Japanese Industrial Training: A Socio-Cultural Description

A Report on the Comprehensive Program at Nippon Electric Co., Ltd

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In spite of the reams of paper devoted to describing the amazing success story of Japanese industry, relatively little has been written to document the processes that go on within the factories, businesses, and government offices. The success is not magic, but a happy combination of tradition that approves of hard work,[1] effective management methods, and a series of laws and customs that promote big business and industry.

Although industrial training is relatively recent in Japan, its progress has been rapid and has accounted for at least a portion of the success of Japanese industry. Japan, a country which has long emphasized formal education, has willingly adapted industrial training programs and utilized them with considerable effectiveness.

To provide an example of one type of operation that has influenced the recent industrial growth in Japan, the authors have outlined the industrial training program of Nippon Electric Company, Ltd., the largest and, probably, the most advanced manufacturer of telecommunications in Japan.

New Employee Training

Some problems of new employee orientation in Japan differ from those in the United States, e.g., moving from one company to another is extremely rare;

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1. For evidence that not all countries is Asia have such a tradition, see Ayal, E. B., "Value Systems and Economic Development in Japan and Thailand," *Journal of Social Issues*, 1963, 19, 35-51.

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therefore, the orientation program in Japan needs to be geared to a young age group, beginning at the bottom of whatever ladder they intend to climb. Also, since most employees are recruited as they finish school, many companies restrict their hiring to graduation time.

The Japanese traditions of remaining with the same company and of desiring to build a high degree of company loyalty have another effect upon the beginning employee. Not only is he embarking upon a job, but he is entering a lifetime affiliation. He is just as likely to want to like his new company as are his superiors to have him like it. The training period, then elicits some of the responses of a willing disciple taking instruction from an eager master. At the same time, the Japanese add the unique variable that neither disciple nor master are concerned with the possibility of later conversion out of the faith. The new worker has made his choice, an almost irrevocable one, and is most anxious to prove to himself and others that his choice was correct. Simultaneously, management takes a benevolently paternalistic attitude towards its employees, and considers itself not only responsible for working hours, but for all behavior involving company personnel. Both employer and employee are aware of a delicate set of obligations.

The Nippon Electric new employees training program is fairly typical of most large Japanese industries. To set forth its training goals more explicitly, the company has published an article of faith, stating (as translated): "Develop excellent employees by building good character and providing the necessary knowledge and ability to reach business objectives." This combination of moral and pragmatic goals is frequently found in Japan, and appears to be a sincere statement of company policy, rather than a set of platitudes.

Male University and High School Graduates

For new employees with at least a high school degree, the stated objectives of the new employee training program are: (1) learning the company history and development; (2) understanding the job for which the new worker is being employed; (3) understanding the regulations of the company; (4) understanding the relationships among the various divisions of the company; and (5) helping the new employees to meet each other, to meet other workers, and to develop the foundation for future cooperation. These objectives are accomplished primarily by lectures, observation of others at work, audio-visual aids, and on-the-job-training.

The new employee orientation and training require forty-two working days, the first week of which is limited to orientation. During this period, both office workers and engineers are grouped together. After the week of initial training, which is conducted in the classrooms of nearby Keio University, the two groups are separated into courses consisting of a technical overview for the engineers and an administrative overview for the office workers. This period includes plant tours and office tours for both groups.

The NEC new employee training activity is typical of similar programs in many American companies, except in the United States the high school and college graduates are not often grouped together. In the United States there is

a tendency to think of high school graduation as the proper educational level for the skilled workers. In Japan, junior high school graduation is the expected educational level of the skilled worker, whereas the high school graduate can aspire to engineering or office work. Promotion, however, will be limited and much slower for the high school graduate than for the university-educated employee.

The orientation program does not differ greatly from an orientation program in an American company, except that the concepts expressed throughout the lectures would sound strange to an American. This week has actually been an initiation into a lifetime fraternal organization. These men feel as young sons who are beginning a journey for life. They are secure. They will not rise quickly into high position nor will they be dismissed from their job, even if their performance falls far short of the expectation of the company. The selection process, however, has been very competitive. Their educational background and their performance on competitive examinations have shown them to have excellent capabilities. This fact is important since now they are permanent members of the NEC family. For better or worse, in Japanese employment as in marriage, divorce is rare.

Female University and High School Graduates

For female high school and college graduates, the training is given during a two-week period. The objectives of the training are the same as for the male group. Sixty-seven hours of the training are spent in the orientation course. The remainder of the time is devoted to factory and job observation. The training period for the female workers is much shorter than that for the male workers. The female worker, because of marriage, is much more likely to be transient, while the male is almost definitely permanent. Also, of course, the basically lower status of the female, which eliminates her upward job mobility, causes her to be considered as less worthy of training.

The curriculum for this training includes lectures regarding the company, review of essential job skills and training relating to proper behavior on the job.

Non-High School Graduates

There is a special group of employees termed non-high school graduates. These are men who have achieved education beyond the junior high school level. They will fill a lower position than the high school and university graduates, but will not be classified as workers with the junior high school graduates. The objectives of their training are stated as giving the new employees self-confidence and the ability to fit easily into their new positions. Lectures and observations are the main methods of instruction. The new employee training for this group, which lasts for 35 hours, includes courses in company development, correspondence, labor regulations, pension plan, property, and so forth.

Junior High School Graduates

The junior high school graduates constitute the real work force of Nippon Electric. The new employee training of the junior high female worker is mostly limited to on-the-job-training. The off-duty training of those junior high women who live in the company dormitories,

however, is of special interest, and will be discussed in detail later.

The objectives stated for the male junior high school graduates are the development of self-confidence, knowledge of the company, and knowledge of the job. The methods of training include lectures and job observation, but are primarily concerned with the on-the-job training. Thirty hours of company orientation is given this group, while their on-the-job training includes 210 hours, in addition to home study assignments.

The junior high school graduate is considered qualified following new employee training, one year of job experience and approximately 100 hours of home study assignments.

When Nippon Electric puts an employee through his apprenticeship program, it is able to consider the expense and effort as a long-term investment. Pirating of skilled workers does not occur in Japan, nor are there layoffs because of business decline. The company merely reduces expenses as best it can and maintains its full staff as long as possible; to do otherwise would be shirking its obligation in the Japanese paternalistic system. In the United States, few if any managements know in advance that the vast majority of those trained or educated will utilize their newly acquired abilities directly in the service of the instructing institution.

Apprenticeship to the Company

The concept of apprenticeship in Japan has one more basic difference from that held by Americans. In the United States, a person serves an apprenticeship to a trade; when he has completed the necessary time, he is free to remain with his master or to seek another position or, perhaps, to venture out on his own. In Japan, the apprenticeship is served not to a trade, but to a company. At the end of the learning period, the individual is obligated, both morally and by the economic system, to remain with the instructing organization.

At present, the NEC apprentice technical training program is limited to instruction involving the use and application of tools. The course, which lasts three years and culminates with a government-recognized certificate, combines both lectures and actual practice, with the emphasis upon the latter.

Among the non-technical subjects taught are English, mathematics, language, chemistry, physics, social science and physical education. In addition, eight different technical fields are required. Much like collegiate educational programs, the first year emphasizes the general courses, with seven hours a week being spent on them as against five hours on technical courses. By the third year, the ratio has switched to eight hours of technical work to four hours of general study.

A total of 141 men, approximately 12% of those who applied, were being trained when this investigation was undertaken; the average age of the beginning student was fifteen, a recent junior high school graduate without any previous work experience. No extra payment is given during the instructional period nor is any promotion guaranteed, but experience has shown that advancement does come more rapidly to those who have successfully completed the course. The dropout rate of 2% attests, in part, to the motivating qualities of the program. Selection standards for the full-time faculty of fourteen (plus a few

part-time people) include a university degree, if appropriate to the topic taught, plus teaching experience. The course itself must maintain standards acceptable to the Tokyo municipal government in order to receive the desired accreditation.

The company does show a concern that its more promising workers, who left school at fifteen to enter the work force, do not cease their formal education. Three years of academic work in social studies, language, and mathematics are required, along with two years in English and two in the physical sciences.

Life Enrichment for Female Workers

One condition in Japan has virtually no equivalent in the United States: the establishment of dormitories for young female workers. These girls all of whom work in the factory, constitute one-third of the nearly 4,500 female workers with Nippon Electric. A typical position is in the transistor factory where manual dexterity and visual acuity of the young workers is greatly valued.

The median age for beginning employment is eighteen, but many are younger. All at least junior high school graduates, they are eagerly recruited by large industries from the rural areas, since girls available for such work are in increasingly short supply in the cities. The company tends to employ these girls for only three year periods on the average, at which point the girls return home, marry, or find other employment.

Aside from on-the-job training given to these girls, the Nippon Electric management makes major efforts to supplement their education and enrich their lives during the period that they live in the company dormitory. The official objectives stated for the life enrichment training are:

"Improvement of the personality by developing a spirit of peace and cooperation, good judgment, gentle character, good manners, and the necessary training to become a good wife."

Homemaking Skills

The girls are separated into four grades, based upon age, with sixteen-year-olds being placed in the first grade and nineteen-year-olds in the fourth. Unlike the courses for men, the girls' training places great emphasis upon activities such as flower arrangement and dress-making, with only a scattering of more academic courses, largely involving social studies. The program is realistic in terms of the demands placed upon women in Japan, a country in which many potential husbands refrain from marriage with women whose education is perceived as a threat to their own status. Even some female university students feel obligated to study cooking and koto (a classical musical instrument) after graduation in order to be acceptable to desirable husbands.[2]

The average class will contain about fifty students.[3] Teachers are either drawn from the public schools, or else are experts in the particular field. In some

2. The junior author knew of a girl from a fairly wealthy rural home who agreed to work as a maid for a Tokyo family of the same social class as herself. The salary was negligible, but the grandmother of the house promised to teach her cooking, sewing, and other housekeeping matters.
3. Roughly the same size as classes in public high schools.

cases the dormitory mothers teach the classes.

Aside from the many formal courses offered, there are a variety of other activities which include flute playing, poetry writing, forensic activity, folk songs, group chorus, and reading.

The girls who reside in Nippon Electric dormitories have an extensive opportunity to enrich their lives and to prepare themselves to be better wives and citizens, although, as would be expected of teenagers, this opportunity is often left unexploited. Once again, the employer expresses an obligation to his workers through instructing them not only in technical skills, but in activities which will help them in their later lives.

Training Programs for Professional Personnel

Nippon Electric Company has three types of training for professional personnel who have established their worth: the Nippon Electric Company Technical Institute, the overseas educational program, and management training. Of these, only the first is, properly speaking, an instructional program with a curriculum.

The Technical Institute

Since employment is a long-term proposition in Japan, training engineers, in spite of the expense for instructional staff and facilities, is considered an excellent investment. A trained engineer can be expected to work for the company for twenty to thirty years. At present, a trained engineer will rarely move into a managerial position. However, as the Japanese industrial social structure becomes less rigid, these people may have an opportunity to use their engineering backgrounds to function in executive capacities as is commonly the case in Western countries.

Most personnel who embark on this program begin two to five years after completion of an industrial or engineering high school. The average age of the entering student is 21. The difficult written examination used for selection includes English, mathematics and specialized tests in the area in which the student is to major. Of the 421 applicants for this program in a recent year, 50% were recommended by supervisors and allowed to take the selection examination, while only one-third of these were allowed to take instruction. Thus, in a typical year, only seventy of over 400 applicants enter the program.

Each student receives three hours of instruction a day, five days a week for eleven months each year. The curriculum includes three years of English, plus chemistry, physics, mathematics and other, more technical courses. Majors are offered in electrical engineering, mechanical engineering, applied chemistry, and applied physics. The graduate engineer is more of a highly skilled technician than the concept "graduate engineer" connotes in the United States, a matter of some confusion for many Westerners.

The total capacity of the school is over two hundred students, with about ninety in electrical engineering, sixty in mechanical engineering, and thirty each in applied chemistry and applied physics, all divided roughly equally among first, second, and third year students. All but one of the present faculty of forty-nine are university and college graduates. The entire program revolves around classroom lectures, unlike the on-

the-job training aspects of the program for the apprenticeship instruction.

Each student receives either his regular salary or a higher amount, and the program graduates are slated for advanced positions. Only 3% of the students have left the Institute. According to NEC officials, a graduate is considered the equivalent of a "college" graduate.[4]

The Overseas Educational Program

Nippon Electric has been able to send seven of its employees overseas for additional education. Although this is not a dramatically large number, the effects of the program extend far beyond those seven. Not only did they profit from their formal education, but according to their own responses, they learned a great deal more than the formal content they had studied.

Six of the students attended universities in the United States (Syracuse University, University of California, University of Illinois, Stanford University, and the University of Pennsylvania), while the seventh went to the University of Grenoble in France.

The only student who noted any improvement in his position or status with Nippon Electric was the one who studied industrial management. However, all of them felt that the foreign education had been of great service, emphasizing the value of their living experiences as well as their formal education.

Unfortunately, NEC has not yet made optimum use of the students after their return. This is largely because the role of youth (the students were primarily young) in Japanese companies is usually "to wait its turn" and to avoid speaking out vigorously.

Management Training

The effects of Japanese tradition upon education and training are seen vividly in instruction for management. The pyramid, described by Vance Packard,[5] occurs in the Japanese company as well as in the American company. The climb to the top in a Japanese company, however, is different in many respects from the climb in an American company. If a man falls from the promotional ladder in the United States, he may be able to go to another company and begin his climb again. This is rarely true in Japan. Once a man falls from the promotional ladder in a Japanese company, he is probably destined to stay at his present position for the remainder of his career. The technique is to be among the last to fall from the promotional ladder, which understandably engenders a conservative attitude. It also probably engenders an apathy among middle management for training since it will have a negligible effect upon their future.[6]

Group Decision Making

Decisions are usually group decisions in a Japanese company, and the word "we" is encountered often. Sections take collective responsibility while the acceptance of individual responsibility is often considered an unwise venture.

4. In Japan, the term "college" is usually used as an equivalent of the American technical school rather than college or university.
5. Vance Packard. "The Pyramid Climbers," New York, McGraw-Hill, 1962.
6. Middle Management Training Study Team, *Middle Management Development in Japan* (Japanese Production Center, 1960), p. 2.

Paternalism is a strong influence, and faithful service will be rewarded.

There is high respect for age among Japanese management while the emphasis on youth that we find in the United States is lacking. A director of a Japanese company will remain unchallenged until retirement age.

The psychology underlying management training has been developed in an American industrial environment that is still very dissimilar from the Japanese industrial environment. Candid evaluation of the incumbent based on the evaluations of the immediate supervisor and a host of other related people is one of the most advertised features of the American management training program. Role-playing and sensitivity training also involve forms of self-exposure. The culture of Japan has developed a more subtle type of communication. To paraphrase a Japanese proverb—only a frog opens his mouth wide and shows his insides. Any such distasteful behavior as complete frankness resulting in the possible loss of face with a subordinate remains an unlikely event in Japan in the foreseeable future.

Nippon Electric has adopted a system of formalized management training based on American principles made popular by the United States Military Forces in Japan. The company conducts lectures for various levels of management. At these lectures, subjects such as cost control and human relations are discussed. The instructors are either university professors or specialists from outside the company. Management training at NEC, as in most Japanese companies, emphasizes skills and techniques rather than general understanding of a liberal arts approach.[7] Nonetheless, as one American training director expressed it, "The Japanese executive is a master of human relations, but he has a totally different configuration of cultural factors within which he must function."

Concluding Statements

The industrial society of contemporary Japan is a dynamic society. Technically, Japan is making progress at a rapid rate as evidenced by recent developments in many fields. Industrial training programs practiced in Japan are borrowed in large measure from the United States. To apply these borrowed concepts effectively in present-day Japan is one of the difficult tasks of training administrators. Modification is required. This calls for a profound understanding of the Japanese situation. Any American company which plans to establish factories and training programs in lesser developed areas of the world would be well advised to heed the following words:

> "It would seem from the Japanese example that a considerable degree of tolerance—even at the cost of seeming waste-needs to be allowed local customs and methods in establishing industry in those countries with systems of inter-personal relations markedly different from the West. A lasting and effective transition to industrialization may be accomplished only when the changes are continuous with the pre-industrial social system and are based on and grow out of the patterns of social interaction basic to the society.[8]

7. "Development in Japan," Japanese Productivity Center, 1960, p. 6.
8. James C. Abegglen. "The Japanese Factory: Aspects of its Social Organization," Glencoe, Ill., The Free Press, 1958, pp. 141-142.