the chapter on Performance Appraisal.

(iv) *Administering the Test*. In the fourth step, the selected test is administered to the employees. There are two ways of doing this: present employee method and the follow-up method. In the 'present employee method' test is administered to employees already on the job. The test scores of these employees are then compared with their current criterion scores. This is called *concurrent validation*. Its main advantage is that data on performance are readily available. There is no time lag between the obtaining of test scores and criterion scores. The disadvantage is that the current employees who are already selected and trained may not be representative of new job applicants (who are really the ones the personnel officer is interested in screening with his test).

In the 'follow-up method' test is administered to the applicants for the job in question. However, the test is not used as a basis for selection at this time. The applicants are selected on the basis of whatever procedure is already prevailing at that time. The test score of these applicants are also not disclosed to them and are filed away to be compared with their performance scores later on after they have been on the job for some time. This kind of validity is called 'predictive validity'. The reasoning behind this procedure is that if we use the test as a basis for selection and take in only those with high scores then we would never know the eventual performance of those with low scores. Who knows that this unselected group of low scores, if taken in, would have done better than the selected group? We can discriminate between them only when we afford to both the groups the opportunity to work.

(v) *Finding out the Relationship Between Test Scores and Performance Scores*. This is done by computing a correlation coefficient (called a validity coefficient). If the coefficient is very low it indicates that the predictor cannot discriminate between the good and poor performers and hence it should be rejected. On the other hand, if the coefficient is high, it indicates that the predictor can make the above discrimination and hence it should be accepted. However, before one may proceed to use the predictor the coefficient must be tested for significance. The test of significance indicates whether the relationship that we have found to exist between predictor and criterion is the result of chance or is a true relationship. If it is a chance relationship, the personnel department certainly has no justification for using the selection device to decide the fate of future job applicants.

(vi) *Cross-validation and Revalidation*. Finally, before a test is put to use it is cross-validated by again performing the fourth and fifth steps on a new sample of employees. A periodical revalidation of the test is also done to make sure that it continues to accurately distinguish between high and low performers.

There are a few other points which should also be remembered about validity. These are as under:

1. The validity of a selection test ensures only that the selected group, on the average, will surpass the larger group of applicants in performance. This means that the predictions about performance made by the test are valid only generally and may be dead wrong if used for any given individual.
2. The validity of a test should always be expressed together with the index of job success because a test is valid or invalid not in general but only in regard to a given index of job proficiency. The test can be a valid predictor of one index of job success and not of another.

3. Although a test can be reliable without being valid but it cannot be valid without being reliable. The coefficient of reliability of a test imposes a theoretical maximum on its possible coefficient of validity. Thus, a test that on repeated testing gives scores that correlate with the first testing only 0.3 is not likely, except by chance, to relate higher with employee performance. To put it differently, if a test is not correlated with itself it should not be expected to be correlated with anything else. It is primarily for this reason that the reliability of a selection test should be checked first of all.

(3) *Selection Ratio*. It should be remembered that in personnel testing a manager is more interested in the capacity of his selection device to improve the overall performance of the selected group than in its capacity to accurately predict the performance of any single individual. As such, he does not mind even if a few potentially unsuccessful candidates pass through his selection device as successful ones so long as the selected group's overall performance remains higher than what it would have been had the device not been used.

One important factor which helps in improving the overall performance of the selected groups is the selection ratio. The selection ratio is the ratio of the number of applicants to be selected to the total number of applicants available. It is expressed as n/N where n is the number of jobs to be filled and N is the number of applicants for those jobs. When this ratio is greater than 1, that is, when there are more jobs to be filled than the number of applicants available the selection device, if any, has no functional utility because even applicants of mediocre ability must be hired. But when this ratio is less than 1, that is, when the applicants are more than jobs, the manager can afford to raise the standards and select only those who hold very high promise. This can best be demonstrated with the help of the following figure (Fig. 10.2). In this figure there are 3 scatterplots of the predictor and criterion scores of a large sample of employees with a validity coefficient of 0.7. However, the selection ratio in each scatterplot is different. It is 1 in the first figure, 0.8 in the second figure and 0.2 in the third figure. This is represented by the shaded proportion of the oval in each case.

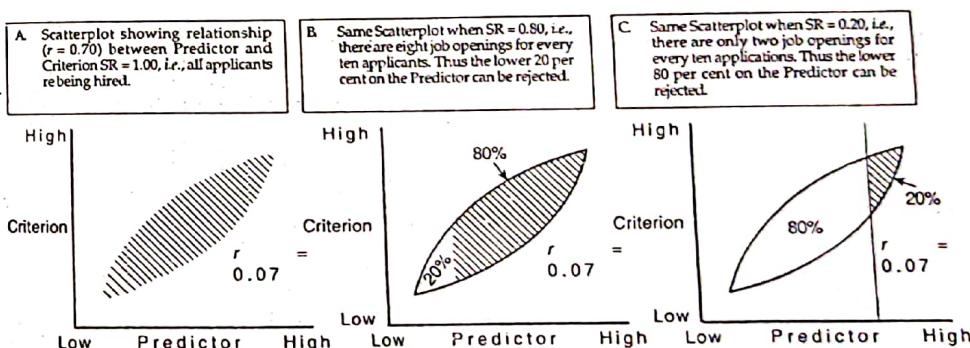


Fig. 10.2. Diagrams shewing the effect of selection ratio on the average quality of those being hired.

Now in the first case since every applicant is being hired, the selection device has no functional utility. In the second case since only 80% of the applicants are being hired, the employer will logically hire the 80% having the highest test score. It is easy to see how the average performance of these hired persons would be higher than that of persons in the first case. This average can be further increased by reducing the selection ratio to 0.2 as shown in the third figure.

The general principle that a lower selection ratio will always result in better quality employees being hired holds as long as the selection technique has any significant validity, however small. If the

1. It should be remembered that the higher the correlation between the predictor and the criterion, the more nearly the oval will approach a straight line; the lower the correlation, the more nearly the oval will approach a circle.

selection technique has no validity at all lowering the selection ratio will not ensure better quality employees.

(4) Ability to Increase the Percentage of 'satisfactory' Employees on the Job. In the above discussion we have assumed that all workers above a certain predictor cut-off are satisfactory. But if there exists in the organisation a certain criterion cut-off also for separating workers into satisfactory and unsatisfactory categories we would find that all applicants are divided into 4 groups thus:

- Applicants whom we selected because they were above the predictor cutoff and whom we later on found to be above the criterion cutoff also. These are called true positives and are designated as 'A' in Fig. 10.3.
- Applicants whom we rejected because they were below the predictor cutoff and whom we later on found to be below the criterion cutoff also. These are called true negatives and are designated as 'B' in the Fig. 10.3.
- Applicants whom we selected because they were above the predictor cutoff but whom we later on found to be below the criterion cutoff. These are called false positives and are designated as 'C' in Fig. 10.3.
- Applicants whom we rejected because they were below the predictor cutoff but whom we later on found to be above the criterion cutoff. These are called false negatives and are designated as 'D' in Fig. 10.3.

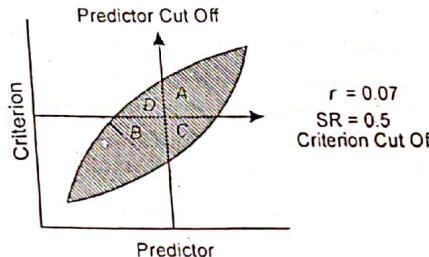


Fig. 10.3. Effects of establishing criterion and predictor cutoff points on a bivariate distribution of scores.

It would be seen from the above figure that whereas its A and B parts represent correct decisions based on the selection device, its C and D parts represent wrong decisions. If no selection device were used the proportion of satisfactory workers to total workers would have been $\frac{A + D}{A + B + C + D}$

By using the selection device this proportion should increase. In other words, $\frac{A}{A + C}$ should be found greater than $\frac{A + D}{A + B + C + D}$. If it is not so then the selection device has no functional utility.

Now tables have been devised (called after the names of their authors the Taylor-Russell tables) which make it possible for anyone to predict how much improvement in the percentage of satisfactory employees will result from using a reasonably reliable test under different combinations of validity, selection ratio and percentage of present employees considered satisfactory.

Placement

So far we have focused on selection, that is, a decision to accept or reject each applicant on the basis of his performance in some selection techniques. Now we are going to focus on placement, that is, a decision to place a selected individual in one job than in another. In selection the task is to match people with the positions. In placement the task is to match positions with people so that each individual is assigned to that position where he is likely to make the best use of his abilities consistent with the requirements of his total working group. Selection is best done where the number of applicants is large

relative to the number of available jobs. Placement is best done where the number of available jobs is large relative to the number of selected individuals.

At the time of employment, selection and placement are often inseparable parts of a single process. As a rule, a small company has only a few vacancies at any one time, and consequently it selects people for specific jobs. In large companies, however, where there are a number of vacancies, selection and placement may become distinct processes.

Placement problems arise when large-scale transfers or promotions are being made or when some people rendered surplus from some parts of the organisation are being placed elsewhere in the organisation or when executive trainees on completion of their general training programme are being assigned to jobs in production, sales, marketing or some other functional area and so on. In such situations the individual is already 'employed' and the placement decision is then made to assign him to the job for which he is considered to be best qualified.

In making placements of individuals the principle that each individual should be placed on that job for which he has the greatest ability should not be rigidly followed because this may result in some jobs being filled by unqualified persons. The aim should be to realise the abilities and talents of the largest number of individuals. This may involve some workers being assigned to jobs for which their talents are secondary. But the composite assignments collectively are optimum.

Proper placement helps to: (a) get along with co-workers easily, (b) improve employee morale, and (c) reduce employee turnover, absenteeism and accident rates.

Induction

Induction is the process of inducting a new employee into the new social setting of his work. The step should take into account two major objects : (i) familiarising the new employee with his new surroundings and company rules and regulations, and (ii) developing in him a favourable attitude towards the company. To achieve these twin objects the complete induction process is generally divided into 2 phases. In the first phase, induction is done by the personnel department which supplies to the new employee all sorts of information relating to the company. Sometimes too much is given about too many subjects in too short a period and this may create confusion in the mind of the new employee. The information which is commonly passed on to the new employee covers the following subjects :

1. Company history, products and major operations.
2. Geography of the plant.
3. Structure of the organisation and functions of various departments.
4. General company policies and regulations regarding wages and payment, hours of work and overtime, safety and accidents, discipline and grievances, uniforms and clothing and parking.
5. Economic and recreational services available.
6. Opportunities for promotion and transfer, performance appraisal and suggestions system.

The techniques usually include group lectures, individual interviews with key people, and company films. Most programmes include a tour of the plant or office.

In the second phase (called the buddy system or the sponsor system) induction is done by the supervisor. He has the responsibility of seeing that both the new comer and the work team accept each other. He has the responsibility of achieving the more difficult second objective of creating a favourable attitude in the newcomer. It should be remembered that even though the first impression made on the mind of the new comer in the first phase is always a lasting impression, the treatment which he receives during the early days from his supervisor and members of his work group is equally important in conditioning the nature and degree of his assimilation and adjustment. In some organisations the practice of appointing some senior person other than the new comer's immediate supervisor to act as his friend, philosopher and guide is followed. This is known as *mentoring* and is described in the chapter on Labour Welfare and Social Security. The supervisor should follow a set induction procedure.