

Supplied by
FRANZ Schropp

U.A.E. Khy
Summary 3.4

Starting Point of the Project

Labor market experts of the German government owned agency GTZ carried out an analysis of the labor market of the United Arab Emirates in 1995. Based on the findings of this study, a comprehensive Master Plan for the improvement of technical education was drafted by GTZ, providing the basis for 20 occupations in 4 different occupational fields.

After approval of the Master Plan by the government of the U.A.E. in 1996, the Ministry of Education and Youth launched the project for the implementation of the recommendations of this Plan. The project is being carried out under a four years contract with the GTZ. According to this agreement, **"The GTZ shall supervise the execution and implementation of the Master Plan for the Development of the Technical Education in the United Arab Emirates"**.

Main Achievements of the Project

- Fifteen specialized training programs have been newly implemented in four occupational fields in eight different technical and commercial secondary schools.
- Up to date curricula, textbooks and teaching materials were developed and implemented accordingly.
- A good number of new teachers have been recruited on the local market and from abroad, mainly from other Arab countries.
- Some new technical equipment for skills training has been delivered and made available at the different technical schools.
- Teachers have been monitored continuously and have been given special attention and training whenever possible under the given circumstances and whenever deemed necessary.
- Training in computer applications has been implemented and is very much emphasized in all of the schools concerned.
- English language has been given special attention under the current program by contracting native speakers as English language teachers through a specialized agent.
- Close cooperation has been established between individual technical schools and local companies as well as governmental agencies with regard to in-service-training.

The visiting evaluation team very much appreciates the achievements reached so far by the Ministry of Education and Youth in upgrading the vocational track of the UAE's educational system. The great efforts made over the past four years are an important preliminary to the development of skilled technicians for the industrial sector and reduced dependence on expatriate manpower. Especially to mention is the

very favorable teacher – student relation in terms of small and efficient learning groups in the third secondary classes specializing in particular skills areas.

Recognizing the very special local circumstances and conditions under which technical training is being organized in the UAE, some considerable shortcomings have been identified which need to be addressed by the authorities concerned.

Main Areas of Concern

The fact-finding mission has identified five major areas of concern. Most of the findings in this study are of structural nature. The problems mentioned below are more of organizational or administrative structure than of faults in the training program itself.

Considering the special conditions in the schools, all programs currently under implementation comply with the Master Plan. However, they can only reach all of their goals if the preconditions are met. Therefore, the following issues have to be addressed:

1 Qualification and recruitment of teachers

a) Qualification

- One of the problems identified is the lack of local teachers due to a missing teacher training program in the UAE. Recruitment of teachers therefore takes place in other Arabic speaking countries.
- Most of the teachers employed have no pedagogical qualification, and receive no preliminary preparation for their special task in the UAE.
- Further training and upgrading of teachers throughout their employment is not available. Their qualification level does not keep-up with technical developments (e.g. PLC and CNC-technology, installation bus, total stations, GPS, CAD).
- The qualification of foreign teachers in modern technologies is insufficient.
- English language skills of many teachers are weak despite the fact that the curriculum is to be delivered entirely in English.
- Many of the available teachers in the technical secondary schools have deficiencies in the use of teaching aids, and modern teaching methods like the action- and project oriented teaching method, as it is stipulated in the Master Plan. Teachers need to adopt adequate teaching techniques and to use media in the teaching process (overhead projectors, computers etc.).
- A high percentage of teachers involved in practical training do not possess the required practical skills and are inexperienced for their practical tasks.
- There is also evidence that the existing teachers lack experience in industrial praxis, especially the long serving teachers. They have not been exposed to modern applied technologies.
- Professional contacts between teachers and companies do not exist or only in an insufficient way.

b) Recruitment

- The recruitment procedures currently applied need improvement to guarantee a better selection of teachers, particularly those of English language abilities.

- Teaching often starts with a delay due to the late arrival of newly recruited teachers at the beginning of an academic year.

2 Contents of Learning and Timetable

a) Contents of learning

- The master plan stipulates the introduction of action and project oriented teaching methods. It seems that not all of the occupational fields follow this approach which combines theory and practice.
- Practical training is underrepresented. It accounts for only 25 % of the total teaching time.
- There is no examination in skills training, but exams in theoretical technical subjects only, which leads to a tendency of students not taking Practical Training really seriously.

b) Timetable

- The existing timetables for class schedules are not being carried out in all of the schools. The afternoon classes after 1 p.m. are canceled in some of the schools.
- The common practice of students not attending classes for two or more weeks before the actual exams start is not acceptable.
- The periods allocated for the subjects Practical Training and Technology/Applied Mathematics are insufficient to achieve world skills standard.
- Subjects like "Pneumatics and Hydraulics" are being taught in all of the specializations, which is unnecessary.
- A common level for all students in English language proficiency is not guaranteed before the actual training starts.

3 Students Selection and Enrollment

a) Selection

- There are no entry tests for students prior to being accepted in any one of the training programs. Different specializations require specific entry qualifications. The existing procedures do not take this fact into account.

b) Enrollment

- Students being enrolled in any one of the training courses do not get comprehensive information about their future training, options, job opportunities.
- Students are enrolled in occupational fields and specializations by the school administrations, without having each students abilities and aspirations taken into account.

4 Procurement of Equipment, Tools and Consumables, Teaching Materials, Budget

a) Equipment, Tools and Consumables

- In none of the existing technical schools visited were the workshop and lab standards met as defined per Master Plan. As a result, the training programs in all of the specializations have suffered in quality. Essential parts of the programs could not at all be implemented.
- Many new pieces of equipment and machinery have been brought in, but were not installed and put into practice in the technical schools.
- The existing old machinery, equipment and tools are not up to standard. Many of the older generation equipment are either broken, or worn-out or no longer useful. Outdated machinery is not recommended to be repainted but needs to be replaced.
- Purchased equipment does not always comply with the needs of the curriculum and the standards set in the Master Plan.
- Equipment has been purchased for simulation and demonstration of skills. They are useful for theoretical training and support understanding of complex technologies. However, this does not substitute for practical skills training and achievement of employable skills.

b) Teaching Materials

- There are no up-to-date technical books available in the libraries as reference materials for students and teachers. No resource center is available at the schools.
- The teaching materials and handouts, based on good originals, are of poor printing quality.
- Books for computer training get outdated almost every year. All related textbooks for training must be purchased from the market on a yearly basis.

c) Budget

- There is not an independent school budget set aside for the technical schools to enable them to replace broken equipment or buy consumable materials and smaller items like tools. It cannot be the task of teachers to pay for materials and broken parts like light bulbs for OH-projectors out of their own pockets.

5 Administration and Management

a) School Administration

- There is some discrepancy between the different schools with regard to organization of the day to day running of training programs (different timetables, attendance, maintenance, upkeep, quality and completeness of equipment, and behavior and discipline of students).
- Some of the principals do not have enough English language skills to cope with management requirements of an English medium school.
- The school principals are not given enough authority and independence in terms of keeping discipline in their respective school, e.g. student attendance, punctuality and compliance with rules and regulations are generally poor.
- School administration software is not being applied in any one of the technical and commercial schools.
- Modern means of communication, e.g. e-mail, electronic data exchange, between the school administrations and the Ministry of Education and Youth are not available.

b) Management

- There is no permanent advisory committee which enables Industries to have an in-put into the technical education system, e.g. goals set, curriculum development, examinations, teachers in-service training.
- The new technical education system currently under development demands an up-to-date management structure within the Ministry of Education and Youth. The existing organizational structure of the Department of Technical Education needs to be improved and extended.
- A modern technical education system asks for professional management manpower.
- The Department of Technical Education is not provided an adequate annual budget to provide for all needs in all of the Technical and Commercial Schools. Technical schools need much higher financial resources for technical equipment and the related operational requirement. They are not comparable with general educational schools in this respect.
- There is no systematic approach to manpower development and placement of staff in the schools (administrative, teaching, support staff).
- A planning section within the Department of Technical Education does not exist. As a result, there is no professional and systematic approach for further developing the system of Technical Education.

Recommendations

- Introduce teacher-training for technical programs in the UAE in English language.
- Set up an internal program for further training of technical teachers in teaching methods and practical skills.
- Invite specialists from industry to lecture in technical schools on new technologies.
- Teachers should be obliged to do about 4 weeks in-service training in modern companies per contract year.
- All teachers have to undergo training in modern teaching methods, classroom management, and use of media computers.
- Instructors for Practical Training must be from the practical field with hands-on experience. They have to undergo training in instructional methods.
- Teachers are expected to be familiar with the existing local companies in their special field.
- Procedures have to be developed in order to identify sufficiently qualified teachers, especially for Practical Training.
- Recruitment missions have to start early enough (e.g. latest in April) in order to guarantee early arrival of new teachers from abroad.
- All training should be organized in a manner which is called "project oriented" as per recommendations of the Master Plan.
- Projects shall be as close to reality as possible or shall be executed in cooperation with private sector companies. This is expected to be highly motivating for the students and makes them more competitive.

- The recommendation of the Master Plan is 40 teaching weeks per year and 20 periods of technical training per week. This should be applied in order to guarantee implementation of the programs to its full extent.
- End of semester tests in Practical Training must be introduced in order to emphasize the overall importance of skills training.
- The Department of Technical Education must apply a policy of obliging schools to strictly comply with rules and regulations and not to finish training before 2.30 p.m. each day.
- Students should attend classes until the very last day before examinations start. Preparation for the actual examinations shall take place in the schools.
- The number of periods for technical training must be increased to about 50 % of the total teaching time.
- "Pneumatics and Hydraulics" are only relevant for students in the fields of mechanical and electrical engineering. The periods made available through this should be allocated for Practical Training.
- English language entry test must be introduced in order assure a minimum standard of English language proficiency. English language for special needs must also be introduced. The effect would be a reduction of English language lessons in all classes, improvement in the cost effectiveness of instruction, and making more periods available for technical training.
- A comprehensive students guidance system should be developed in each school, especially for technical education.
- All students shall pass an entry and placement test prior to being enrolled in technical schools. They shall be registered in specializations in accordance with their aspirations and capabilities.
- The highest possible priority should be given to the execution of the recommendations of the Master Plan in terms of equipment and tools.
- It is recommended to buy equipment from local agents as far as possible, in order to make sure that installation, testing, commissioning, service, repair and training is being carried out locally and with no delay. Purchasing from overseas suppliers has proven not to be feasible.
- Old equipment that is outdated must be replaced with up-to-date equipment at the earliest possible date.
- A reference and resource library, like in the Higher College of Technology, should be put at the disposal of students and teachers containing technical books, audio-visual materials, as well as computer instructional software, Internet and e-mail services.
- The printing press of the Department of Technical Education must be modernized and given a modern print-shop management. However, it would most likely be more economical to outsource all printing requirements.
- All of the Technical Schools must be provided an independent budget for service, maintenance and repair of equipment, and for purchasing of hand tools and consumables for training. An adequate auditing system must be introduced in this respect.
- Professional experts from the DTE in close cooperation with the GTZ-experts and qualified technical teachers from the schools should establish special committees and select suitable equipment and materials for training as per the Master Plan.

- Technical equipment for training of hands-on skills should take precedence over equipment for demonstration and simulation.
- Regular monthly meetings should be organized by the DTE for school principals in order to coordinate all training activities and ensure common standards applied in all schools.
- The appointment of heads of sections or team-leaders for each individual occupational field in every school should be seriously considered. The team-leaders should also meet on a monthly basis in order to exchange experience and to discuss means to improve quality and standards of training.
- It is highly recommended that English language courses be organized for teachers and school administrators to improve their English skills.
- The school principals should be given more management training in order to make them better qualified to shoulder full responsibility for the day-to-day running of the schools.
- Modern information technology should be introduced in all of the technical and commercial schools in order to enhance administrative procedures.
- Establish structures to enable industry to have ongoing input into the technical education system.
- Hire an international expert in technical educational management and administration, and have modern and feasible structures developed in the DTE.
- An adequate budget has to be provided for technical education on an annual basis. Precondition for solid budgeting is comprehensive planning of all activities, developments and investments for a period of not less than 3 years well ahead of time. Considering the fact that technical education is a complex and demanding area establishing a planning section within the DTE is critical.

Conclusion

If the government of the United Arab Emirates has the intention of achieving the World Skills Standard, and wants graduates from secondary Technical Education to participate and succeed in the World Skills Olympics in 2003 in Dubai, the above mentioned recommendations must be followed to the full extent and as soon as possible. A good start towards this has been made, and we highly recommend that the Ministry of Education and Youth continues with the implementation project. We wish from the bottom of our hearts that it will lead to the envisaged results for the benefit of both the economy of the United Arab Emirates and its people.