4

Staffing for Quality

OBJECTIVES

1. Define the employee-forecasting process, and discuss the elements of resource planning.
2. Develop a scheme for the development of job descriptions and requirements.
3. Describe the various education and training methodologies.

TERMINOLOGY

Education: The act or process of imparting or acquiring knowledge, skill, or judgment.

Experience: The application of education.

Research: Research is a human activity based on intellectual investigation and aimed at discovering, interpreting, and revising human knowledge on different aspects of the world. Research can use the scientific method, but need not do so. Scientific research relies on the application of the scientific method, a harnessing of curiosity. This research provides scientific information and theories for the explanation of the nature and the properties of humans. It makes practical applications possible. Scientific research is funded by public authorities, by charitable organizations, and by private groups,

including many companies. Scientific research can be subdivided into different classifications.

Speculation: Contemplation or consideration of a subject; meditation. A conclusion, opinion, or fact reached by conjecture. Reasoning based on inconclusive evidence; conjecture or supposition. Engagement in risky business transactions on the chance of quick and/or considerable profit. A commercial or financial transaction involving speculation.

Theory: A set of statements or principles devised to explain a group of facts or phenomena, especially one that has been repeatedly tested or is widely accepted and can be used to make predictions about natural phenomena. The branch of a science or art consisting of its explanatory statements, accepted principles, and methods of analysis, as opposed to practice: for example, a fine musician who had never studied theory.

FORECASTING HUMAN RESOURCES NEEDS

Forecasting and/or scenario analysis is a process of analyzing possible future staffing events by considering alternative possible outcomes (scenarios). The analysis is designed to allow improved decision making by allowing more complete consideration of outcomes and their implications.

For example, in economics and finance, a financial institution might attempt to forecast several possible scenarios for the economy (e.g., rapid growth, moderate growth, and slow growth), and it might also attempt to forecast financial market returns (for bonds, stocks, and cash) in each of those scenarios. The institution might consider subsets of each of the possibilities. It might further seek to determine correlations and assign probabilities to the scenarios (and subsets, if any). Then it will be in a position to consider how to distribute assets between asset types (i.e., asset allocation); the institution can also calculate the scenario-weighted expected return (this figure will indicate the overall attractiveness of the financial environment).

Depending on the complexity of the financial environment, economic and finance scenario analysis can be a demanding exercise. It can be difficult to foresee what the future holds (e.g., the actual future outcome may

be entirely unexpected), that is, to foresee what the scenarios are, and to assign probabilities to them; and this is true of the general forecasts, never mind the implied financial market returns. The outcomes can be modeled mathematically and statistically (e.g., taking account of possible variability within single scenarios as well as possible relationships between scenarios).

Financial institutions can take the analysis further by relating the asset allocation that the above calculations suggest to the industry or peer group distribution of assets. In so doing, the financial institution seeks to control its business risk rather than the client's portfolio risk.

In politics or geopolitics, scenario analysis involves modeling the possible alternative paths of a social or political environment, and possibly diplomatic and war risks. For example, in the recent Iraq War, the Pentagon certainly had to model alternative possibilities that might arise in the war situation and had to position material and troops accordingly. The difficulty of such forecasting is highlighted in that case by the fact that it is arguable that the Pentagon failed to foresee the lawlessness and insecurity of the postwar situation and the level of hostility shown toward the occupying forces.

Scenario analysis can also be used to illuminate "wild cards." For example, analysis of the possibility of the earth being struck by a large celestial object (a meteor) suggests that while the probability is low, the damage inflicted would be so high that the event is much more important (threatening) than the low probability (in any one year) alone would suggest. However, this possibility is usually disregarded by organizations using scenario analysis to develop a strategic plan, since it has such overarching repercussions. In the case of personnel planning (see Table 4.1), the amount of additional resources that are needed can be estimated based upon the current staffing level and projected increase or decrease on the output of each process. Additionally, the required management staff can be estimated based upon the 1:5 to 1:7 ratio discussed in Chapter 1.

From Table 4.1, the current staffing and projected staffing calculated based upon expected process output increase at some future period in time. This is done by determining the current outputs based upon the business quality report (see Figure 3.1), organizational responsibility (see 4), and calculating the total hours worked by the associates (i.e., 2 associates × 160 hours per month = 320 hours total), then calculating the output rate (i.e., 230 output/320 total hours = 0.718 each). Using the projected

TABLE 4.1

Personnel Forecasting

	1. Organizational Responsibility				2. Current Resources						3. Process Output [BQR]				4. Forecasted Resources						
Requirement	Department Responsible	Primary	Alternate	Associates	Leads	Supervisors	Managers	Directors	Vice Presidents	Current Output	Total Hours	Rate	Projected Output Increase	Additional	Associates	Leads[1:5]	Supervisors [1:5]	Managers [1:5]	Directors [1:5]	V.P. [1:5]
Customer related processes	Sales	Tom	Alice	2	1	1	1	-	-	250	320	0.78	50	0.40	2.40	0.48	0.10	0.02	0.00	0.00
Design control	Engineering	Mary	Jim	5	1	1	1	-	-	10	800	0.01	2	1.00	6.00	1.20	0.24	0.05	0.01	0.00
Purchasing	Production	Sue	Alice	3	1	1	1	-	-	500	480	1.04	25	0.15	3.15	0.63	0.13	0.03	0.01	0.00
Customer supplied property	Production	Sue	Alice	1	1	1	1	-	-	500	160	3.13	150	0.30	1.30	0.26	0.05	0.01	0.00	0.00
Identification	Production	Mary	Alice	1	1	1	1	-	-	100	160	0.63	20	0.20	1.20	0.24	0.05	0.01	0.00	0.00
Process control	Production	Mary	Alice	30	1	1	1	-	-	25,000	4,800	5.21	10,000	12.00	42.00	8.40	1.68	0.34	0.07	0.01
Preservation of product	Shipping/ receiving	Hal	Sam	2	1	1	1	-	-	5,000	320	15.63	1,500	0.60	2.60	0.52	0.10	0.02	0.00	0.00
Servicing	Quality	Sally	Andy	1	1	1	1	-	-	100	160	0.63	25	0.25	1.25	0.25	0.05	0.01	0.00	0.00
			Total	45	8	8	8	-	-					14.90	59.90	11.98	2.40	0.48	0.10	0.02

increase in output, we can calculate the expected personnel increase (i.e., 50 increase × 0.718 rate = 0.40 additional). When this addition is added to the existing number of associates, the total number of associates can be calculated (i.e., 2 current associates + 0.4 additional = 2.4 total associates required). By dividing the total number of associates by 5, we can derive the number of leads required (i.e., 2.4 associates/5 = 0.48 leads). This is done for each subsequent management level to determine the most efficient number of managerial levels required. For this case, there would be no need for a level higher than supervisory.

By comparing current and projected staffing needs at the various levels, an imbalance between associates and management becomes clear. In this case, there are far too many managerial personnel (too many cooks spoil the broth) and not enough associates. This organization will require a shift in responsibilities and staffing.

JOB DESCRIPTIONS

Job Analysis

The general purpose of job analysis is to document the requirements of a job and the work performed. Job analysis is performed as a preliminary to successive actions, including defining a job domain, writing a job description, creating performance appraisals, selection and promotion, training needs assessment, determining compensation, and organizational analysis and planning.

In the fields of human resources (HR) and industrial psychology, job analysis is often used to gather information for use in personnel selection, training, classification, and/or compensation.

The field of *vocational rehabilitation* uses job analysis to determine the physical requirements of a job to determine whether an individual who has suffered some diminished capacity is capable of performing the job with, or without, some accommodation.

Professionals developing certification exams should use job analysis (often called something slightly different, such as *task analysis*) to determine the elements of the domain which must be sampled in order to create a content-valid exam. When a job analysis is conducted for the purpose

of valuing the job (i.e., determining the appropriate compensation for incumbents), this is called *job evaluation*.

Methods

There are several ways to conduct a job analysis, including interviews with incumbents and supervisors, questionnaires (structured, open-ended, or both), observation, and gathering background information such as duty statements or classification specifications. In job analysis conducted by HR professionals, it is common to use more than one of these methods.

For example, the job analysts may tour the job site and observe workers performing their jobs. During the tour, the analyst may collect materials that directly or indirectly indicate required skills (duty statements, instructions, safety manuals, quality charts, etc.).

The analyst may then meet with a group of workers or incumbents. And, finally, a survey may be administered. In these cases, job analysts typically are industrial psychologists or have been trained by, and are acting under the supervision of, an industrial psychologist.

In the context of vocational rehabilitation, the primary method is direct observation and may even include video recordings of incumbents involved in the work. It is common for such job analysts to use scales and other apparatus to collect precise measures of the amount of strength or force required for various tasks. Accurate, factual evidence of the degree of strength required for job performance is needed to justify that a disabled worker is legitimately qualified for disability status. In the United States, billions of dollars are paid to disabled workers by private insurers and the federal government (primarily through the Social Security Administration). Disability determination is, therefore, often a fairly "high-stakes" decision. Job analysts in these contexts typically come from a health occupation such as occupational or physical therapy.

Questionnaires are the most common methodology employed by certification test developers, although the content of the questionnaires (often lists of tasks that might be performed) is gathered through interviews or focus groups. Job analysts in this area typically operate under the supervision of a psychologist.

Results

Job analysis or descriptions can result in a description of common duties, or tasks, performed on the job, as well as descriptions of the knowledge, skills, abilities, and other characteristics (KSAOs) required for performing those tasks. In addition, job analysis can uncover tools and technologies commonly used on the job, working conditions (e.g., a cubicle-based environment, or outdoor work), and a variety of other aspects that characterize work performed in the position(s). When used as a precursor to personnel selection (a commonly suggested approach), job analysis should be performed in such a way as to meet the professional and legal guidelines that have been established (e.g., in the United States, the Uniform Guidelines on Employee Selection Procedures).

In certification testing, the results of the job analysis lead to a document for candidates laying out the specific areas that will be tested (named in various ways, such as *exam objectives*), and to a *content specification* for item writers and other technical members of the exam development team. The content specification outlines the specific content areas of the exam and the percentage (i.e., the number) of items that must be included on the exam from that content area.

Position Requirement

As a minimum, you should identify each title in the business through the use of the organizational chart (see Figure 1.3). Then, for each title (see Figure 4.1), you should describe the education and experience required and the tasks performed. Once the analysis is done, the various positions in the company should be staffed by competent employees as defined by the requirements.

From Figure 4.1, the department has been identified: sales in this case and one of the positions under sales. This position is further broken down into education required, experience required, and tasks. The *tasks* category has been further broken down into the individual steps. These in turn are then documented as position requirements for a given title. Note that you can have several people with the same title; therefore, the number of titles should not exceed the number of employees. In fact, there should be very few titles in the organization.
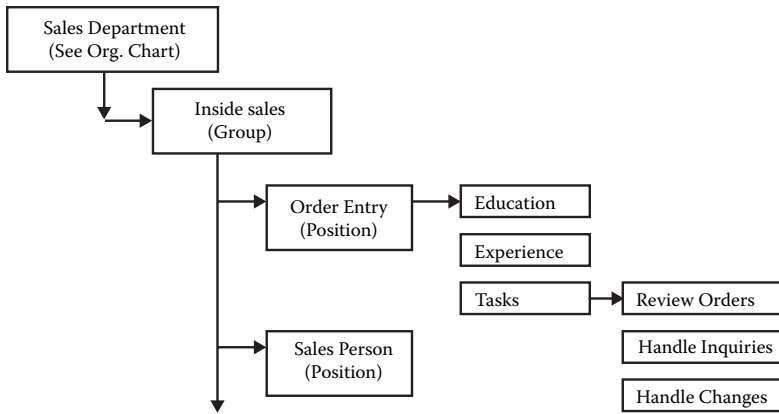
FIGURE 4.1
Organizational breakdown of positions.

EDUCATION AND TRAINING

Systems of Formal Education

Educational systems are established to provide education and training, in most cases for children and the young. A curriculum defines what students should know, understand, and be able to do as the result of education. A teaching professional delivers teaching which enables learning, and a system of policies, regulations, examinations, structures, and funding enables teachers to teach to the best of their abilities. *Education* is a broad concept; it refers to all the experiences in which people can learn something. *Instruction* refers to the intentional facilitating of learning toward identified goals, delivered either by an instructor or in other forms. *Teaching* refers to learning facilitated by a real live instructor. *Training* refers to learning that prepares learners with specific knowledge, skills, or abilities that can be applied immediately.

Primary Education

Primary (or elementary) education consists of the first years of formal, structured education. In general, primary education consists of six or seven years of schooling starting at the age of five or six, although this varies between and sometimes within countries. Globally, around

70 percent of primary-age children are enrolled in primary education, and this proportion is rising. Under the Education for All programs driven by UNESCO, most countries have committed to achieving universal enrollment in primary education by 2015, and in many countries, it is compulsory for children to receive primary education. The division between primary and secondary education is somewhat arbitrary, but it generally occurs at about eleven or twelve years of age. Some educational systems have separate middle schools, with the transition to the final stage of secondary education taking place at around the age of fourteen. In the United States and Canada, schools which provide primary education are referred to as *primary schools*. Primary schools in these countries are often subdivided into infant schools and junior schools.

Secondary Education

In most contemporary educational systems of the world, secondary education consists of the years of formal education that occur during adolescence. Secondary education is characterized by being the transition from the typically compulsory, comprehensive primary education for minors, to the optional, selective tertiary, postsecondary, or higher education (e.g., university or vocational school) for adults. Depending on the system, schools for this period or a part of it may be called *secondary* or *high schools*, *gymnasiums*, *lyceums*, *middle schools*, *colleges*, or *vocational schools*. The exact meaning of any of these terms varies between the systems. The exact boundary between primary and secondary education varies from country to country and even within them, but is generally around the seventh to the tenth year of schooling. Secondary education occurs mainly during the teenage years. In the United States and Canada, primary and secondary education together are sometimes referred to as *K–12 education*, and in New Zealand *Year 1–13* is used. The purpose of secondary education is to give common knowledge, and to prepare for higher education or to train directly in a profession.

Higher Education

Higher education, also called tertiary, third-stage, or postsecondary education, is the noncompulsory educational level following the completion of a school providing a secondary education, such as a high school,

secondary school, or gymnasium. Tertiary education normally includes undergraduate and postgraduate education, as well as vocational education and training. Colleges and universities are the main institutions that provide tertiary education. Tertiary education generally results in the receipt of certificates, diplomas, or academic degrees.

Higher education includes the teaching, research, and social services activities of universities, and within the realm of teaching, it includes both the undergraduate level (sometimes referred to as *tertiary education*) and the graduate (or postgraduate) level (sometimes referred to as *graduate school*). Higher education in the United States and Canada generally involves work toward a degree-level or foundation degree qualification. In most developed countries, a high proportion of the population (up to 50 percent) now enters higher education at some time in their lives. Higher education is very important to national economies, both as a significant industry in its own right, and as a source of trained and educated personnel for the rest of the economy; for example, the following is a list of academic program levels:

1. *Associate degree*: Requires 60 credits
2. *Bachelor degree*: Requires 120 credits
3. *Master degree*: Requires 30 credits (bachelor degree or assessment equivalency required)
4. *Master of business administration*: Requires 40 credits (bachelor degree or assessment equivalency required)
5. *Doctorate*: Requires 60 credits (master's degree or assessment equivalency required)

Adult Education

Lifelong learning, or adult education, has become widespread in many countries. Adult education takes on many forms, from formal class-based learning to self-directed learning.

Alternative Education

Alternative education, also known as *nontraditional education* or *educational alternative*, is a broad term which may be used to refer to all

forms of education outside of traditional education (for all age groups and levels of education). This may include both forms of education designed for students with special needs (ranging from teenage pregnancy to intellectual disability), and forms of education designed for a general audience which employ alternative educational philosophies and/or methods.

Alternatives of the latter type are often the result of education reform and are rooted in various philosophies that are commonly fundamentally different from those of traditional compulsory education. While some have strong political, scholarly, or philosophical orientations, others are more informal associations of teachers and students dissatisfied with certain aspects of traditional education. These alternatives, which include charter schools, alternative schools, independent schools, and home-based learning, vary widely but often emphasize the value of small class size, close relationships between students and teachers, and a sense of community.

List of Adult Alternative Educational Methods

1. *Degrees by assessment*: Portfolio assessment of knowledge acquired through experience and prior learning.
2. *Degrees by research*: Independent study, academic projects, and assignments.
3. *Degrees by exam*: "Testing out," passing online exams such as the College Level Examination Program (CLEP).
4. *Degrees by distance courses*: Distance learning programs offer accelerated coursework-based degrees for busy individuals who want a high-quality education without interrupting their present careers or family responsibilities.
5. *On-the-job training (OJT)*.

TRAINING

Training refers to the acquisition of knowledge, skills, and competencies as a result of the teaching of vocational or practical skills and knowledge that relate to specific competencies. It is the core of apprenticeships and provides the backbone of content at technical colleges and polytechnics.

In addition to the basic training required for a trade, occupation, or profession, observers of the labor market recognize the need to continue training beyond initial qualifications in order to maintain, upgrade, and update skills throughout a person's working life. People in many professions and occupations refer to this sort of training as *professional development.*

Some people use a similar term for workplace learning to improve performance: *training and development.* One can generally categorize such training as on-the-job or off-the-job:

1. On-the-job training takes place in a normal working situation, using the actual tools, equipment, documents, or materials that trainees will use when fully trained.
2. On-the-job training has a general reputation as most effective for vocational work.
3. Off-the-job training takes place away from normal work situations—implying that the employee does not count as a directly productive worker while such training takes place.
4. Off-the-job training has the advantage that it allows people to get away from work and concentrate more thoroughly on the training itself. This type of training has proven more effective in inculcating concepts and ideas.

Training has specific goals of improving one's capability, capacity, and performance.

Training Records

Each employee (exempt or not) should have a title. An individual training record should be maintained, as shown in Figure 4.2. The record identifies the employee by first and last name. The record also identifies the title of the individual, as well as his or her highest level of education and initial hire date. A log is provided to list all training received and the date. This information should be verified with a copy of a diploma, certificate, or school transcript which is attached to the record. Additionally, there is a column for the name or initials of the person who verified the training or education.

EMPLOYEE TRAINING RECORD

Last Name:	First Name:	Title:
Highest Educational Level Achieved:		**Date Hired:**

Date	Description of Skills, Training or Education Received	Verified by

FIGURE 4.2
Employee training record.

SUMMARY

The staffing function is a direct derivative of the organizing function. The company must first establish the organizational structure and identify how activity will be carried out under planning. Once planning has been performed, then organizational control is its natural extension. During the planning and control process, we identified the tasks, tracking, and objectives that are to be met. This in turn leads to the staffing function to accomplish the company's mission. A personnel forecast is developed based upon expected process output. The forecast defines the personnel requirements at all levels in the organization. Position requirements are then established to identify education, experience, and tasks performed. Once the position requirements have been defined, the organization develops education and training requirements, including records of these activities.

REVIEW QUESTIONS

1. What is the purpose of the personnel forecast?
2. Describe the job analysis process.
3. Define how titles are identified.
4. Define the basic position requirements for a given title.
5. Describe the different levels of education.
6. Describe adult education.
7. Describe the alternative methods of education.
8. Describe on-the-job training.
9. Define different levels of postsecondary education.
10. Explain the following:
    A. The training record
    B. How training is verified
    C. Experience