

CHINA IS A LAND OF GREAT POTENTIAL. THE DEVELOPMENT OF THIS POTENTIAL CANNOT BE REALIZED WITHOUT THE PLANNED, SYSTEMATIC IMPLEMENTATION OF TRAINING PROGRAMS.

INDUSTRIAL TRAINING IN CHINA

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The foundations of present day China's industry started after the end of the "war of liberation" in 1949. Concurrent with collectivization in the countryside, China began the task of building a centralized system of modern industry. The job was formidable, since, prior to liberalization, China's industry consisted mainly of light production in such enterprises as textile and paper mills, many of which were foreign-owned. China had little experience in organizing industry, almost none in establishing and operating heavy plants.

During the '50s, China turned to Russia for assistance. Under the Sino-Soviet Treaty of Friendship, Alliance and Mutual Assistance, China was promised loans, industrial materials and technical expertise. The first five-year plan, covering the years 1953-57, began with the nationalization of private enterprise. The Soviet economic-development model was adopted, emphasizing capital-intensive projects in basic industry and the use

of worker incentives such as piece rates and bonuses. Using teachers trained in the USSR, a Soviet-style education system, with an emphasis on science and engineering in the technical institutes and universities, was implemented to support the industrial changes.

The second five-year plan, for the years 1958-62, coincided with the outlining of the "Great Leap Forward" for industry. Announced by Mao Tse-tung in 1958, the Great Leap was an "intellectual and psychological bounding into the 20th century"¹ emphasizing boldness and experimentation. The Great Leap was designed to achieve maximum mobilization of China's labor force by harnessing the revolutionary enthusiasm of the masses. Farmers were encouraged to produce iron and steel in backyard smelters. "Half-work, half-study" schools (referred to by some as "half-work, half-politics" schools) were advocated to increase access to education while minimizing the costs of such schooling.

A major setback to the Great Leap came in July, 1960 when the

Soviets abruptly withdrew their 12,000 technicians and advisors. Many factories and other major construction projects were left partially completed, other projects were abandoned on the drawing boards. Vital building materials were withheld, new orders cancelled. This withdrawal of Soviet aid accentuated the technological arrest already being felt as a result of the three years of natural disasters (1959-61) that caused the poorest harvest in China since the turn of the century.

Although the Great Leap would falter amidst criticism that it was far too ambitious and unrealistic a program for such a new and comparatively underdeveloped country, it started a movement that saw the building of many factories and industries. The Great Leap began the modernization that continues today.

Severely damaged, the drive toward technological development continued. In the early 1960s Mao Tse-tung and Chou En-lai outlined the "Four Modernizations," a staggeringly ambitious plan designed to move China, by the year 2000,

to the high levels of technology found in the advanced nations of the world. The modernizations covered four major areas: science and technology, industry, agriculture and national defense. Technology, and the education essential to it, is considered central to the success of the other three modernizations. Although almost forgotten during the decade (1966-76) influenced by the Cultural Revolution and the subsequent reign of the Gang of Four, these four modernizations are still the theme of every aspect of the present national effort. They directly influence all policies and practices related to technology and training.

Education and Training: A Prime Necessity

That education and training are a prime necessity in China today can be seen by reviewing the following:

1. China, by all indications, is solidly committed to its goal of the four modernizations: to bring its industry, science and technology, agriculture, and defense into line with those of advanced nations by the year 2000.

2. China's industry has developed more rapidly during the last 30 years than it did in its preliberation (1949) years. There are now 350,000 state- and collectively-owned industrial enterprises, compared to 120,000 in 1949. This increase represents the addition of approximately 21 new enterprises each day.²

3. Since 1949, the population has grown from 548 million to one billion people. Almost one-half of China's population is under 30 years of age.

4. The Cultural Revolution of 1966 and the subsequent reign, through 1976, of the Gang of Four virtually eliminated all progress made toward the mobilization of industry and the training of skilled workers and cadres (managers, administrators and executives). The resulting educational and technological stagnation produced a generation, millions strong, that not only lost educational opportunities but also developed a sense of frustration and bitterness that continues to affect China.

5. There is a dearth of technical and vocational programs, particularly on the secondary and post-secondary levels. According to the Ministry of Education,³ in 1979 there were over 65 million junior and senior middle (secondary) school students in China. Of these, only 880,000, less than two percent, were enrolled in secondary technical schools. Each year 10 million students complete or leave school and enter the work force with no job skills.

Industrial Training Programs

Most industrial training programs in China are influenced by two agencies: the Ministry of Education and the State Bureau of Labor. (Both the Ministry and Bureau are responsible to the State Council which is the highest executive unit of government, comprised of the premier and several vice premiers.) The Ministry of Education is responsible for the training programs operated as part of the middle (American secondary) schools. These programs are generally associated with factories and other enterprises. The Bureau is responsible for the education and training of technical workers. Thus, the Ministry and Bureau have complementary and overlapping functions, similar to that of the Department of Education and the Department of Labor in the United States.

Until recently, trainees were selected according to needs identified by a master plan for labor at the state, county, commune, or city level. Little attention was given to individual job preferences or to individual qualifications for specific jobs. This practice appears to be giving way to the realization that workers who possess certain potentials may be most effectively and efficiently prepared for specific jobs. Candidates for cadre (management) training are increasingly selected through examinations. Previously such trainees were selected chiefly on their political contributions. Cadre trainee requirements usually include relative work experience, good health, and an education equivalent to that of a senior middle school graduate.

To cope with the increasing need for skilled workers and cadres, China is using a variety of education and training programs. Since less than two percent of the school-aged population is involved with technical training, the task of training for industry is primarily the responsibility of industry. Such training usually takes the form of on-the-job training and post-secondary "spare-time" education programs, both of which improve workers without interrupting employment.

Apprenticeship is the most common method of preparing skilled workers in China. Although the system existed in China for centuries, it was given formal recognition immediately after the liberation in 1949. The slogan, "Respect the master and show concern for the apprentice," has been used ever since. The typical apprentice is a junior middle school (eighth grade) graduate. The apprentice receives no wages, but does receive money for food, clothing and living expenses, free medical care, access to welfare facilities and disability insurance. Apprenticeships vary from two to four years in length, depending on the job for which the person is being trained. A typical apprenticeship lasts three years.

"Spare-time" education is a comprehensive term referring to the educational activities of those who are not regular students. While there are no age restrictions for spare-time education, most participants are under 45 years of age. Spare-time education holds promise for the many young graduates of middle school who could not continue their education and who presently work in factories or the countryside. All spare-time education is taken on a part-time basis, except for the July 21st Worker's University which is full time. Most spare-time education has competitive entrance requirements. The following briefly describe several spare-time programs.

The *July 21st Worker's Universities* operate in a factory setting and provide full-time classroom and on-the-job training for engineers and technicians. The July 21st universities received their name as

a result of a July 21, 1968 directive by Mao Tse-tung during which he praised the emulation model at Shanghai Machine Tool Plant No. One. The July 21st universities are open only to experienced workers who pass the entrance examination. Students in the worker's universities receive the same pay as they did before entering the university program.

Another form of spare-time education is the May 7th (Agricultural) College. Found in the rural areas, the colleges adhere to Mao's directive of May 7, 1966 and provide training for agrotechnicians, paramedical personnel called "barefoot doctors" in the countryside and Red Medical Workers in urban areas, and rural school teachers.

China presently has over 20 spare-time colleges set up by the city trade unions. These spare-time programs are designed to prepare workers and technicians with advanced scientific and technological knowledge. In addition, there are large numbers of spare-time middle schools, also operated by trade unions at the city and county levels. In addition to developing job skills, spare-time middle schools give workers who have not had much formal schooling a basic education so that they may later train for specialized jobs.

Television university courses are becoming one of the more important means of training workers and cadre while allowing them to remain on the job. These higher education level courses can be grouped into two categories: 1) general education courses such as mathematics, physics, and English; and 2) technical subjects on such topics as mechanics, electronics, and agricultural science. Competition for credit enrollment in most television study is strong and successful candidates are enrolled in programs which range over three to four years. At the end of the study period, examinations must be passed to receive credit. In 1979, 80 percent of the students passed such examinations. Approximately 600,000 individuals participated in

television colleges and universities in 1979, twice the enrollment of students in the regular colleges and universities. Of these, 410,000 were "regular" students, those who passed an entrance examination.⁴

Television colleges and universities have been designated to play an increasingly important role in raising the scientific and cultural level of the entire Chinese nation. Television programs presently employ approximately 20,000 full-time or part-time instructors. Both facilities and programs are expected to improve and increase during the '80s.

The Future of Training Programs

The future of training in China is, by necessity, one of expansion. The four modernizations can be achieved only through increasing the number of skilled workers and cadres. Several problems hamper such expansion, though. First, China still has a comparatively weak economic foundation and so can appropriate only a limited amount of its annual national income for education and training.

The second problem is the sheer number of people who need education and training; one estimate puts the figure at a staggering several hundred million.⁵ Although primary education is considered universal, six percent of the children reaching school age cannot go to school, especially in rural areas, because of a lack of facilities and staff. Twelve percent of the primary school graduates do not go on to middle school, while over one-half of those who start middle school never complete the last two years. Only about six percent of senior middle school graduates have the opportunity to enter a college or university. The major reason for China's inability to reach more youth with educational programs is the large increase in the number of school age children. Thus, China's ability to provide adequate education and training for its work force will be determined, in part, by its ability to cope with its population growth.

The training of more cadres for all levels of management and ad-

ministration is imperative in China's realization of the four modernizations. During the September, 1979 celebration of the 30th anniversary of the founding of the People's Republic of China, great emphasis was placed on the systematic identification, and subsequent training, of young and middle-aged cadres in order to supplement and expand the small ranks of the older and experienced cadres.

The *Beijing Review*, reporting on this meeting, reflected that:

"The development of a modern economy, modern culture and modern politics demands a gradual change in the composition of our cadre contingent with a reduction in the general run of administrative cadres and an increase in the number of specialist cadres in all trades and professions, such as engineers, technicians, agronomists, animal husbandry specialists, managers, scientists, teachers, doctors, judges, lawyers and artists."⁶

China is a land of great potential. The development of this potential, however, cannot be realized without the planned, systematic implementation of training programs to prepare the needed large numbers of skilled workers and cadres.

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