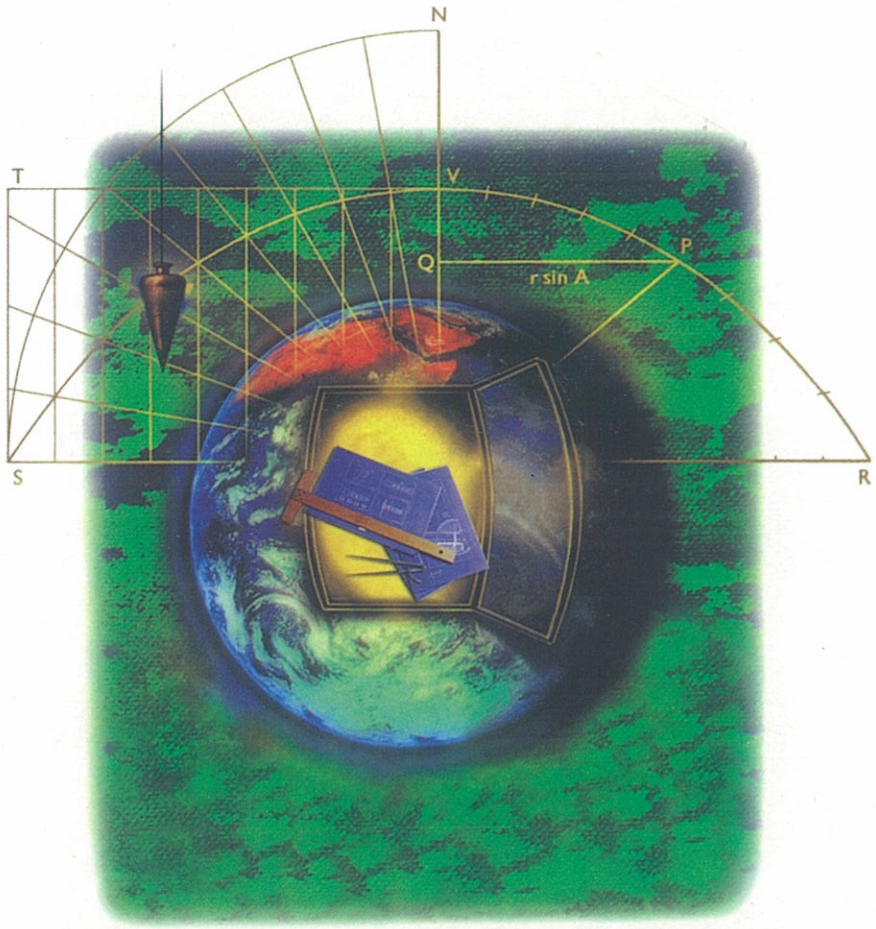
TÜSİAD

TURKISH INDUSTRIALISTS' AND BUSINESSMEN'S ASSOCIATION




# RESTRUCTURING OF THE VOCATIONAL AND TECHNICAL EDUCATION SYSTEM IN TURKEY

**Executive Summary**

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# FOREWORD

*TÜSİAD (Turkish Industrialists' and Businessmen's Association), which was founded in 1971, according to the rules laid by the Constitution and in the Associations Act, is a non-governmental organisation working for the public interest. Committed to the universal principals of democracy and human rights, together with the freedoms of enterprise, belief and opinion, TÜSİAD tries to foster the development of a social structure which conforms to Atatürk's principals and reforms, and strives to fortify the concept of a democratic civil society and a secular state of law in Turkey, where the government primarily attends to its main functional duties.*

*TÜSİAD aims at establishing the legal and institutional framework of the market economy and ensuring the application of internationally accepted business ethics. TÜSİAD believes in and works for the idea of integration within the international economic system, by increasing the competitiveness of the Turkish industrial and services sectors, thereby assuring itself of a well-defined and permanent place in the economic arena.*

*TÜSİAD supports all the policies aimed at the establishment of a liberal economic system which uses human and natural resources more efficiently by means of latest technological innovations and which tries to create the proper conditions of for a permanent increase in productivity and quality, thus enhancing competitiveness.*

*TÜSİAD, in accordance with its mission and in the context of its activities, initiates public debate by communicating its position supported by scientific research on current issues.*

*This publication is the executive summary of the report entitled "Restructuring of the Vocational and Technical Education System in Turkey" which was prepared by Assoc. Prof. Ali Şimşek and published in February 1999.*

## Assoc. Prof. Ali Şimşek

Born in 1962 in Antalya, Assoc. Prof. Ali Şimşek completed his higher education at the Educational Sciences Faculty of Ankara University. After receiving his M.A. in education technology from the Social Sciences Institute of the same university, Şimşek won a state scholarship to study in the United States where he received his Ph. D. in education design from Minnesota University. Upon his return to Turkey, Şimşek became an associate professor in 1995.

Ali Şimşek taught at various institutions including Anadolu University, Marmara University, and Ankara University. He also assumed responsibility as an education expert in the Education and Employment Project funded by the World Bank and carried out by the Turkish Ministry of Labor, in TEMA Foundation, and in Koç Holding. Moreover, he organized seminars on human resources development. Presently, he is a professor of educational communications at the Faculty of Communications at Anadolu University.

Ali Şimşek was also a participant in the activities of the International Society for Technology in Education, Association for Educational Communications and Technology, Association for the Development of Computer-Based Instructional Systems, Association for Supervision and Curriculum Development, Association for the Advancement of Educational Research, and Turkish-American Association of Minnesota. He also published numerous articles about technology, education, and democracy in various Turkish and international journals. Among these studies, especially some of those concentrating on technology-supported learning have been awarded by professional organizations.

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# INTRODUCTION

The objective of this report is to examine the structure of the Turkish vocational and technical education system and make recommendations for their re-structuring in accordance with the needs of Turkey in the twenty-first century. To this end, first international developments or contemporary trends in this field are discussed. Then, the current structure and problems of the Turkish vocational and technical education system are analyzed. Finally, constructive recommendations are made for improving the system.

There are certain developments that affect the restructuring efforts on vocational and technical education systems worldwide. These are: (a) unemployment, (b) technological revolution, (c) globalization, (d) knowledge accumulation, and (e) efficiency. It is also possible to detect common orientations in the educational reform movements in other countries. Some of them are: (a) vocational guidance, (b) post-elementary vocational education, (c) variety in curriculum, (d) sector-based programs, (e) cooperative training model, (f) tendency toward general subject areas, (g) modular instruction, (h) school-sector partnership, (i) occupational standards, and (j) competency- based certification.

Majority of the Turkish vocational and technical programs are at the secondary level. They provide either formal education or informal training. Formal education institutions operate under one of the general directorates within the Ministry of National Education. These units are: (a) General Directorate of Men's Technical Education, (b) General Directorate of Girls' Technical Education, (c) General Directorate of Commerce and Tourism Education, and (d) General Directorate of Religious Education. Most of them are three-year vocational high schools and four-year technical high schools. There are also "Anatolian" versions of the same schools for which one has to add another year for preparation in a foreign language. Informal training institutions usually operate within the General Directorate of Informal Education. Majority of these institutions are Apprenticeship Training Centers and Adult Education Centers.

Major problems of the Turkish vocational and technical education system are the following: (a) insensitivity of political bodies, (b) conflict between general and vocational education, (c) school structures based on gender discrimination, (d) high cost of vocational education, (e) extreme variability in types of schools, (f) chaos

in schools with multiple programs, (g) departure of vocational schools from their basic missions, (h) high school graduates studying irrelevant areas in universities, (i) complexity of transfer among school types and levels, (j) uncertainty in the role of community colleges, (k) inadequacy of guidance and counseling services, (l) inflexibility in school curriculum, (m) widening gap between school and work life, and (n) non-functionality of informal training programs.

Certain things can be done to improve the system. First of all, vocational and technical education at the secondary level should be re-organized around the concept of "multi-purpose schools". These schools should be managed by a single administration, apply a modular credit system, and offer education in several core areas such as social, natural and technical sciences. Within or outside schools, there should be continuing education centers providing vocational as well as general training for different audiences. In addition, graduates of these multi-purpose high schools should be given the right to continue their education in community colleges without being required to pass the University Entrance Exam. If these students want to go to undergraduate programs in related areas, they should be given bonus points to encourage the continuity between their fields of study. By doing so, it is critical to provide students with guidance and counseling services. This new system also requires a close cooperation between schools and companies in order to increase financial resources as well as employment opportunities.

## I. UNIVERSAL ASPECT OF VOCATIONAL AND TECHNICAL EDUCATION

In evaluating the level of economic development of a country, one of the widely used indicators is the quality of its human resources. In general, advanced countries have a labor force trained according to the needs of their economy, while developing countries face serious crises in improving the quality of their labor force.

In an educational system, the main objective is to create a well-trained work force that plays a crucial role in the development efforts of any country. While the educational system undertakes this responsibility, it prepares students for social life, business, and further education. Especially at the secondary level, a comprehensive curriculum is implemented to promote both personal and occupational developments of individuals.

Secondary education systems usually consist of two subsystems. The first one is called "general education" that includes the institutions using an academic curriculum and prepares students for higher education. The second is known as "vocational education" which is composed of vocational and technical programs that prepares students for certain occupational areas.

Recently, vocational and technical schools have been criticized for their failure to accommodate the needs of national economies. Some countries have made certain changes in their educational systems, but most of them have not been successful since they needed more than small revisions. Therefore, governments in these countries have recently initiated alternative reforms for restructuring their vocational and technical schools.

Turkey is one of the countries searching for a better educational system. Secondary education has long been a problematic area for reform movements. It needs to be restructured in the light of the dominant factors and current trends in the world. When world issues that have serious implications for educational systems are analyzed, there seems to be a number of factors that should be taken into consideration.

### A. Factors Affecting Vocational and Technical Education

Major factors rendering educational reform necessary around the world are unemployment, technological revolution, globalization, knowledge explosion, and the concept of efficiency.

#### 1. Unemployment

The rate of unemployment in many countries has reached a significant level, and most of the unemployed people are undereducated. The best way for increasing the possibility of finding jobs for these people is to train them in certain areas critical for the economy. Today, world population is about 6 billion and one sixth of this are jobless. Moreover, under the conditions of a population increase at an annual rate of approximately 2.5 %, creation of new jobs becomes increasingly more difficult. According to the 1997 census, Turkey's population is about 63 million and only 33 % of these people are economically productive given the high percentage of young population. It seems that Turkey has to create jobs for 2740 people every day, and its cost is about 14 billion Turkish Liras per person.

Considering Turkey's foreign debts, it is impossible to meet this challenge. According to the figures regarding the educational level of the unemployed people in Turkey, 3 % are uneducated, 58 % completed primary school, 33 % graduated from secondary school, and only 6% have university degrees. This means that two thirds of the unemployed in Turkey are not qualified for any job

**2. Technological Revolution**

Production techniques in the contemporary society are based upon advanced technological systems, and these systems create new educational needs. Therefore, workers need to be trained in such a way that they become capable of using or adjusting themselves to new technologies as part of their jobs. Most of the modern production technologies are based on computers. Developed countries are highly computerized, while underdeveloped countries face serious shortcomings in this area. As the most computerized society in the world, United States has 450 computers per one thousand people, whereas Turkey has about 20. If we consider the world average of 50, it seems to be incontestable that Turkey has a long way to go. Unfortunately, the situation in Turkish schools is not different; the number of computers in them is very low compared to those in other countries. Furthermore, investment in communication technologies per person is the lowest in Turkey among European countries. A careful analysis shows that emerging technologies require the training of prospective workers, but schools should not purchase fast-changing technologies with their limited budget.

**3. Globalization**

In recent years, the world in its entirety has become a single market as a result of technological developments and global economic policies. This also created a new understanding that the quality of a product is more important than its origin and trademark. In other words, production standards for a merchandise or service have become the same in all countries. Thus, corporations in developing countries feel obligated to upgrade their production systems. Of course, this requires well-trained workers. If a country fails to prepare its own work force for the global market conditions, it will quickly lose its competitive power. Educational systems play a crucial role in this area because there is a high positive correlation ($r=0.52$) between the amount of investment in education and the competitive power of a country. Studies demonstrate that it is easier to find skilled labor in developed countries since they have established a functional balance between economic

investments and educational policies. Another effect of globalization is that each person needs to change several jobs during his lifetime so that education should be provided on core areas rather than narrow fields.

### 4. Knowledge Accumulation

The amount of information that people have to digest in the contemporary society is increasing rapidly. According to some reliable estimates, scientific knowledge is doubling in every ten years. This indicates that learning a profession and keeping it for a lifetime is not possible anymore. As a result of rapid knowledge accumulation, old professions are disappearing, current professions are changing, and new professions are emerging so that people need to acquire new knowledge, attitudes, and skills necessary to keep themselves employed. One effective way of creating new jobs is to invest in research and development projects(R&D). United States, Singapore, and Sweden spend the highest amount of money for R&D, whereas Poland, India, and Argentina are the countries spending the least. Turkey spends the least amount of money for R&D efforts among European countries. It is also important to notice that in developed countries private sector makes investments, while in developing countries it is usually universities that spend money in this area. In Turkey, universities, private sector and other public institutions spend 68%, 24% and 7 % of their R&D money respectively.

### 5. Efficiency

The concept of efficiency refers to producing the highest amount of output with the lowest amount of resources. Because the element of human resources is an input in the production process, its efficiency becomes very important. The efficiency of human resources is the highest in Luxembourg, and the lowest in China. Turkey is ranked 23rd among 26 countries. It seems that neither human resources nor general economy is efficient in Turkey compared to other countries. Educational levels of workers in Turkey are not promising for the future because 15 % didn't get any schooling, 65 % completed elementary education, 13 % finished high school, and 7 % graduated from university. Hence, companies have to provide in-service training for their workers on a continuous basis. Unfortunately, those who have lower educational levels benefit less from in-service programs so that most blue-color workers still remain undereducated. Of course, this has adverse effects on the efficiency of workers.

### B. Vocational and Technical Education in Other Countries

Vocational and technical education systems vary in different countries. Some countries offer occupational training basically in schools, while other countries prefer training in industrial settings. There are also some countries using both schools and work places for vocational and technical education. It is possible to observe a number of trends when national practices in Germany, France, England, Sweden, Netherlands, Italy, Spain, United States, and Japan are reviewed.

Students are oriented to current occupational areas as part of their education, but they are not directed or forced to select a narrow field. Almost all the countries offer vocational training after primary school. Vocational training programs have a great variability. Each student is trained in a broad area that covers several occupations. Programs are conducted with close collaboration between schools and industries. The weight of general subjects is high compared to vocational or technical courses. General and vocational courses are considered to be inseparable parts of the curriculum. Modular instruction is gaining popularity. Occupational standards serve as the basis for curriculum development efforts. Performance-based certification is used to evaluate the outcomes of educational systems.

## II. VOCATIONAL AND TECHNICAL EDUCATION IN TURKEY

The Turkish educational system consists of two subsystems. These are formal and informal education components. Formal education covers preschool, elementary, secondary, and higher education. Informal institutions usually offer apprenticeship training and adult education services.

Most of the vocational and technical institutions are at the secondary level. They vary in name, duration, program, and function. However, typical schools are three-year vocational high schools and four-year technical high schools. There are also "Anatolian" versions of these schools to which one has to add an additional year for preparation in a foreign language, mostly English. As far as informal education is concerned, apprenticeship programs are managed by Apprenticeship Training Centers. Adult education courses are implemented by Adult Education Centers. Both types of these informal programs are supported by industry and service organizations.

### A. Some Basic Statistics

There are 2.3 million students in secondary schools. Of this, 58% are in general high schools, and 42% are in vocational and technical high schools. Approximately 57% of students in general high schools are male, 43% of them are female. These percentages are 62% and 38% respectively in vocational and technical high schools.

There are 70 thousand teachers and 1.3 million students in 2500 general high schools. Average number of students in general high schools is 546. On the other hand, there are about 72 thousand teachers and 950 thousand students in 3400 vocational and technical high schools. The average number of students per school is 282.

### B. Formal Institutions of Vocational and Technical Education

Vocational and technical high schools operate under one of the general directorates within the Ministry of National Education. Therefore, it will be very useful to review the programs for each general directorate.

General Directorate of Men's Technical Education is mainly responsible for three-year Industrial Vocational High Schools and four-year Technical High Schools. There are also some other types of schools, but they are basically different versions of the two schools mentioned above. General Directorate of Men's Technical Education has 23 thousand teachers and 370 thousand students in 1091 schools. It is important to note that 84% of the teachers and 75% of the students in this general directorate are in Industrial High Schools.

The schools operating under the General Directorate of Girls' Technical Education include three-year Girls' Vocational High Schools and four-year Girls' Technical High Schools. There are also "Anadolu" (Anatolia) versions of these schools. The General Directorate of Girls' Technical Education has about 13 thousand teachers and 102 thousand students in its 636 schools. Approximately 87% of the teachers and 72% of the students in this general directorate are in Girls' Vocational High Schools. It seems that the programs in vocational and technical high schools for girls are similar to the ones for men, although they are implemented in separate schools.

General Directorate of Commerce and Tourism Education has a number of school types. It runs 650 schools and there are about 11 thousand teachers and

237 thousand students in these schools. The "admiral ship" of this general directorate seems to be the Vocational High School for Commerce as 67% of the teachers and 77% of the students are in this type of schools.

General Directorate of Religious Education has 605 schools, and almost all of them are Imam-Hatip High Schools. There are about 19 thousand teachers and 178 thousand students in these schools. Approximately 93% of the teachers and 95% of the students in this general directorate are in Imam-Hatip High schools. It is interesting to see that Anadolu Imam-Hatip High Schools are unique in a sense that there are only 40 students per school. Unfortunately, this is not by chance because there are merely 107 of these schools in the country.

### C. Informal Programs of Vocational and Technical Training

In addition to formal schools, there are also informal education centers that offer vocational training for various groups. According to the current figures, Turkey has 5831 informal education institutions. Approximately 42 thousand educators and 1.2 million participants are involved in the related programs. Two of these centers are well known for their services and certificates. Therefore, their activities will be briefly summarized here.

Apprenticeship Training Centers implement their programs with the help of industrial organizations. Students come to these centers to learn theoretical parts of their jobs, and go to small or medium size industries for practice. These programs have grown rapidly in the last fifteen years. Today, 234 thousand participants are learning 86 different occupations in 320 centers.

Adult Education Centers offer literacy courses, socio-cultural events, and occupational training programs. According to the current statistics, there are 50 thousand programs and 941 thousand participants nationwide. Approximately 76% of the activities undertaken by these centers are occupational training programs that cover more than one hundred fields, and 80% of the participants are women. It is also very important to note that most of the participants in these programs are high school graduates.

## III. A MODEL FOR RESTRUCTURING THE SYSTEM

The majority of vocational and technical education programs in Turkey are at the secondary level. The subsystem of secondary education has three distinct

functions. It prepares students for higher education, labor market, and social life. These functions may sometimes contradict each other. Thus, proposed solutions should be comprehensive enough to address all the relevant issues.

**A. Problems**

- Governments are insensitive to vocational and technical education. They always promise to assign priority or increase the schooling rate in vocational and technical education. However, even though the goal of the Seventh Development Plan, which is currently in effect, is 35%, today, the actual schooling rate in vocational and technical education is 24%.

- In the Turkish educational system, there is a serious conflict between general and vocational education. The organizational structure of the Ministry of National Education is an evidence of this. The General Directorate of Secondary Education has no authority over vocational and technical high schools, although they are secondary institutions. Unfortunately, these schools are not able to combine their limited resources and do not function as integrated parts of the same system due to this conflict.

- School organization is based on gender discrimination. Vocational and technical high schools are divided almost as girls' and men's schools. This is also true for informal training programs. Although the programs are similar in many ways, the percentage of female students in Industrial High Schools is 7%, whereas the percentage of male students in Girls' Vocational High Schools is 2%.

- The cost of vocational and technical programs is high. Compared to the cost per student in general high school education, girls' technical education is 5.85 times, men's technical education is 3.25 times, commerce and tourism education is 2.11 times, and religious education is 2.02 times more expensive.

- There is an extreme variability in the types of schools. According to the current figures, more than 70 different kinds of high schools are available in Turkey. It is very difficult to explain this situation in a logical manner, but there seems to be a separate school type for every occupation.

- High schools with multiple programs have created a chaotic situation in the system. It is important to emphasize the fact that these schools are not the same as multi-purpose schools. The emergence of the high schools with multiple programs have purely been for political reasons because the officials in the Ministry did not want to implement the decisions of the Tenth National Education Convention and thus, they made up a similar name and opened these new schools, instead of vocational and technical ones, in less populated rural areas.

- Vocational and technical high schools have departed from their basic missions. Almost all the students having completed these schools want to continue their education at the university level. This created great pressure on schools that consequently started preparing their students for higher education rather than the skilled labor market. In fact, presently 6 out 10 the most successful school types in the University Entrance Exam are vocational high schools.

- The graduates of vocational and technical high schools prefer to continue their university education in popular but irrelevant areas. In other words, although the cost of vocational and technical schools is very high, there is no continuity between such education and higher education. A student may graduate from a Technical High School, and study law at the university or finish Imam-Hatip High School and go to medical fields.

- Policies regarding student transfers among school types and levels are extremely wasteful. There is not any incentive for students who have strong backgrounds and plan to further their education in the same fields. In other words, curriculum requirements are the same for all students regardless of their educational backgrounds. For example, in an engineering program at the university, a graduate of a technical high school must complete the same courses with another student coming from a general high school.

- The role of community colleges is not clear. Although these schools are part of the vocational and technical education system, their roles and responsibilities overlap with the roles and responsibilities of secondary schools. 70% of the students do not have a clear idea about community colleges before entering these schools and 35% of the graduates do not

know where to look for jobs because they are not aware of the relationship between the level of their education and types of jobs. Today, 450 community colleges provide education in 150 different areas for 200 thousand students, and they have great difficulties to find appropriate jobs.

- Services for vocational guidance and counseling in Turkish schools are not sufficient. In a country of more than 70 different school types at the secondary level, it is not easy to make appropriate choices. Thus, it becomes highly critical to provide elementary students with counseling and guidance services. Although elementary schools are required to provide these services by law, they are not successful at all because of personnel shortages.

- The school curriculum is not flexible enough to accommodate individual differences of students. All students are obligated to complete the same curriculum regardless of their intelligence, ability, interest, prior knowledge, motivation, cognitive style, etc. Students are not considered to be successful without completing all the courses they are required to take. The curriculum in a typical vocational and technical high school includes 30% general courses, 60% vocational courses, and 10% elective courses. This situation is at odds with the universal trend towards increasing the weight of general subject areas.

- The educational system is far away from meeting the needs of the real world. Because schools are not capable of training human resources that the industry needs, companies spend a significant amount of money for in-service training activities. On the other hand, students in vocational and technical education programs do not gain practical experience. Only 18% of students have a chance to visit work places or have internships there.

- Informal educational services are not functional in the sense that they do not contribute to the facilitation of finding a job. Generally, informal education institutions apply their standard programs without making adjustments based on the needs of the related sectors. Therefore, their graduates are not capable of practicing an occupation. Because informal education does not help find a promising and stable job, 85% of students in apprenticeship programs want to attend formal secondary schools.

- Non-governmental organizations do not show a strong interest in vocational and technical education. Although they are represented in a number of organizational bodies that make decisions on education and employment policies, the contribution of most of these organizations is not satisfactory. They usually try to protect their own interests or apply pressure on government organizations to prepare labor force for the areas that they need.

**B. Recommendations**

- Since secondary education programs are widely separated from each other the system is not functioning well. It seems that improving the system by making small and insignificant revisions is highly difficult, if possible. Therefore, the secondary education system should be restructured in accordance with the concept of multi-purpose high schools.

- Education in multi-purpose high schools should last for three years after elementary schools. These schools should have three departments such as Social Sciences, Natural Sciences, and Technical Sciences. Each department should be comprehensive enough to include related fields and education should not be based upon narrowly defined areas. By doing this, current school types, which are too independent from each other will be integrated within a single body. This new school will have various programs, but it will not train its students for a specific occupation.

- There should be guidance and counseling services in comprehensive high schools. If students are to select departments in secondary education, they should be informed about their own abilities and employment opportunities upon their graduation. When they receive reliable information through the guidance and counseling services, students can match their personal traits with the requirements or privileges of the departments.

- Departmental programs in comprehensive high schools should be both inclusive and flexible. Department of Social Sciences should train students for the service sector, offering programs in such areas as tourism, economy, communication, banking, law, business, and education. Department of Natural Sciences should offer programs in mathematics, biology, physics, chemistry, medicine, pharmacy, dentistry, and veterinary. Department of

Technical Sciences should train students for the industrial sector, and offer programs in such areas as textile, automotive, food, electronics, construction, and machinery.

- Multi-purpose schools should apply a modular credit system. Each department should require a total number of credits for graduation. This should include compulsory and elective courses. Each course should have a credit value, and students should earn these credits when they complete the course successfully. Through the modular credit system, students should be able to take the courses concentrating on a single field or a combination of several fields.

- The educational environments should be diverse in multi-purpose high schools because students will be learning practical as well as theoretical matters. These schools should not purchase expensive technologies since these technologies will be available in cooperating industries. Instead, the schools should have science laboratories, art shops, technical classrooms, gymnasiums, computer centers, practice gardens, and health rooms.

- Student flow should be organized in such a way that the graduates of secondary schools should continue their education in related fields when they go to the university. However, this should be done by offering bonus points in the University Entrance Exam or requiring them to complete a certain amount of high school credits in related areas. The score of each student on the University Entrance Exam should be calculated based upon the ratios of 60% achievement and 40% ability. These exams should be administered not only during the senior year, but throughout high school years.

- Companies should contribute to the creation of new employment opportunities for the graduates of multi-purpose schools. Compared to the current system, this should be easier because schools and companies will be cooperating closely in every stage of the system. Curriculum will be based upon occupational standards, education will be implemented both in school and company, and accomplishment will be certified according to joint evaluation standards.

- Continuing education services should be offered in special centers established specifically for this purpose. These centers can be established in

any place like organized industrial zones, education parks, or school campuses. However, these centers should apply a credit system and give credits to every educational activity. Transfer from continuing education programs to formal school programs should be easy if the required credits have been completed.

- Funds for multi-purpose schools should be provided by both public and private resources. Local authorities including government and company representatives should take responsibility in providing funds for schools and holding them accountable in spending. Schools should search for ways of creating new resources for themselves. Moreover, after the year 2000, funds for eight-year compulsory education should be continued for secondary education. Private sector institutions should be encouraged to make investment in education so that government can spend money for those who need public spending.

- Teachers should be trained in such a way that they can work both in schools and in continuing education centers. All teachers should have a valid teaching certificate regardless of where they work or what they teach. Teachers should be able to function as a connection person between schools and companies. Schools should employ not only teachers, but also education specialists in various fields of education so that students are offered better educational services.


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