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**APPRENTICESHIP: ASSESSMENT
OF THE PLAN OF 1993 SET
BY THE MINISTRY OF TECHNICAL
AND PROFESSIONAL EDUCATION**

**A RESEARCH TOPIC
PRESENTED TO BUSINESS SCHOOL
LEBANESE AMERICAN UNIVERSITY**

**In partial fulfillment
Of the requirements for the Degree
Master in Business Administration**

BY

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June 1997

APPROVAL OF RESEARCH TOPIC

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Date : June 1997
Degree : Master in Business Administration
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Title of the Research Topic

Apprenticeship: Assessment of the plan of 1993 set by the Ministry of technical and professional education.

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To my Parents,

ACKNOWLEDGMENTS

The wisdom of so many fine people led me to this research, I can not hope to name them. In thanking a few, I extend my thanks to all.

Distinctive thanks and appreciation to Dr. Hussein Hejase and Dr. Abdallah Dah for their considerable support and suggestions from which I greatly benefited. It is under their supervision that this research was prepared and their valuable advice contributed significantly to its completion.

Sincere gratitude to my friends who kept me firmly on track with wonderful humour and moral support.

My last but not least thanks go to my parents to whom I wish to dedicate this work and to whom I will always remain grateful for making this degree possible.

ABSTRACT

The technical and professional education agreement adopted by the UNESCO general conference in its twenty fifth session held in 1989, stipulated that technical and professional education concerns all forms and levels of the educational operation including, in addition to general knowledge, studying the related technologies and sciences and acquiring practical skills, expertise positions and knowledge pertaining to technical practices in economics and social fields.

From this definition, the comprehensive and integral aspect of technical and professional education in school programs becomes clear, considering that it is complementary for general education and vocational preparation and an aspect of the continuous education.

Considering that technical and professional education is relatively recent, as well as related methods and programs which depend on a group of variable factors due to the continuous changing in social, demographic, economic, scientific and cultural aspects because of the accelerated scientific and civilizational development, it becomes necessary and inevitable to reconsider and develop such methods and programs in such a manner that they become compatible with the latest developments, go along with technical progress, help assimilate modern technology and make it possible to individuals and societies to successfully and effectively prepare and execute economic development plans.

When preparing and developing technical and professional education programs, specialists and interested parties try to answer the following questions:

- Why do we develop technical and professional education programs? How important is that?
- What are the bases and rules that govern the programs development operation?
- How do we develop technical and professional education programs? How do we prepare and make plans for programs?

- How is the program executed and applied? In other words what is the execution and application mechanism?
- How could we know if programs fulfill the aims for which they were prepared?
- How do we evaluate a program?

In the light of general concepts of the technical and professional programs nature, it becomes necessary to have basic rules in order to prepare and develop such programs, and at the same time take into consideration the enormous, tremendous and accelerated technical changes which affect different social, economic, learning and emotional aspects. Therefore, when preparing technical and professional programs, the following must be taken into consideration:

- National economy growth which goes along with international economy developments as to the modernization and development of economic systems and the required competences and qualifications, from the number and quality point of view.
- Production and services are subject to modern methods and procedures in all industrial, agricultural and commercial fields in addition to various services.
- The use of new partially or totally developed techniques and products requiring the existence of trained competent technical frames able to assimilate and apply modern technology.
- The excess of unemployed academic graduates are looking for jobs in productive and services fields. Some of them become employers and craftsmen (auto employment).
- The disappearance of some old previous jobs and the appearance of new developed and modern jobs.

Therefore, the role of the technical and professional education programs becomes essential in the preparation and development of labor force so it can satisfy the society and local market needs and meet the requirements of literate or skilled individuals in various fields and domains.

Currently, the Lebanese professional and technical education system is unable to supply the market with qualified labor due to the obsolence of the official curricula and the absence of coordination between technical schools and firms, a basic requirement for adapting the outdated technical education to continually changing market needs.

In order to solve the pressing problems facing the professional and technical education, the Ministry of Technical and Professional education prepared in 1993 a plan that proposes solutions to the main problems facing academic education, namely the obsolence of curricula shortage in well trained technical teaching, and the outdated data base system on which the program is built.

In light of the ongoing changes in the market needs and the need to develop a program that will prepare and develop a labor force that meets the requirement of the economic environment, the purpose of this research project is to evaluate the proposed plan in Lebanon after thorough analysis of the Lebanese technical and professional education system, with the German apprenticeship system, “the Dual system”, as an inspiration to Lebanon.

CHAPTER I

INTRODUCTION

1.1 Introduction

To date, Apprenticeship, is still the best way to acquire a skilled trade because, it not only covers all aspects of the trade, but also includes both on the job training and relevant instructions. It gives the student the opportunity to expand his or her general knowledge and to study related technologies and sciences, in order to later on fill qualified positions in economic and social circles, which require practical skills and knowledge. From this definition, school programs become clearer, considering that apprenticeship system is complementary to general education and vocational preparation and an aspect of the continuous education.

1.2 Need of the study

In today's youth labor market, it is difficult for teenagers to see any connection between school and work. One answer may lie in developing a system of apprenticeship that will motivate youth to learn in school and ease their transition into adult careers. It is quite obvious that due to the on-going changes in social, demographic, economic, scientific and cultural fields, resulting from the accelerated scientific and civilizational development, it becomes necessary and inevitable to review and develop the outdated methods and programs adopted by Lebanon's educational system. Consequently, there is a need to develop these programs in such a manner that they become compatible with the latest developments and technical progress, help understand modern technology and allow individuals and societies to successfully prepare and carry-on economic development plans.

1.3 Purpose of the study

In light of the changes in the social, economic and scientific structures, the Ministry of Technical and Professional education in Lebanon has developed a plan to improve the currently outdated apprenticeship system; a plan that is yet to see the light of day due to shortcomings in financial and human resources. However, if this plan were to be adopted, how would it affect Lebanon's educational system overall? Does this plan represent the best solution to providing what the market needs? How the specialists and interested parties view the plan proposed? This study is intended for purposes of evaluating the proposed plan and is motivated by the importance of understanding the role of the technical and professional education programs in preparing and developing a labor force that can satisfy the market needs.

1.4 Methodology of the study

Since the purpose of this research is to evaluate the plan proposed by the Ministry of Technical and Professional Education, interviews based on structured questionnaire are conducted with those persons who are directly involved with this issue, namely school directors, and Ministers of Technical and Professional education.

1.5 Structure of the study

This research is divided into five chapters. The next chapter, Chapter II is organised into four sections. Section I, gives an overview of Apprenticeship. Section II presents and discusses the German Apprenticeship system, known as "The Dual System", as an inspirational model to Lebanon as well as to other countries worldwide. The third section focuses on the present situation of the apprenticeship system in Lebanon. Section IV presents a critique of technical and

professional education in Lebanon. This section discusses the shortcomings of the educational system in Lebanon, and proposes the Plan set by the Ministry of Professional and Technical education. The third Chapter presents the methodology used in order to assess the attitude of the interested parties and specialists towards the proposed plan. Chapter IV presents the results and findings of the interview conducted. The last chapter, Chapter V, contains concluding remarks and recommendations.

CHAPTER II

Literature Review

2.1. Apprenticeship

2.1.1 *What is Apprenticeship?*

Apprenticeship is in again. This ancient practice has reemerged recently as a promising strategy in order to improve education especially for those students who enter the workforce directly after high school. This ancient practice typically termed as apprenticeship is a cooperative link between an employer and an employee during which the worker, or apprentice, learns a skilled trade or profession.

Apprenticeship is still one of the best ways to enter a skilled trade because it covers all aspects of the trade and includes both on-the-job training and related instructions. For instance, “apprentice auto-mechanics learn how to repair auto-motive equipment, how the various systems are designed, how to diagnose malfunctions, how to use the principal tools and test equipment found in an automotive shop, pertinent safety precautions, and clean up of tools and work areas”¹. Related instruction takes place in a classroom where the teacher or skilled person covers the techniques of the trade as well as the theories behind these techniques.

Apprenticeships usually last about four years, but range from one to six years (Appendix A). During this period, apprentices work under the guidance of a mentor or a journey worker where gradually the student or apprentice will learn the mechanics of the trade and then will have the chance to apply classroom knowledge in a practical way under less and less supervision. Since

¹ Occupational Outlook Quarterly, *Apprenticeship*, 1991-1992, p. 27

apprentices are employees, thus their salaries start out at about half of the experienced workers and increase periodically throughout the apprenticeship program.

Apprenticeship program needs sponsors who plan, administer and pay for the program. The sponsors of the apprenticeship can be employers, employer associations and sometimes involve unions. Finally, when an apprentice is accepted within a program, he or she along with the sponsor sign an apprenticeship contract where “the apprentice agrees to perform the work faithfully and complete the related study, and the sponsor agrees to make every effort to keep the apprentice employed and to comply with standards established for the program”².

2.1.2 *Why Apprenticeship?*

Today, many different paths can lead a young person to a career, but why learn a profession or occupation through apprenticeship instead of through some other methods?

Apprenticeship method helps the apprentices to first of all apply classroom knowledge in the workplace and also to work with different kinds of people in an actual working situation. “It familiarizes them with the overall picture of a company’s operation and organization”³. By observing and performing specific task of the work, the apprentice will gradually gain competence by taking responsibility for more challenging aspects of the tasks.

Apprenticeship training produces better skilled and more productive workers who learn their trade faster than workers trained in informal ways. Apprenticeship graduates also experience less unemployment than other workers trained differently since employers retain better skilled workers and often specifically request them for a job.

² Ibid, p. 27.

³ Ibid, p. 28.

Cognitive scientists have found that “apprenticeship allows the student to become involved in a class taught by a faculty member, to perform specific tasks and to assess personal strengths and weaknesses”⁴. This method can increase competence of the apprentice inside and outside school, thus in both places. Finally, two important features that distinguish apprenticeship from classroom teaching are: first of all, the student performs “real” work and second of all, the teacher demonstrates and coaches rather than just tells the student how to perform any task.

2.1.3 *Apprenticeship Program Requirements.*

In order for an applicant to enter an apprenticeship program, some requirements need to be fulfilled. Sponsors set qualification standards that applicants must meet. Generally, program sponsors look for apprentices who have the mechanical as well as the mental abilities to master the techniques and technology of an occupation.

Even though requirements vary from program to program and from plan to plan, they usually cover three factors: age, education and physical condition. For instance, when an applicant is seeking a position in a specific field, he or she may be required to pass aptitude test, hold high school diploma, meet an age requirement, pass essential physical requirements, have acceptable school grades, have experience in a similar field, and be interviewed. Other programs may have more specific requirements, such as a driver’s license or the ability to work with a team.

The allowable age for an apprentice is 16 years; however, most programs set the minimum age for entry at 18 years since insurance companies cover workers who have reached the age of 18 and above.

⁴ Carlson B. Judith, *Working to learn - The apprenticeship experience*, October 1993, p. 57.

The level of education required varies according to each program. However, most programs require applicants to have a high school diploma or its equivalent. In addition, courses which are related to the technical and mechanical trade such as drafting and physics are highly recommended. Finally, most programs require good general health which is proven by a doctor's examination. Sometimes, depending on the work to be accomplished, specific level of physical abilities are required. For instance, some tasks such as railroad work needs great physical strength and stamina.

Physical handicaps that would not prevent the person from learning the occupation are not grounds for disqualifying the applicant. Physical size as well can not eliminate an applicant from consideration unless the sponsor can prove that the size may interfere with the person's performance on the job. For example, "some apprenticeship programs for law enforcement officers have a minimum height requirement of 1.70 cm"⁵.

Having a relative in the trade or a skilled worker in the family may be an advantage to enter an apprenticeship program. However, all applicants must be qualified to enter a program and should be treated equally during the selection period without regard to religion, race, sex and national origin.

After having defined apprenticeship in general and identified the purpose it serves along with its requirements the next section will present in more specific terms the apprenticeship system as it is applied in Germany.

⁵ Occupational Outlook Quarterly, *Apprenticeship*, 1991-1992, p. 30.

2.2 The German Apprenticeship Model: The Dual System

2.2.1 Introduction.

People around the world have long regarded the German apprenticeship system as a model to equip young people with occupational skills and credentials that meet the demand of employers. The German apprenticeship system known as the dual system is a joint government - industry program that provides young people, training in private businesses and firms, joined with specialized instructions in public vocational schools. In other words, the dual system is a combination of school-based and work based curriculum where the government, business and education are involved in its operations and development. This system is an educational experience inside and outside school and not just a method of job training. It is no longer viewed as a training for a life long occupation, but it is becoming the foundation for lifelong learning in the work place. It is a reason why the dual system treats its apprentices as a worker / learner, who learns and produces at the same time and is paid as well for doing so. German companies are willing to pay the costs of training and supervising these apprentices in exchange for the present and future productivity.

Although the German apprenticeship system is an educational program that has proven highly successful by hundreds of companies throughout Germany such as Siemens, the system has recently come under critics, both in Germany and elsewhere. Critics say that the German apprenticeship is rigid and too focused on occupation specific skills, and that it ignores the flexible, basic skills that provide a base for high-performance work places"⁶. It is important however, to keep in mind that the outcome of the German model is employment and not just general education.

⁶ McCain Mary, *Apprenticeship-Lessons from Europe*, Training & Development, November 1994, p. 39.

Thus, the dual system prepares its adolescents for adulthood by gathering them in companies and not just schools so that they will be surrounded by adults and not just people of their age.

2.2.2 *Origin of Apprenticeship in Germany*

Although the German dual system derives its rationale from modern technology's demand for skilled workers, even for entry-level technical jobs, its roots and origin can be traced back to the medieval German guilds. In the past, "the guilds consisted of artisans and craftworkers, whereby the members determined the number of apprentices, masters, and journeyman to be affiliated with each guild"⁷. In these guilds, the apprentices learned the different aspects of the trade under the supervision of their master and in accordance to the model proposed by the later. This system continued during the Industrial Revolution in the 19th century. Factories embraced the model of apprenticeship for the title of master. To date, the system is still adopted.

The other part of the dual system, the vocational school, came to light in the religious and artisan Sunday schools in the 16th and 17th centuries and in the professional schools of continuing education which were established in the 19th century.

It is not until 1869, that the Dual system became incorporated in the Industrial Code of the country, when manufacturing companies became legally obliged to send their trainees to schools of further education.

Nowadays, most of the vocational training takes place in the different sectors of the economy, namely in Industry, Commerce and the Trades.

⁷ Kraemer Dagmar, *The Dual System of Vocational Training in Germany*, Social Education, September 1993, p. 245-246.

2.2.3 The Objective of the Dual System.

In Germany, the apprenticeship system is the largest form of upper secondary education where 70 percent of German youth between the ages of 16 and 18 participate.

The objective of the dual system is to provide its young people with the best job qualifications by engaging both private sector, which supplies practical experience, and the public sector, which offers theoretical instructions in the training of the future work force. The German apprenticeship system uses work places as a learning environment for youths where the apprentices' work experience is related to their schooling. German apprentices take social studies and German courses at school, but instead of taking general math and general science, they take courses with math and science content that are directly related to their future occupations. For instance, apprenticeship machinists learn the algebra, geometry and trigonometry they need in order to transform specifications into machine parts while apprentice office workers learn accounting.

By providing German apprentices with the quality of both practical experience and theoretical instructions, they will feel in the future that what they learned at school will be relevant to their employment.

Finally, one can conclude that since the philosophy behind the dual system of vocational training is a long-term investment in the labor force, its objective is to create and maintain a highly qualified work force in Germany in order to minimize youth unemployment (Appendix B).

2.2.4. How Does The German Apprenticeship System Work?

Full time education in Germany begins at the age of 6 and lasts through 9th or 10th grade. Students must continue school until the age of 18 at least for part-time education. All students of all abilities spend the four years of their primary school studying a common curriculum that consists of German as a language, math, science, physical education, music, and social science. At

the end of the 4th grade, students move into different lower-secondary school tracks. Depending on the academic performance of the student, he or she will either be entitled to enter university or to enter vocational school.

The dual system is an option chosen by a large majority of German students where around 70% of the young people enter this system. Since the dual system is the only gateway into most skilled occupations, the student must be motivated to participate in the system so that the student's apprenticeship will result in a permanent job later-on.

Due to the wide range occupations participating in the dual system, students are provided with a variety of options through which to pursue on-the-job training and earn a modest salary"⁸.

The motif behind the dual system is "learning by doing", thus the trainees spend the majority of their time at work, after having signed up an apprenticeship contract with the company, under the supervision of company's instructors. These instructors or teachers who are responsible for the work-based part of the apprentice education, should be accredited by the federal government before they can start teaching and supervising the students. In addition, the apprentices spend one or two days per week in a part-time vocational school, where they take courses specifically related to their occupation and other courses that include general education in arts and sciences, mathematics, social studies, and economics.

Instruction within classrooms are concentrated in the form, of block sessions extending over several weeks. Schools are organized around five main vocational paths which are business, industry, economics, agriculture and mixed qualification. In these vocational schools, apprentices learn about the theoretical aspects of their occupation and become familiar with broader aspects of the trade and the issues that are not addressed during practical training. At the end of the

⁸ Kraemer Dagmar, *The Dual system of Vocational Training in Germany*, Social Education, September 1993, p. 246.

apprenticeship program, the apprentices or trainees sit for a theoretical as well as practical examination to earn a certificate of completion for that particular job title. Trainees have three chances to pass the exam and by the third try, nearly 92% of apprentices succeed. Having passed the exam the apprentice becomes a journey man, a salaried employee or a skilled worker. The exams which the students take in chemistry, banking, carpentry and so on, are administered jointly by representatives from employers' and employees' associations and by the staff of vocational schools. In addition, the syllabus is not determined just by school, but by managers and trade unions. In short, the German apprenticeship system-combines both business and education in a way that it is unknown in Britain or France, talked with envy in the United States and reflected in Austria and Switzerland.

2.2.5 Does the System Work in Other Countries?

The dual system has been working well in Germany; however, this does not indicate that the system will be easily transferable to other countries: "In Germany, vocational training is part of a public education system that emphasizes preparing its students for the requirements of the workplace"⁹. In other words, firms in Germany work closely with government agencies to develop training code and to specify examination requirements. This type of cooperation between the public and private sector is considered to be normal in Germany where their relationship is not generally adversarial. In addition, the close cooperation between competing firms in order to secure their supply of skilled workers is considered to be beneficial to the market place and not in violation of antitrust law.

⁹ Kraemer Dagmar, *The Dual system of Vocational Training in Germany*, Social Education, September 1993, p. 247.

Any country should not transplant the German dual system and implement it without modifications because that would never work. Instead, each country should adjust for cultural differences by picking and choosing from the dual system the best educational elements. In other words, each country should invent its own form of apprenticeship by relying on the German dual system as a model, in order to meet its educational needs. For instance, an American system of apprenticeship should not be as narrowly focused on well-defined occupations as the German system, or changing young people at such an early age into rigid occupational tract. The reason for that is because the American labor market is too volatile and American citizens do value school credentials too much since it is a prestige to have a college or university diploma. In fact, those who achieve less education are taught to blame themselves and are often left alone to move with great difficulty during and after high school. However, in Germany, students who are not capable to enter college move directly into careers as skilled workers. In addition, these workers have a valued identity and a respectable social status.

Finally, some elements of the German dual system have been adopted in countries such as India, Peru, Brazil, the EC and the United States and its results were successful. In 1992, the EC declared vocational training one of "its priorities in launching a new indispensable effort to invest in people, in order to develop their skills, their creativity and their versatility"¹⁰. In addition, in 1987, the EC adopted the programme of Education and Training of Adult citizens in EC member states. This program has been designed to provide young adults in every member state the opportunity to follow a course of vocational training for at least one year either in its own country or in any other member state. Also, in the US several programs have resembled the German

¹⁰ Kraemer Dagmar, *The Dual system of Vocational Training in Germany*, Social Education, September 1993, p. 247.

apprenticeship model however they do avoid rigid channels. For instance, cooperative education, in which students are placed in jobs during their studies, has given successful results.

The examples of the EC and the US show that adopting some elements of the German dual system, which meet their educational needs, do improve educational achievement for a broad range of students. This will provide them greater motivation for learning at school as well as a real alternative environment for learning.

By adjusting and implementing the dual system to the educational needs of a country, young people who enter the work force right after high school as well as other college bound youth will benefit from these programs. Thus, these educational programs will offer its market place skilled and motivated young people ready to compete not only in its market but also in the global market place.

2.2.6 *The Financing of the German Apprenticeship System.*

Government, business and education are involved at all levels and stages of the process of managing and implementing the apprenticeship system in Germany. These so-called "Social Partners" accept responsibility and are allowed as well to have responsibility for the system. As for the financing of the system, the government, business and labor do support the cost jointly:

"The state provides occupation - specific instruction free of charge; business and industry provide their most skilled workers and instructors, and machines and equipment for training purposes, and the apprentice accepts a monthly salary of about \$650.00 depending on the year of training and the education."¹¹.

¹¹ Kraemer Dagmar, *The Dual system of Vocational Training in Germany*, Social Education, September 1993, p. 246.

The main reason for the continued support of the dual system by the three parties lies in the perceived long term benefit. According to Germans, vocational training is considered to be economically profitable on the long-run since it does not only ensure a skilled workforce to the country but also it creates a mobility and a predictable labor market due to the vocational qualification standards, nation wide and uniform. Finally, with increasing specialization and the internationalization of trade, Germans believe that a major part of the fortune of their national economy will depend on their high skilled front line workers.

2.2.7 Profile of the Participants.

More than two-thirds of all German youth who are between 15 and 18 years old are enrolled and participate in the dual system in one of the 440 officially recognized occupations, from baker or bank clerk to welder or zoo helper. During the last years of the student schooling, public career counselors, teachers and social workers participate in advising the student about career opportunities. Although career counselors do facilitate and assist in the procurement of training places, it is up to the graduate to find an apprentice position with an employer in a company. After having chosen an occupation and identified a qualified firm, a training contract with the firm will outline the commitments and responsibilities of both participants as well as the stages of the training period. For the entire period of the contract, the employer will pay the apprentice a fixed salary and will provide paid leave for the time spent in school. It is important to add that not every company can participate in vocational training. "To be admitted as a training firm, a company must meet a number of criteria; it must for example be able to provide technically and pedagogically qualified instructors and necessary equipment as stated in government training directives"¹². Small businesses

¹² Kraemer Dagmar, *The Dual system of Vocational Training in Germany*, Social Education, September 1993, p. 245.

for instance that are not able to offer the entire range of vocational training, according to government regulations, can participate by enrolling trainees in group training centers which are financed by the professional organizations, business federations and other professional institutions. In short, in order to participate in the German apprenticeship system, companies and instructors should meet some criteria and regulations set by the government since this system is designed for young people who will represent the labor force of Germany in the future.

The German apprenticeship system bridges the transition from school-to work. In other words, this system is dealing with adolescents who are neither children nor adults. This system is creating a regular and sustained contact of young people with adults to see firsthand what adulthood is about, where they can produce and be paid for doing so, and where they can ask questions and make mistakes.

2.2.8 Benefits and Disadvantages of the German Apprenticeship System: General Versus Specific Education.

According to Gary Becker, the University of Chicago economist, individuals use experiences such as their years of education in order to increase their workplace productivity. In a competitive economy, the wage that a worker receives is a direct reflection of his or her productivity. The higher quality of education will improve productivity and will lead directly to improved earnings. "Thus, expenditures on education represent an investment in "human capital", which yields a return to the individual over time in the form of increased earnings"¹³.

¹³ Couch A. Kenneth, *The German Apprenticeship Experience-A comparison of school-to-work models*, The American Enterprise, November/December 1993, p. 12.

Human capital investment might take different forms where education can provide either specific job skills or general skills. Through these two types of education, individuals are said to gain specific or general human capital. Lebanon for instance, provides its young generation with general human capital whereby Germany provides specific human capital. The approach of the dual system has its benefits and disadvantages.

The formal education system such as Germany's, which focuses on the transmission of skills related to a specific job or occupation has a theoretical advantage. When young people leave vocational school, they have already a specific skill which employers find valuable. Once at work, people who possess skills needed by employers have a higher chance to be recruited than others. In theory, "the higher workplace productivity acquired through this kind of education system helps offset the relatively higher wage rates paid in industrial nations and helps these nations retain high-productivity, and high wages jobs"¹⁴.

Another benefit of the dual system is that the initial and long-term productivity of workers who obtained specific skills do rise much higher with comparison to employees who are generally skilled. Thus, workers with lower productivity will receive lower wages and have a higher probability of unemployment.

However, the major disadvantage for workers who possess specific skills is that if laid off, they may face some troubles to move into new occupations because they may lack general skills. One way of viewing this is that their education and productivity, except in the job for which they were trained, are too low for them to be hired. Individuals who obtained a specific set of work skills would be expected to experience longer-term unemployment than individuals with more general skills especially in a dynamic economy which is characterized by significant job turnover.

¹⁴ *Ibid*, p. 12.

The issue of specific versus general skills became a familiar topic of debate in Germany. Germans face the problems of employees who are often left without a different set of workplace skills, when they lose a job. Other countries such as Lebanon, offer to its young people general education and do not provide them with specific set of skills which might raise productivity, thus which might raise the workers' wages. Finally, it is important for each country to be aware of the disadvantages of the German apprenticeship system if this country decided to bring its education system more in line with Germany's.

2.2.9 *Limitations of the German Model.*

Germany's apprenticeship system has long been a principal reason for the country's economic success where both firms and apprentices benefit from this system. First of all, firms benefit when getting a supply of well qualified labor: "These firms know what kind of jobs will need doing in the future, and through their influence on vocational training, they can ensure that school-leavers will have the skills to do them"¹⁵. Second of all, graduates of the German apprenticeship program benefit as well because they get a high-level skill and experience of the workplace as well as how to fit in a firm.

Even though the results of the dual system are great, the system do face some threats and limitations for the coming generation. In 1993, for the first time in years, more students went to universities than into the dual system (i.e 1.9 million students enrolled in universities whereas 1.8 million enrolled in the dual system)¹⁶. Of those who took vocational training, many of them have the qualification to enter university programs and over half are likely to do so in the near future. For the first time, says Gennot Herrmann, member of the Conference on Science and Education,

¹⁵ The Economist, *The Next Generation*, August 20, 1994, p. 44.

¹⁶ Ibid, p. 44.

the number of applicants seeking places in the dual system is falling. The main reason for having fewer students in the dual system is that the latter is failing to respond to changes in the work place thus causing dissatisfaction among employers and a realization among students who can increase their chances to find a job through other path of education. In the past, the dual system was concentrating its program on producing skilled blue-collar workers because these workers were needed to produce the kind of high value super engineered products that Germany was selling to the rest of the world such as Mercedes cars and Bosch machine tools. However, nowadays, some changes are occurring in the environment where engineers with more sophisticated computer knowledge and the flexibility to switch from one kind of work to another, are needed in the market place. The problem is that the dual system does not provide its firms or market with these requirements nor it provides less skilled labors who are in need since they are cheap and may reduce the firms' labor costs.

The threat which is facing the dual system has been criticized by people with position of responsibility. According to Christian Heuer, who is in charge of training at Beiersdorf Co., changes in the market place are not being properly reflected in vocational education. Therefore, the syllabus at schools change more slowly than the demand of employers in the workplace, thus slowly than technology. For example, some subjects can take 20 years to alter the curriculum. On the other hand, Johann Moller-Soenke, the principal of Hamburg school points out that "employers are demanding more and more managerial and social skills at the expense of narrow technical ones... The school is being restructured along these lines, but it is tough. The average of our teachers is 45. We need an influx of new blood"¹⁷. According to Mr. Moller-Soente, schools such as his are not to be blamed since firms are half-responsible as well for drafting the curriculum.

¹⁷ Ibid, p. 44.

In order to protect the German apprenticeship model from becoming downgraded, two reforms intend to make university less ivory towered. The first reform will grant any dual system graduate who has spent two years at a technical college to enter university. The other reform will allow dual system apprentices to go straight to university if they have an extra qualification in mathematics, or German for instance. This proposal will allow almost every German student to enter the university whereas nowadays, only 27% of those students are actually attending.

In short, if university education becomes the norm in Germany, it will spell the end of the dual system.

2.2.10 The German model as an inspiration to Lebanon.

Lebanon should establish its own system of school to work opportunities by relying on the German apprenticeship model since Lebanon is failing to provide adequate education or employment opportunities for young people who are not college bound.

The Lebanese government as well as the individual companies and schools are now beginning to respond to the call, to create a system and programs in order to address the needs of young Lebanese people who do not go on to attend college. As these different organizations climb the board, they should learn from school-to-work transition programs in Germany. These organizations should keep in mind some important points from the German school-to-work experience.

First of all, since the determining factor for success is employers, thus companies should take an active role in developing, managing and implementing school-to-work systems, otherwise, there is no hope of success. In addition, companies must help in designing the links between the education needs, the employment needs as well as the needs of the companies.

Second of all, another major factor for success is the existence of the local intermediary and linking organizations. “Lebanon must look at the feasibility of local intermediary and linking organizations. Such groups include the Chamber of Commerce and local unions, as well as local chapters of professional associations such as the Lebanese Industrialists’ Association, and Hotel Owners Association”¹⁸.

In conclusion, Lebanon should develop its own school-based and work based curriculum, since it is very hard to implement the German model in Lebanon where the Lebanese enterprises do not have the same German corporate culture that encourages large enterprises to train more apprentices than they could possibly recruit. In addition, companies in Lebanon should take a hard look at the skills they require for their current workforces and also at the way in which changing requirements will influence the workers of the future.

After having analyzed the German apprenticeship system, we will now discuss the Professional and Technical education System as it is applied nowadays in Lebanon along with its proposed plan.

2.3 Apprenticeship System in Lebanon: The Present Situation:

2.3.1 Technical and Professional Education Levels.

Even though, the professional and technical education gave more importance in the past to technical education field, the trend nowadays is to create bigger balance between technical and professional fields, considering that professional education contributes to providing the country with skilled labor force, reorienting the youth towards employment market, training them and

¹⁸ The General Manager, *Apprenticeship lessons from Europe*, April 1996, p. 6.

teaching them careers allowing them to take part in the reconstruction and economic development of the country.

Preparation and habilitation in technical and professional education is carried out within the two following principal fields:

- Professional habilitation field.
- Technical education field.

The professional habilitation field includes pure handicrafts or careers requiring only special related information or specific consecutive movements or primary tasks. Professional habilitation is carried out on three levels:

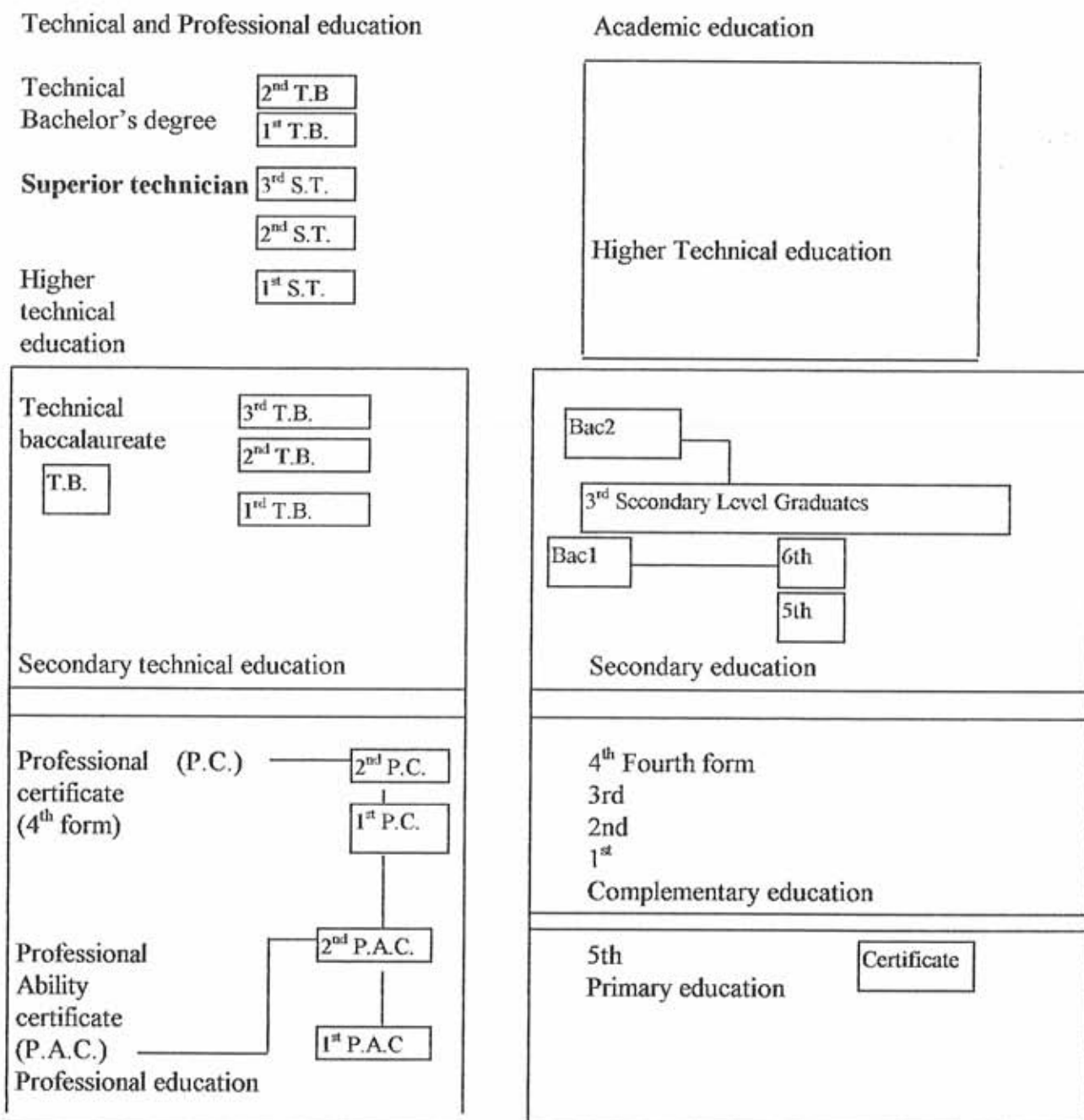
1. Professional qualification level ending up in professional qualification diploma.
2. Complementary level ending up in professional complementary diploma.
3. Superior habilitation level ending up in higher professional habilitation diploma.

On the other hand, technical education field includes advanced specialties requiring a basic education for not less than nine years in general education with continuous focus on math or other sciences. Technical education is carried out on three levels:

1. Application level ending up in technical Baccalaureate diploma.
2. Middle cadres level ending up in Superior Technical diploma (TS)
3. Higher cadres level ending up in technical Bachelor's degree or any of the higher technical education diplomas.

Figure 2.1 on the next page shows scheme of Technical & Professional education official levels.

Figure 2.1-Simplified Organization Chart of the Education System in Lebanon



Source: Ministry of Technical and Professional Education.

The Conditions for following professional and technical education are as follows:

A- Professional habilitation field

1) Professional qualification diploma

Duration of studies: two years.

Can be enrolled in the first year anyone who finished the 5th (elementary education). (Age between 12 and 16)

2) Professional complementary diploma:

Duration of studies: 2 years.

Can be enrolled in the first year anyone who finished the 2nd (intermediate level) or obtained the Professional qualification diploma (age between 14 and 18).

3) Professional higher qualification diploma:

Duration of studies: three years.

Can be enrolled in the first year anyone who finished the middle classes without the condition of holding the official intermediate education diploma or anyone who obtained the Professional Complementary diploma (age between 15 and 20).

B- Technical education field.

1) Technical baccalaureate diploma:

Duration of studies: three years.

Can be enrolled in the first year anyone who obtained the intermediate education or the Professional Complementary diploma (age between 15 and 20).

2) Superior technical diploma:

Duration of Studies: three years.

Can be enrolled in the first year anyone who obtained the Lebanese Baccalaureate diploma-part two or technical Baccalaureate diploma (age between 18 and 22).

3) Technical Bachelor's diploma:

Duration of studies: two years.

Can be enrolled in the first year anyone who obtained the Superior Technical diploma.

It is worth mentioning that student who succeed in the Second Secondary level (the 6th) may prepare for Technical baccalaureate or Professional higher qualification diplomas in conformity with a special two year program.

2.3.2 *Specialties in professional and technical education.*

Specialties in professional and technical education are divided into two sections: Official Specialties which related programs grant the graduate an official diploma issued by the Ministry of Professional and Technical education, and Special Specialties with short programs at the end of which, students obtain a special certificate from the school or training center they attended.

The following presents the different fields of official specialization available in relation with the diplomas held by a graduate:

A- Professional Qualification Diploma:

Clerk, assistant waiter, assistant tailor, carpenter, refrigeration turner, butcher, and electrical installations technician.

B- Professional Complementary Diploma:

Assistant accountant, shorthand clerk, staff waiter, cook, confectioner, beautician, assistant nurse, women tailoring, furniture carpenter, vehicles mechanic, engines mechanic, sheets blacksmith, construction works electrician, machines electrician, radio repairing, and television repairing.

C- Technical Baccalaureate and Professional Superior Habilitations Diplomas.

Kindergarten education, commercial sciences, secretarial work, documentation, Hotel business-sales, Hotel business-production, nursing, industrial chemistry, interior design, advertising, air conditioning and heating, industrial mechanics, car mechanics, electronics, computer programming, airplane mechanic, music, architectural drawing, construction and public works, assistant dentist.

D- Superior Technician:

Social work, physiotherapy, medical laboratory sciences, auditing, translation and administration, secretarial work, tourist sciences, specialized education, kindergarten and elementary education, engineering, electronics, computer science, mechanics, airplane mechanics, dental laboratories sciences, interior design, banking fashion design, management of hotels and restaurants, sight examination and manufacturing of sight devices.

2.3.3 Position of professional and technical education in the Lebanese educational System.

The educational system in Lebanon includes three types of education: pre-university general education, professional and technical education and university education. The rate of professional and technical education institutions amounted in 1992-1993 to 9.5% of the total educational institutions, the rate of students to 5.1% and the teaching staff to 6.8% as it appears in Table 2.1. The later shows the number of educational institutions, students and teaching staff with respect to the different education forms in Lebanon.

Table 2-1 Education in Lebanon-Institutions, students and teaching staff during the school year 1992/1993

| Type of education | educational institutions | Students | Teaching staff |
|------------------------|--------------------------|---------------|----------------|
| General education | 2361 | 733228 | 61404 |
| University education | 18 | 88689 | 11313 |
| Professional education | 245 | 44064 | 5350 |
| Total | 2625 | 865981 | 78067 |

Source: Education Preliminary Statistics for the school year 1992-1993. Research and Development Educational Center-Beirut.

It appears that from this table, professional and technical education is still occupying a modest position in the Lebanese educational system, in comparison with general and University education, despite the progress made since the beginning of the seventies when the students rate used to represent 1% of the total number of students enrolled in educational institutions. This progress was made at the expense of general education where the students rate fell from 92.5% to 84.6% during this period. But if we want to know the actual position of the professional and technical education in the Lebanese educational system, at the present time, we must compare the number of enrolled students in professional and technical field with the number of students enrolled in intermediate and secondary levels of general education as it is the case in many countries and as it appears in Table 2.2 below, which compares the evolution of the number of students in the professional and technical education with the growth of the students' number in the intermediate and secondary levels in general education between the school year 1974-1975 and 1992-1993.

Table 2.2 Comparison of professional and technical education students growth with the growth number of students in the intermediate and secondary levels, between the school year 1974-1975 and 1992-1993.

| School Year | Total Number of students following professional and technical education | Total number of students in the intermediate and secondary levels | Rate of students following professional and technical education from middle and secondary levels |
|-------------|---|---|--|
| 1974/1975 | 25788 | 216729 | 11.9 |
| 1977/1980 | 26478 | 232255 | 11.4 |
| 1979/1980 | 28223 | 238773 | 11.8 |
| 1980/1981 | 34857 | 254444 | 13.7 |
| 1981/1982 | 39045 | 250028 | 15.6 |
| 1982/1983 | 40277 | 253652 | 15.8 |
| 1991/1992 | 41097 | 248097 | 16.6 |
| 1992/1993 | 44064 | 250961 | 17.6 |

Source: Directorate General of Professional and Technical Education and Research and Development Educational center.

It appears from this table that the rate of students following professional and technical education was, in 1992-1993, 17.6% . This rate gradually increased from 11.8% to 17.6% between 1979 and 1980. This increase indicates that the position of professional and technical education is improving in the Lebanese educational system. This increase is explained by the fact that students are becoming more and more convinced of the system's benefits, necessity and role in Lebanon's reconstruction and because it satisfies their future ambitions and expectations more than the academic education.

2.3.4 Professional and technical education Schools and Institutes.

The number of professional and technical schools and institutes in 1992-1993 was 245, among which, 31 institutes were supervised by the official professional and technical education department, and 214 institutes and schools by the private sector.

Table 2.3 below, shows the geographical division of these schools and institutes according to sectors. It appears that 55.1% of these schools and institutes are located in Beirut and the suburbs, 12.6% in Mount Lebanon without the suburbs, 13.3% in North Lebanon, 12% in South Lebanon and 7% in the Bekaa .

Table 2.3 Distribution of professional and technical schools and institutes in 1992-1993 according to education sectors and geographical regions.

| Region | Official | Private | Total |
|-----------------------------------|-----------|------------|------------|
| Beirut | 4 | 50 | 54 |
| Beirut Suburbs | 10 | 71 | 81 |
| Mount Lebanon Without the suburbs | 3 | 28 | 31 |
| North Lebanon | 4 | 28 | 32 |
| South Lebanon | 4 | 25 | 29 |
| Bekaa | 6 | 12 | 18 |
| Total | 31 | 214 | 245 |

Source: Directorate General of Professional and Technical Education and Research and Development Educational center.

Table 2.4 shows the distribution of schools and institutes according to official diplomas and special certificates they issue, and according to geographical region during the year 1992-1993. It is clear that most of the institutes began to prepare for official diplomas and the number of schools delivering special certificates decreased. Schools and institutes preparing for official diplomas focus basically on Technical Baccalaureate, Superior Technical diploma, Complementary Technical diploma, Technical Qualification and Technical Bachelor's diploma. It

is worth mentioning that all official schools and institutes prepare for official diplomas, and one school may prepare for more than one official diploma. Private schools may also prepare for official diplomas and special certificates at the same time. This is why we notice in the mentioned Table that the actual number of schools listed in the last column does not correspond to the number of schools classified according to the official diplomas and special certificates they issue.

Table 2.4 Distribution of schools and institutes according to official diplomas, special school certificates and geographical regions for the year 1992-1993.

| Official Specialties and levels | | | | | | | |
|---------------------------------|-----------------------------|---------------------|-----------------|---------------------------------|---------------------------------|---------------------|------------|
| Region | Technical bachelor's degree | Superior technician | Technical Bacc. | Complementary technical diploma | Technical Qualification diploma | Special Certificate | Total # |
| Beirut | 1 | 23 | 34 | 9 | 5 | 24 | 54 |
| Beirut Suburbs | 2 | 35 | 42 | 14 | 1 | 14 | 81 |
| Beirut and suburbs total | 3 | 58 | 76 | 23 | 6 | 38 | 135 |
| Mount Lebanon without suburbs | | 12 | 28 | 14 | 3 | 3 | 31 |
| North Lebanon | | 14 | 28 | 4 | 1 | 4 | 32 |
| South Lebanon | | 8 | 19 | 8 | 2 | 5 | 29 |
| Bekaa | | 3 | 12 | 6 | 2 | 2 | 18 |
| Total | 2 | 95 | 163 | 55 | 14 | 52 | 245 |

Source: Directorate General of Professional and Technical Education.

Table 2.5 shows the growth of professional and technical schools and institutes between 1974-1975 and 1992-1993. It appears that the number of technical and professional schools and institutes decreased between the year 1974-1975 and 1979-1980. It began to rise again starting

from the year 1980-1981 and is still rising at the present time. The annual average increase between the years 1980-1981 and 1992-1993 in the public and private sectors was 3.5%

Table 2.5 Growth of technical and professional institutes and schools between 1974-1975 and 1992-1993 according to educational department.

| School Year | Technical institutes and schools | Private institutes and schools | Total |
|-------------|----------------------------------|--------------------------------|-------|
| 1974/1975 | 17 | 134 | 151 |
| 1977/1978 | 17 | 130 | 147 |
| 1979/1980 | 17 | 113 | 130 |
| 1980/1981 | 18 | 139 | 157 |
| 1981/1982 | 19 | 162 | 181 |
| 1982/1983 | 22 | 162 | 184 |
| 1986/1987 | 22 | 188 | 210 |
| 1991/1992 | 28 | 210 | 238 |
| 1992/1993 | 31 | 214 | 245 |

Source: Directorate General of Technical and professional Education and Research and Development Educational Center.

We must note here that the number of technical and professional schools and private institutes mentioned in the statistical lists as above, represents only the number of operating schools and institutes. However, the actual number of such authorized schools and institutes, some of which did not open yet, is more than 400.

2.3.5 Apprentices following technical and professional education.

The number of apprentices following technical and professional education was 44,064 out of which 8,830 were enrolled in the public sector and 35,234 in the private sector. The majority of public sector students follow official programs preparing for the official exams prepared by the Ministry of Technical and Professional Education against 65.5% of the private sector students, as it is indicated in Table 2-6. This table shows the distribution of students according to education sector, geographical regions, official diplomas and special certificates. We notice as well in the

table, that public sector students represent 20% of the total number of students and 27.5% of the number of students following official programs. The rate of students in Beirut and the suburbs is 63.8%, 5.7% in Mount Lebanon, 12.6% in North Lebanon, 10.8% in South Lebanon and 7.1% in the Bekaa.

Table 2.6 Distribution of students according to education sector, official diplomas and special certificates in the year 1992/1993.

| Region | Public Sector | | | Private Sector | | | Total | | |
|-------------------------------|-------------------|--------------|-------------|-------------------|--------------|--------------|-------------------|--------------|--------------|
| | Official Diplomas | Certificates | Total | Official Diplomas | Certificates | Total | Official Diplomas | Certificates | Total |
| Beirut | 968 | | 968 | 6201 | 3032 | 9233 | 7169 | 3032 | 10201 |
| Beirut | 2621 | 70 | 2691 | 9649 | 5579 | 15228 | 12270 | 5649 | 17919 |
| Beirut and suburbs total | 3589 | 70 | 3659 | 15850 | 8611 | 24461 | 19439 | 8681 | 28120 |
| Mount Lebanon without suburbs | 228 | | 228 | 1685 | 623 | 2308 | 1913 | 623 | 2536 |
| North Lebanon | 1375 | | 1375 | 2833 | 1362 | 4195 | 4208 | 1362 | 5570 |
| South Lebanon | 1927 | | 1927 | 1718 | 1116 | 2834 | 3645 | 1116 | 4761 |
| Bekaa | 1641 | | 1641 | 1013 | 423 | 1436 | 2654 | 423 | 3077 |
| Total | 8760 | 70 | 8830 | 23099 | 12135 | 35234 | 31859 | 12205 | 44064 |

Source: Directorate General of Technical and Professional Education and Research and Development Education Center.

A- Division According to Official Diplomas.

Table 2-7 shows the distribution of students following official professional education according to the diplomas held and the institution enrolled in.

The number of students following technical bachelor's degree program is 455 , superior technician's program 1,505, and technical baccalaureate program 5,964. We notice that the number of students following professional programs is decreasing for the benefit of students

following technical programs. Their distribution in the private sector according to diplomas is not available yet. But we already know that 65.5% of the total number of students in this sector are preparing for official diplomas, with exception of Technical bachelor's degree, and especially for Technical baccalaureate.

B- Growth of the Number of Students

The number of students following official education decreased in the early years of the war but it raised again starting from the year 1979-1980. As for the private education, the number of students rose continuously starting from the year 1974-1975 with an annual increase rate of 3.3%. We notice as well that the number of students preparing for official diplomas increased from 3,870 in the year 1974-1975 to 23,099 in the year 1992-1993, which is equivalent to an annual increase of 11.1%.

On the other hand, the number of students preparing for special certificates began to decrease starting from the year 1982-1983. The total number fell from 16,564 in the year 1974-1975 to 12,135 in the year 1992-1993¹⁹.

¹⁹ Ministry of Technical and Professional Education, August 1995.

Table 2.7 Distribution of students who follow official professional education according to institutes and levels during the year 1993-1994.

| Institute | Technical Bacheolor's Degree | Superior Technician | Technical Baccalaureate | High Professional Habitation | Professional Complementary diploma | Professional qualification | Total |
|--|------------------------------|---------------------|-------------------------|------------------------------|------------------------------------|----------------------------|-------|
| Technical education institute-Dekwaneh | 307 | | | | | | 307 |
| Technical industrial institute-Dekwaneh | 24 | 364 | | | | | 388 |
| Technical Touristic institute-Dekwaneh | | 496 | | | | | 496 |
| Nursing national institute-Dekwaneh | | 110 | 69 | | | | 179 |
| Hostelry school and institute-Dekwaneh | | 193 | 400 | 149 | | | 742 |
| educational technical institute-Bir hasan | | 124 | 169 | | | | 293 |
| Technical institute for medical laboratory techniques Bir hasan | | 18 | | | | | 18 |
| Tripoli high technical Institute | | 35 | 425 | | | | 460 |
| Zgharta technical institute | | 67 | 361 | | | | 428 |
| Bekaa professional and Technical institute Khiara | | 49 | 330 | 64 | 61 | | 504 |
| Maria Aziz-technical institute – Jezzine | | 28 | 152 | 54 | 15 | | 249 |
| Vocations and arts school-Dekwaneh | | | | | | | |
| High technical school for touristic and commercial sciences-Dekwaneh | | | 601 | 120 | | | 721 |
| High technical school for touristic and commercial sciences-Dekwaneh | | | 481 | 74 | | | 555 |
| High technical school Bir Hasan | | | 598 | | | | 598 |
| Hostelry school Bir-Hassan | | | 143 | 53 | | | 196 |
| Deir le kamar high Technical school | | | 203 | 35 | | | 238 |

| | | | | | | | |
|----------------------------------|-------------|--------------|--------------|--------------|-------------|-------------|------------|
| Ajaltoun high technical School | | | 22 | 12 | 10 | | 44 |
| Mtein high technical School | | | 35 | | | | 35 |
| Deir Ammar high technical school | | | 186 | 113 | | | 299 |
| Douma high technical School | | | 23 | | 11 | 11 | 54 |
| Saida high technical School | | | 752 | 258 | | | 1010 |
| Nabatih high technical School | | | 239 | 65 | 40 | | 434 |
| Bint Jbeil high technical School | | | 168 | 103 | 17 | | 288 |
| Zahle high technical School | | | 205 | | | | 205 |
| Machghara high technical school | | | 186 | 47 | 64 | | 297 |
| Hermel high technical School | | | 141 | 31 | 47 | 119 | 338 |
| Baalbek high technical School | | | 160 | 62 | 31 | | 253 |
| Bednayeil high technical School | | | 54 | 60 | | | 114 |
| Total Number | | | | | | | |
| Total Rate | 4.7% | 15.5% | 61.9% | 13.5% | 3.1% | 1.3% | 100 |

Source: Ministry of Technical and Professional Education.

2.3.6 Situation of professional Training.

Despite the increasing concern allocated by the government to professional and technical education, this interest till the present time, only covers one aspect of the educational operation which is the organized preparation of official and private technical and professional schools and institutes. But this concern slightly goes beyond accelerated training for adults, training at work, and retraining which are all procedures adopted by developed countries to supply labor market with necessary labor force.

There are many other private and official institutions specialized in professional training outside the frame set by the Ministry of Technical and Professional Education. On the official

level, the Ministry of Labor, the National Institution for Employment, the Ministry of Public works, the Ministry of Agriculture, the Ministry of Communications, the Ministry of Tourism and other governmental institutions are interested in training affairs in special cases. For instance, the technical school in the General Directorate of Civil Aviation, assumes the training of employees in the different divisions set in conformity with established norms and international developments. Thus special training is offered in programs covering the field of aviation, meteorology, air communications and equipment's maintenance.

Despite the variety in the sources of these activities, the number of trainees covered by the training program does not exceed, annually, few hundreds of trainees of different levels between one institute and the other, due to the following reasons:

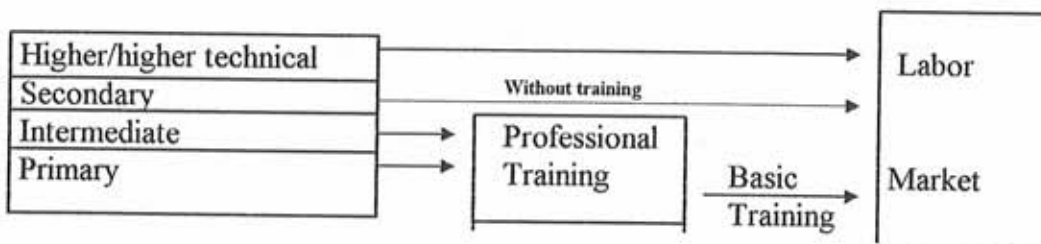
- 1- Diversity and dispersal of regulations governing training issues.
- 2- Weakness or lack of training capacities in some administrations and firms interested in training, which causes some of them to turn to other administrations and firms having more capacities such as the National Center for professional training which occupies at the present time one of "Sanayeh school" divisions, or which causes others to farm out training operation to private associations or firms, such as the Employment National establishment.
- 3- Lack of studies permitting to determine professions' specifications, except little modest activities started recently by the Employment National establishment.

As for the General Directorate of Technical and Professional Education, it is clear that the professional habilitation field proved to be a failure in preparing workers for the category of skilled workers or middle-skilled workers.

The present labor market is characterized by a large number of individuals practicing handicrafts (unskilled workers), a little portion of skilled workers and specialists, and a relatively small number

of technicians. Furthermore, after graduating, a large portion of graduates find themselves looking for a job which requires a certain level of professional qualities that the training program failed to provide them with. Graduates on whom hopes are built to provide labor market with necessary technical labor force are not qualified enough for the labor market that requires intellectual and manual skills simultaneously and are lacking a lot of practical training unavailable in the educational institution. To illustrate, Figure 2.2 presents the situation of professional training in the Lebanese educational institutions.

Figure 2.2 - Situation of professional training on the educational scale.



2.4 A critique of Technical Education in Lebanon with Proposed Plan.

In recognition of the increasingly pressing problem in the field of professional and technical education, the Ministry of Professional and Technical Education prepared in 1993 a plan to improve Professional and Technical Education, which provided an in depth critique of the present system and proposed a set of corrective policies. However, although the plan went far in outlining the problems and identifying the solutions, the governments' limited financial and human resources and enormity of the rebuilding effort, have delayed the implementation of the plan's recommendations.

According to the Ministry's plan, there are several main areas that should be addressed in order to improve the quality of professional and technical education in Lebanon. These areas can be summarized as follows:

- Oldness of determined fields, levels and preparation system.
- Lack of flexibility in learning methods
- Difference between the nature of specialization and demands of work market
- Defect in balance between specialization graduates number and work market demands.
- Oldness of programs
- Lack of educational aids (books, schools, buildings and facilities, teachers' guide, audio-visual aids).

This calendar briefly tries to consider guidelines and solutions which may contribute to eliminate or reduce those defects.

A- Organization of the Ministry of Professional and Technical Education:

The Ministry needs to be reorganized to attract qualified personnel in order to achieve the following objectives:

1. Centralize the development of the curricula and educational methods.
2. Computerize the work of the ministry.
3. Fill out the available vacancies.

B- Updating data and information about work market:

It is evident that the Ministry needs a qualitative and quantitative data base that will serve as a control device of related systems, methods and outflows in order to accommodate between preparation outlets and market demand and capacity of absorption. It is obvious that such data base must be annually updated by introducing recent and sincere data.

The availability of such device in the Ministry's hand is the basis to create interactive relations between the Ministry and the work market basic elements. Such relations, lead both

parties to a continuous development: they enable the Ministry to make and constantly develop real plans and projects from a quantitative and qualitative point of view as they will motivate employers to invest their funds in projects, feeling assured that necessary qualifications are available. Such data base is created in two steps:

- Carrying out extensive and varied survey to collect data.
- Finding an executive and technical unit specialized in storing, updating and analyzing data, then extracting resulting impacts on preparation systems and situation.

C- Proper Description of professions.

It is impossible to prepare individuals to practice a determined profession without previously describing precisely such profession.

We must here make the difference between profession and job. A profession includes a group of analogous skills enabling the skilled individual to exercise several duties, that is to take up different jobs. The employer is the one who determines duties in a specific job, which makes the number of duties very large. This determination is based on few skills among the specifications of the profession.

Therefore, description operation deals with the following:

- Select professions requiring preparation and work out a complete list (such list may be extracted from the above mentioned data base).
- Lay out interactive plan between professions: such interaction can be horizontal (on the same level) or vertical (on different levels).
- Draft a description by enumerating the required skills

D- Reformation of fields and levels' structure.

The present structure was built on educational and labour data from the end of the fifties. These data deeply and completely changed, which made the structure absolutely inappropriate with the present time:

- Labor data that allow to fix the “limits” between professional training and professional education fields changed. It became necessary to create interactive relations between them that may control the determination of admission and graduation levels, preparation methods, degrees concepts, objectives and contents of programs.
- From a quantitative and qualitative point of view, general education outlets in their traditional stages also changed. The purpose is to increase the students' chances of finding a job by avoiding teaching them outdated information and training them on obsolete machines.
- Finally, the description of the specialization has changed as a result of technology development in all the different fields.

In view of all above, it is necessary to find a new structure compatible with modern data. Such structure must be flexible enough to go along with future developments.

- Students must finish all the courses, in general 3 years, to acquire qualification enabling them to practice a job. Should a student quit studies after one year or two, he or she would have wasted for nothing this period of his life.
- This strict geometry of system and programs does not allow to declare that some guidelines, even partial, are actually incorporated in many specialization programs,

which causes a high-priced dualism in preparing programs, writing books, achieving practical works, purchasing equipment, and preparing teachers.

Starting from these remarks, the “Habilitation units” theory was created, which breaks the inactivity in systems and programs geometry by creating instead of it a “variable geometry”. A “Habilitation unit” is a limited group of information and training which allows the acquisition of determined skill. This definition is applied according to different criteria, for example:

- The total skills necessary to bring together two pieces of wood is a habilitation unit that can be performed in a three hour training.
- The total skills necessary to make all electrical installations in a house or a building is also a habilitation unit that can be performed in one complete studying year covering 1000 hours.

This big unit is composed of a chain of minor units as the above-mentioned example.

By adopting habilitation units as programs’ formation units, through assembling them in bigger and bigger circles, it is possible to create a preparation system that will eliminate all the above mentioned defects regarding the present system. Moreover, they offer additional advantages, the most important being:

- They are compatible with any of the habilitation lines mentioned above.
- They permit to create various bridges and crossing points between specialization fields.
- They save not less than 33% of effort and cost for working out programs, writing books and preparing teachers as well as of equipment and construction cost.
- They facilitate to a large extent programs, books and techniques’ development operations since they are by definition a flexible device.

E- Determination of Specialization on Each level of Each field:

The determination of habilitation and level field for each profession is built on many bases, the most important are:

- The degree of responsibility to be assumed by the one who exercises the profession.
- Technical and scientific requirements before following education or training.
- Duration of preparation for a profession.
- Classification of profession.
- Importance of contents and aims to be taken into consideration in programs.

F- Books and Educational Methods

The Ministry of Professional and Technical Education plans to train a number of teachers and experts to develop books and other teaching methods that incorporate the technological advancements that have occurred in the different sectors over the last two decades. Also, the Ministry intends to extend its supervision to the books used by private technical schools.

G- Schools' buildings and facilities

Due to the war, a high number of public and private school buildings were severely damaged. As part of its plan to rebuild the country's infrastructure, the government has started to restore these buildings. Only a few of the private school buildings are up to standard in total area, class area, workshop equipment, and other facilities.

H- Habilitation lines.

Habilitation may be carried out in accordance with several lines as:

- Full time training in training centers.
- Training on a dual training basis.
- Full time training during working hours at work.
- Scientifically supported training from far.

- Full time education at school or institute.
- Part time education (for example, evening courses, quit school for one year then pursue studies).
- Auto learning supported indirectly.

It is necessary to fix the appropriate line or lines to prepare for each profession or part of profession. Programs are the most convenient place for such fixation.

I- Preparation Systems

The present preparation systems are characterized by the fact that they have parallel and distinct lines. In other words, each specialization in any field and on any level, has an independent and invariable preparation line.

Shortcomings of this system include the following:

- Getting enrolled to prepare for a determined specialization is final. No turning back during preparation period unless to start again from the beginning.

J- Technical Teachers and trainers

There is only one public institute in Lebanon, the Technical Education Institute, that trains teachers (theoretical courses) and trainers (practical courses) for public and private technical schools. The number of specialization in this institute is ten, by far less than the 100 specialization offered by the various official technical programs (CAP, BP, FPM, BT, TS etc.). Thus, both public and private technical schools face a shortage of well trained teachers, especially for the practical courses.

This shortage forced the technical schools to hire qualified technical workers as teachers on a contractual part-time basis. However, in most of the cases, these workers are not professionally trained on teaching, which might negatively affect their ability to train the students.

K- Conclusion

The forgoing consideration leads us to modify the concept of programs and adopt dynamic methods in planning, drafting and executing them. These considerations deeply influence evaluation systems and procedures.

From profession description and through final drafting of programs, the following stages must be crossed:

- Draft program principal aims on the basis of performance and skills criteria.
- Decompose each principal aim into secondary or partial aims allowing to draw out a list of resolutions that must be included in the program.
- Draft the aims of each program and chapter, always on the basis of performance criteria.
- Detail contents of each chapter of information and skills, focus on rules and methods which contribute to evaluate the reached aims.
- Reinforce each chapter of each program by educational guidelines about the limits of information mentioned, the ways of teaching them and other instructions useful to the teacher and assessor.

However, the coordination of all these steps is a planning operation for the lines in accordance with habilitation units system, in case this system was adopted.

CHAPTER III

Methodology of the Study

3.1 Basic Approach

The objective of the research is to evaluate the plan proposed, by the Ministry of Professional and Technical Education, to renovate the currently outdated apprenticeship system in Lebanon. In other words, this research is an attempt to show whether this proposed plan, if carried out, will improve the professional and technical education considered to be one major ingredient to the success of the overall Lebanese education system. In order to make this evaluation, a thorough search for relevant information is conducted. The main sources of information for this research are school principals, Ministers of the Professional and Technical education.

This chapter presents the method used in collecting the data. However, since this research study is a descriptive one based on presenting information from several sources, several methods have been used in the data collection process. For purpose of this study, the data has been collected from two sources: primary sources and secondary sources.

3.2 Primary Data

Three methods can be adopted, when conducting a research survey: personal interviews, telephone interviews, and mail and self-administered questionnaires²⁰. In this research, only personal interviews are used since this method is a two-way, face-to-face communication allowing flexible conversation.

²⁰ Lambin Jean-Jacques, *La Recherche Marketing*, McGraw Hill, Paris, 1990, p. 69-85

3.3 Secondary Data

Several books, magazines, journals, and reports were required in order to accomplish this research study. Secondary data is used for three main reasons:

1. To collect relevant information that allows the researcher to explore in detail and analyze the apprenticeship concepts, principles and implementation stages.
2. To provide the researcher with guidelines for conducting the research.
3. To aid in backing-up the research findings and suggested recommendations.

All secondary data sources can be found in footnotes and at the end of the research, in the bibliography.

3.4 Methodology Used In Data Collection

In order to make the personal interview as beneficial as possible, the structure in this case, should be:

1. Directive: The directive approach is straightforward and deductive in form. The interviewer knows exactly what to cover and uses direct questions.
2. Scheduled: In a scheduled interview form, an outline is standardized so that it contains all the questions needed to be asked. They are asked in the same wording and order for every respondent. Thus, this standardization in questioning eliminates the possibility of differences in respondent's answers due to changes in the order of questions²¹.

²¹ Lambin Jean-Jacques, *La Recherche Marketing*, McGraw Hill, Paris, 1990, p. 69-85 and Zikmund G. William, *Business Research Method*, Third Edition, 1991, p. 161-180.

3. In addition, the questions should have a funnel sequence. In other words, the questions start from the most general or broad at the beginning and gradually the focus is narrowed to become more specific at the end.

The interviews are conducted by means of a structured questionnaire, that has been developed for this research study (Appendix C).

Adopting such approach encounters the following reasons:

- It is considered that less bias would be introduced than by getting the respondents to complete the questionnaire.
- If respondents had been asked to complete the exercise, then there would have been a major problem in ensuring that they had fully understood the framework prior to its use. Questions in a structured interview are made clear and unambiguous and the interviewer can help the respondent if a question is not understood.
- In a structured interview, the respondent is made to answer the questions in their order format; otherwise, respondents can read the whole questionnaire before starting to answer the first question, so that answers to early questions may be influenced by their knowledge of the later ones, perhaps making answers more consistent than they would otherwise be.
- The researcher can never be certain who has answered a self-administered questionnaire. If a questionnaire is sent to a school principal, for example, it is difficult to know whether the person to whom it was sent has answered it.
- A structured interview allows for a combination and utilization of full range of responses from all interviews, allowing for a reduction in individual bias, due to personal influences such as attitudes, perceptions, and values.
- Control could be exercised in ensuring that all questions are fully answered.

3.5 Data Analysis

The intention of this research is only an evaluation, so reporting existing attitudes and beliefs is of more importance at this stage so that later, future research may identify further micro-level issues which can be modeled and treated statistically. This work will form the backbone of future research studies. Therefore, to analyze and interpret the research questions, descriptive analysis is applied. This kind of analysis is used to rearrange, order, or manipulate the raw data to transform it into a form that will make it easy to understand and interpret. The most common form of data interpretation is by calculating the averages, frequency distributions, and percentage distributions.

The next chapter, chapter IV, will present the findings and results.

Chapter IV

Results & Findings

4.1 Introduction:

A structured interview based on a questionnaire (Appendix C) was conducted with Ministers and with directors of Lebanon's main schools of apprenticeship. The questions were addressed in order to determine the respondents' opinion on the need to improve the quality of Technical and Professional education in Lebanon and evaluate as a result the content of the plan set by the ministry.

This chapter presents the results and findings.

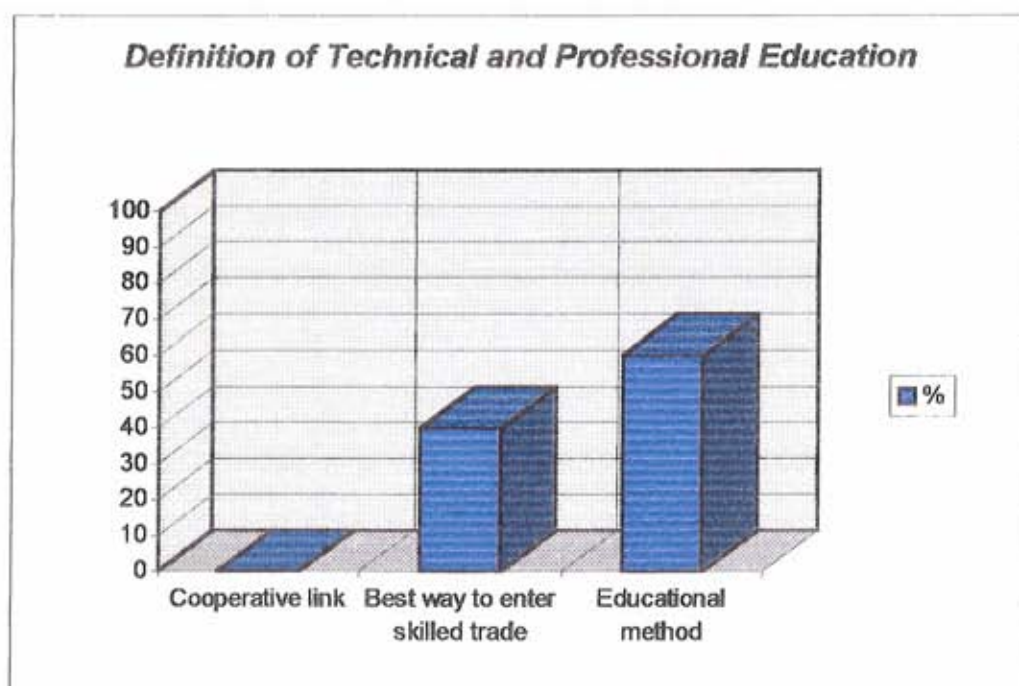
4.2 Results & Findings

Question #1 : How can you define technical and professional education or apprenticeship in your opinion?

When asked to define Technical and Professional Education in Lebanon, 60% of the respondents defined it as an educational method whereas 40% of them defined it as a best way to enter a skilled trade. However, none of them defined it as a cooperative link between an employer and an employee.

Those respondents whom defined apprenticeship as an educational method, argued that apprenticeship is in itself a method used to assist students in applying classroom knowledge in the workplace in order to be responsible for a task in the future.

On the other hand, those who defined Technical and Professional education as the best way to enter a skilled trade which covers all aspects of the trade that includes both on the job training and related instructions, argue that the Lebanese training system or the practical part of education as it is known today, is just based on classroom training in the workshop (12 hrs a week only) which in their opinion is not enough . The Lebanese apprenticeship should include on the job training where the apprentices apply classroom knowledge in factories and/or companies as it is done in Germany.



Question #2: Is there a need to improve the quality and professional education in Lebanon

Surprisingly enough, all those interviewed agreed that there is a need to improve the quality of Technical and Professional education in Lebanon. The reasons given were as follows:

a- During the French Mandate, Lebanon was more of business oriented country whereby very little attention on Technical and Professional education was given. After that period, apprenticeship in Lebanon started to be recognised with the establishment in 1962 of the Technical and Professional Directorate and later on in 1992 of the Ministry of Technical and Professional education.

Nowadays , the importance of apprenticeship is strengthened by the changes witnessed in the economical factors where there is an ever growing need for specialised and technical skills, be it in the industrial, commercial or agricultural sectors.

b- A second reason would be the rapid rate at which technology is improving. To keep pace with the rest of the world, Lebanon's technical and Professional education must be improved both on the theoretical as well as on the practical level. By doing so, Lebanon will be able to compete and survive.

c- Finally, the quality of Technical and Professional education should be improved as it lacks practical orientation , qualified personnel within the ministry and within schools and lacks up to date curriculum and programs. In other words, Lebanon is in need of improving its apprenticeship so as to meet the need of the market.

Improve Quality of Technical and Professional Education

| Option | Answer (%) |
|--------|------------|
| Yes | 100 |
| No | 0 |

Question #3: The ministry of Technical and Professional Education proposed a plan in 1993 to improve the education system. According to the ministry's plan, there are several areas that should be addressed in order to improve the quality of technical and professional education in Lebanon. In your opinion, which of the below mentioned areas need to be urgently addressed. Please rank from 1 to 7 (1- being most important, 7- being least important):

According to the directors of private and public schools as well as the ministers of technical and Professional education, the oldness of programs is the first area that should be urgently addressed. Programs in all the fields of technical and Professional education are to be

updated in order to allow apprentices to apply the knowledge gathered during their studies in the market place. Once programs are made up to standards, the Ministry needs to create a data base capable of identifying the needs of the market thus allowing to reduce the existing difference between the work market demand and the nature of the specialization. Because of lack of data information about the work market demand, once apprentices graduate, they are unable to find a job because the market turns out to be in need of a specialization other than theirs. According to the respondents, the lack of educational aids, the difference between the work market demand and number of graduates and the coordination between government, industries and schools are areas that should be taken into consideration and urgently treated once above two areas above have been addressed. The reason being that each of these areas will respectively affect the graduate apprentices (the supply of labor), the market demand and the relationship between the Ministry of Technical and Professional education and the schools and industries.

Ranked fifth, the oldness of fields is another area to be addressed since there are only a few fields under the Technical and Professional education system in Lebanon. Since 1962, the existing fields are Mechanics (car, industries), Electronics, Electricity, carpentry, and Administrative work, whereas there is around 50 different fields under the Technical and Professional education in Europe. By creating new fields such as Aviation, Nursing, and Hotel management, to meet the market demand, the Ministry of Technical and Professional education can improve the quality of its education.

last but not least, the lack of flexibility in learning methods is the last area that should be addressed. According to the respondents, a more flexible structure in the learning methods can help the Technical and Professional education adapt to future developments in the different fields of specialization.

Main areas to be urgently addressed to improve Quality

| Areas to be addressed | Most Important (%) | Minor (%) | Least Important (%) | TOTAL |
|---|---------------------------|------------------|----------------------------|--------------|
| Oldness of fields | 30 | 10 | 60 | 100 |
| Lack of Flexibility | 20 | 70 | 10 | 100 |
| Oldness of Programs | 70 | 0 | 30 | 100 |
| Lack of Educational Aids | 40 | 30 | 30 | 100 |
| Difference between Work Market & Nature of Specialization | 60 | 40 | 0 | 100 |
| Imbalance between work market & number of Graduates | 40 | 20 | 40 | 100 |
| Others | 40 | 30 | 30 | 100 |

Question 4: Do you think that the ministry of Technical and Professional Education is organized and well equipped in order to improve the quality of technical and professional education?

All respondents agreed that the Ministry of Technical and Professional education is not organized and well equipped to be able to improve the quality of Technical and professional Education.

The arguments brought forward are several:

- The first and most important argument is the 17 years civil war in Lebanon which resulted in a loss of coordination between the different ministries which eventually ended up in a lack of communication and coordination between personnel within the government. This lack of coordination between the Ministries also affected their relationship with the directorate.

As a result of this lack, a new structure has been drawn with the voting of deuce (no. 8349) covering the organization of Technical and Professional education, which outlines the positions available, describes the responsibilities and presents the qualifications required to fill out these positions.

- The second argument advanced was the lack of qualified personnel and staff department as well, bad management of the ministry which explains the need for new incoming blood.
- Finally, although money is used to buy uptodate equipment, most of these physical assets become obsolete as no experienced and qualified personnel is available to use them; and since most of these equipment are bought before knowing exactly what the needs are, the ministry ends up having a stock of equipment unused simply because they are not required. In other words, money is thrown out of the window on equipment unneeded and when the real need arises complaints about lack of financial resources is heard.

Ministry's Organization & Equipment

| Options | Answer (%) |
|---------|------------|
| Yes | 0 |
| No | 100 |

Question #5: In order to reorganize the ministry to attract qualified personnel, some objectives need to be addressed. In your opinion, what objectives should be addressed. Please rank from 1 to 3 (1- being the most important and 3- being the least important).

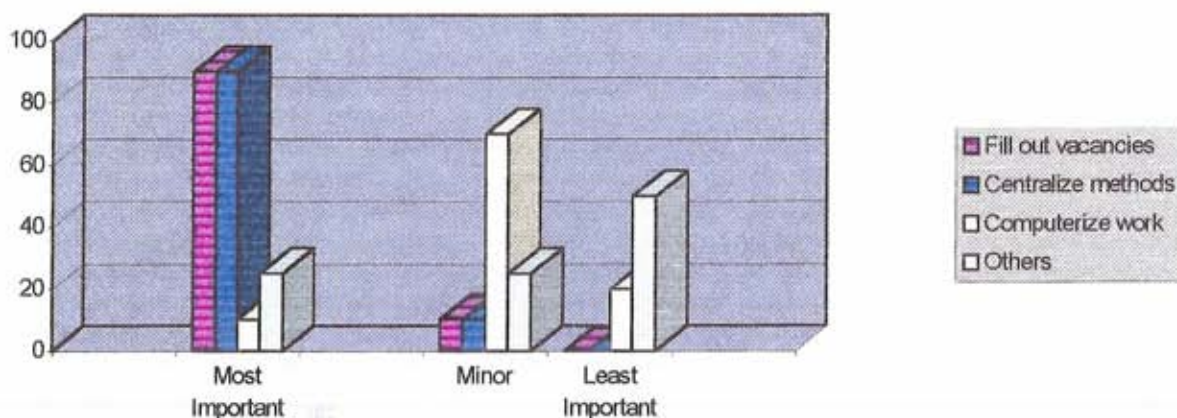
According to the respondents, both objectives of the ministry which are to fill out the vacancies with the proper personnel and to centralize the development of curriculum and educational methods should be addressed simultaneously by the Ministry. These two objectives are important to achieve because first of all the Ministry of Technical and Professional education is in need of 270 employees for its new structure whereby it has only recruited 27 employees until now. This means that only 10% of the positions have been filled and 143 employees are still needed to fill out the available vacancies within the ministry.

Second of all, by centralizing the new curricula and the educational methods in all the Technical and professional schools, all apprentices regardless of the schools they are enrolled in, will have an equal chance to pass the exams given by the government in order to receive their BT (Baccalaureate Technique).

A third objective would be the re-evaluation by the Ministry of the salaries offered to employees and teachers of public schools. According to the respondents, by increasing the salaries of employees within the ministry, people will be encouraged to apply for a job within the ministry thus filling in the available vacancies. Furthermore, by increasing the teachers' salaries, especially within the public schools, they will be motivated to produce better and teach better. In this way, their performance might have a better effect on the results of their students once sitting for their exams to receive their BT (Bacc. Tehcnique).

The last objective to be addressed is, in the respondents' opinion, the computerization of the Ministry work. However, one should tackle first the objectives previously discussed before computerizing the work of the Ministry.

Plan's Objectives to be addressed by order of importance

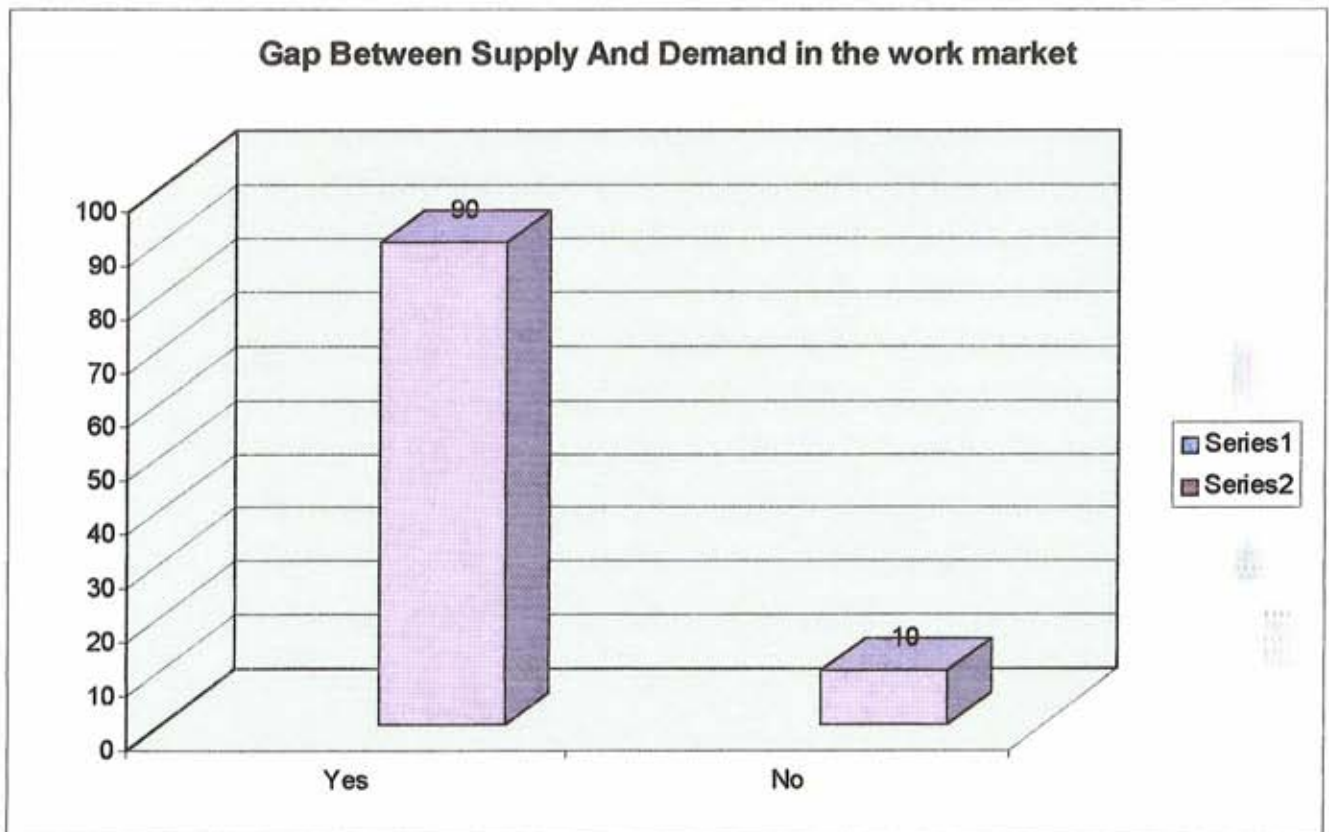


Question #6: The gap between supply and demand of the work market is the result of insufficient or unavailable database by the ministry. Do you agree ?

Most of the respondents agree that the gap between the supply and demand of the work market results from an insufficient or unavailable data base at the Ministry. The reason for that is because both the Ministry of Technical and Professional education and the other Ministries such as Ministry of Labor, lack statistics about the labor market needs. This lack of database translates into graduate apprentices being left without a job due to the fact that they are specialized in a field not in demand by the market. Last year for example, around 10.000 students graduated from Technical and Professional schools out of which 4500 were specialized only in administrative work (secretary, computer, clerk...) while 5500 students were specialized in the fields of industrial work such as car mechanics, industrial mechanics, chemistry, and nursing. This resulted in too much supply of labor specialized in administrative work and less supply of labor specialized in the much larger section of the market represented by the industrial work. Thus the percentage of

unemployment (i.e 7.7% according to Government statistics and 15% according to private statistics) can be decreased once the ministry will be able to gather information about the labor market demand in order to supply its need.

Finally, according to one of the interviewers, it is not just enough to supply the market with approximate number of graduate apprentices specialized in different fields but also to supply the market with a labor force which has the quality and a concrete idea about what should be done in the working place.

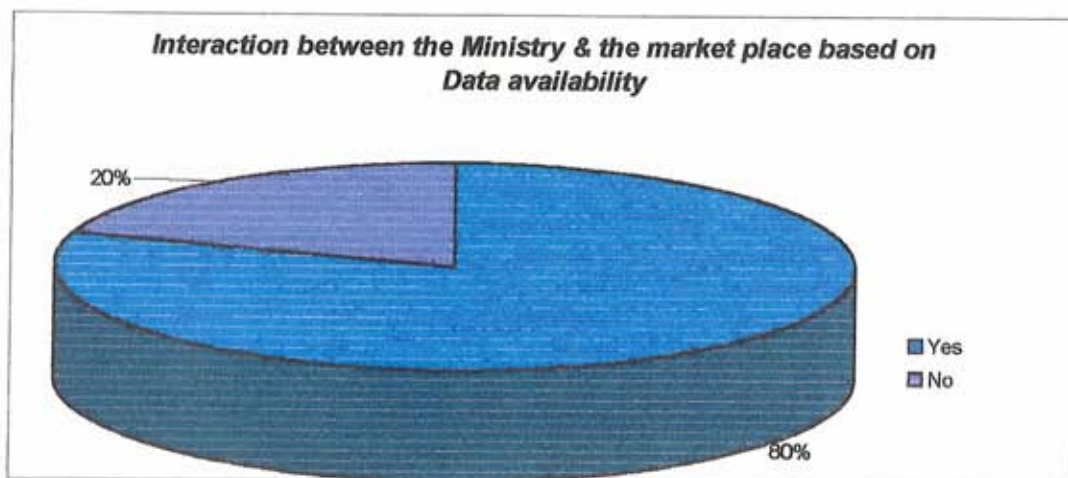


Question #7: By updating the data and information about the market by using qualitative and quantitative database, this will serve to accommodate between preparation outlets and the market demand. In your opinion, will such device in the ministry's hands create an interaction between the ministry and the market place?

Most of the respondents (i.e 80%) agree that the data availability will create an interaction between the ministry of Technical and Professional education and the market place. The remaining 20% believe that it is one of the Ministry's duties to create a coordination and link between the market place and the technical and Professional education. Such interaction between the Ministry and market place will result in supplying the labor market with its needs.

However some of them were not convinced that such interaction can be created just from the data available in the Ministry's hand. According to them, an interaction can be created when an active group of personnel becomes the connection between the workshop teachers at the schools and the representatives of companies. Also, an interaction can be created when the ministry decreases the taxes or customs on companies and in return, these companies accept to recruit apprentices to work in their organizations giving them basic salaries to start with.

In this way, not just an interaction will be created but also a cooperation between the public and the private sector.



Question #8: According to the ministry's plan, there is a need to have a proper description of professions:

The Technical and Professional schools in Lebanon offer to their students a general background about the available professions. Once in the market place, they would learn specific skills or duties determined by their employers.

For instance, an apprentice who chooses to be an electrician will get general knowledge about industrial and household installation.

According to the respondents, a proper description of professions is needed to prepare apprentices to practice a determined profession. The determination is based on few skills among the specifications of the profession. In this way, the apprentices will not be lost once in the workplace since they will have required skills for the job.

The need to properly describe the professions

| Options | Answer (%) |
|----------|------------|
| Agree | 100 |
| Disagree | 0 |

Question #9: According to the ministry's plan, the proper of description of profession should deal with the following: please rank from 1 to 3, (1- being the most important and 3- the least important)

According to the respondents, the steps the Ministry of Technical and professional education must follow to properly describe the professions are:

First, one must enumerate the required skills for each profession.

Second, one must select the professions that require preparation and work out a complete list of these professions.

Finally, one must lay out an interactive plan between professions (Horizontal or vertical).

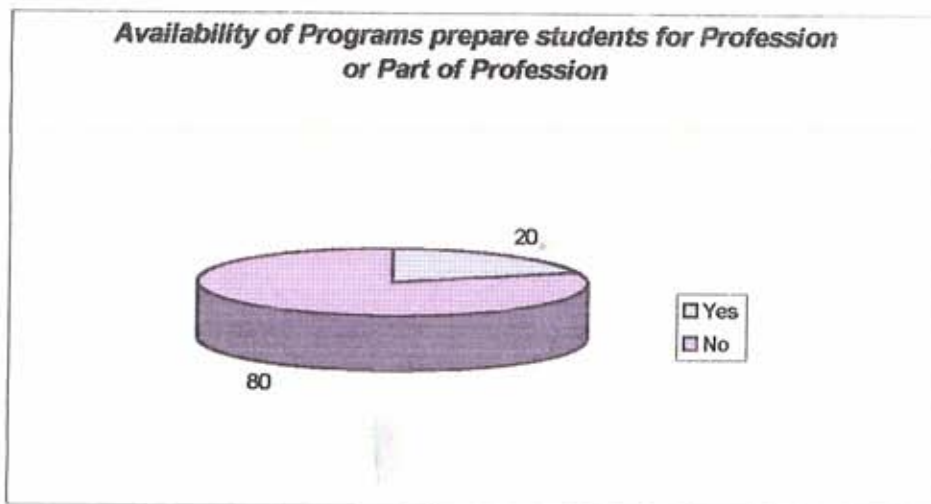
Proper description of professions is based on

| Factors | Most Important (%) | Minor (%) | Least Important (%) | Total |
|--------------------------------------|--------------------|-----------|---------------------|-------|
| Interactive Plan between Professions | 10 | 40 | 50 | 100 |
| Enumerate required skills | 60 | 30 | 10 | 100 |
| Select Professions | 30 | 30 | 40 | 100 |

Question #10: Do you think that the programs that are currently available prepare students for each profession, or part of profession?

80% of the respondents agreed that the currently available programs do not properly prepare apprentices for a profession. They believe that the hours provided in the workshop in order for the apprentice to apply classroom knowledge are insufficient. I.e. the public schools offer 8 hrs out of 30 hrs / week in the workshop whereas some of the private schools offer 12 hrs out of 40 hrs / week. Therefore, the theoretical part of the Technical and Professional education is being overloaded whereas the practical part under-loaded. In addition, the respondents believe

that the available programs are too old to prepare apprentices for a profession in the market that deals with imported and developed technologies. Finally, according to them, the teachers are not trained and oriented enough to prepare apprentices to work on advanced market. However, 20% of the respondents agreed that the available programs are preparing apprentices for a part of profession which is the theoretical part. However, according to them, modifications of the available programs especially in its practical part should be done in order to meet the need of the market that is continuously changing.



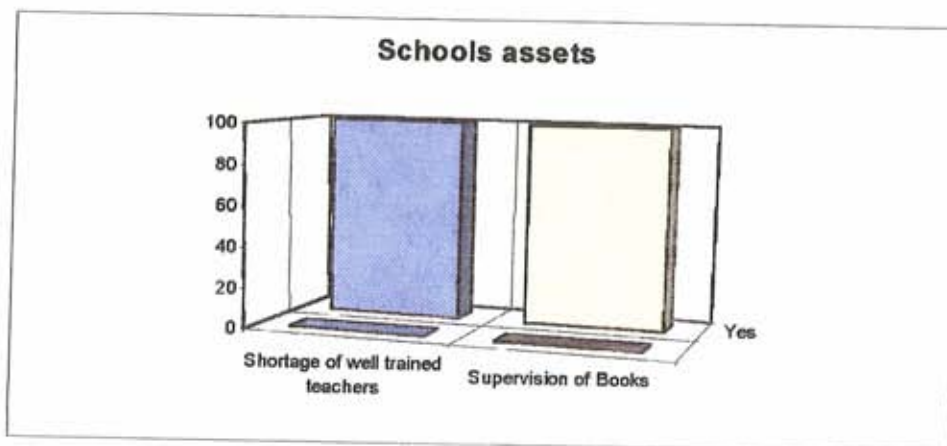
Question #11: Do you believe that both public and private technical schools face a shortage of well trained teachers, especially for the practical courses?

Question #12: The ministry intends to extend its supervision to the books used by private technical schools. In your opinion, does this decision fall within the ministry's responsibility?

Both public and private schools face a shortage of well trained teachers especially for the practical courses. Most teachers who are responsible for the practical part of education lack the know-how or expertise in transmitting the information to apprentices and methods used to teach in workshops are as old as the equipment available. Rarely can one find advanced and computerized machines at the schools.

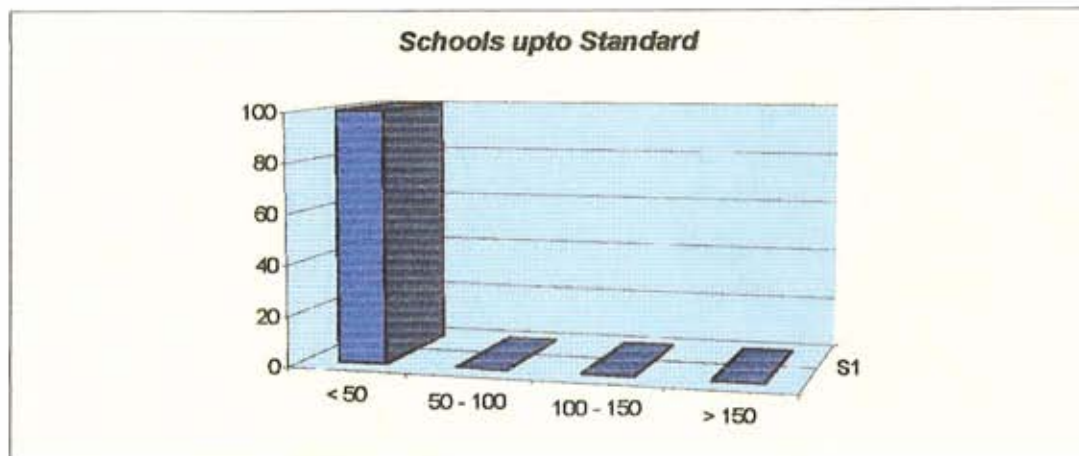
Consequently, in order to allow the Ministry of Technical and Professional education to develop a basis for the future development of vocational training , a sufficient number of teachers should be given training sessions so that their know-how and the methods used to transmit information be updated to up to modern technology standards. Training methods and fields must be developed continuously in accordance to the permanent and predictable variables in the market to respond to professional developments.

All the respondents agreed that in theory the Ministry of Technical and Professional education is responsible for the supervision of books used by private schools. Surprisingly enough, books are quasi-inexistent in the fields of apprenticeship. The books used by the Technical and Professional schools are composed of a Table of content for each chapter under each course. This clearly indicates that no reference whatsoever is available making the teachers' knowledge and capabilities, the only means by which the students will receive their education. In order to improve the quality of Technical and professional education the ministry should create books that will be used in both Public and Private Schools, even though it requires certain amount of money. Once books are available then the Ministry's responsibility will be to extend its supervision to the books used by both private and public schools thus giving all students an equal chance to succeed.



Question #13: In your opinion, how many private schools buildings are up to standard in total area, class area, workshop equipment and other facilities?

All in all, there are between 250 to 300 Technical and Professional schools in Lebanon. Only 34 of these schools (i.e 30 Public schools and 4 Private schools) are up to standard in terms of equipment needed for the workshop, the classroom area and the workshop area. This ratio is so low due to the high cost schools have to bear in order to create and improve their workshops and equipment. According to the respondents, schools prefer using their funds for their own personal benefits at the expense of their students' education, whom ironically enough represent the future labor force of Lebanon.

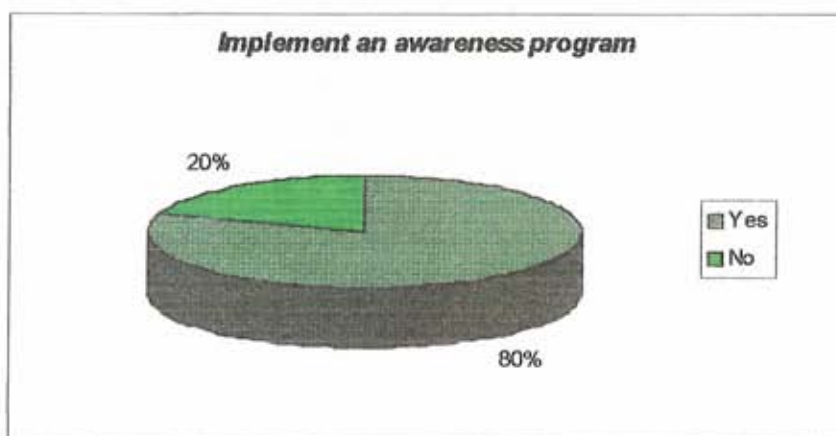


Question #14: In your opinion is there a need to implement an awareness program outlining the importance of technical and professional education starting with parents?

It comes to nobody's surprise that the technical and professional education system in Lebanon is a system not widely supported by the community and its importance in preparing students to meet the market requirements is still not entirely recognized.

This explains why 80% of the respondents were in favor of implementing program outlining the importance of technical and Professional education stating with the parents. In their view, there is a need to change the negative attitude the community in general has towards apprenticeship. Because of the predominant traditional culture which depicts apprenticeship as a non-challenging, non-remunerating and non-professional work parents do not encourage their children to enroll in such technical programs and consequently students make out for themselves a wrong opinion about the system and its benefits. In that sense and to see the apprenticeship system succeed, an awareness program is crucial. Such awareness program should take the form of seminars at academic schools promotional advertising on TV and magazines, brochures which outlines how the system work the different fields available and their geographical distribution as well as its benefits in terms of job opportunities after graduation. Furthermore, there is a need to involve private companies in that campaign after explaining to them the benefits this system can bring them in terms of technically qualified personnel.

On the other hand, 20 percent of the respondents were against implementing an awareness program. The argument brought forward is the need to first solidify the base of the system in order to prove on sight its success. Words are cheap nowadays. There is a need to show the parents real results before engaging in such campaign. After all, a culture such as ours is very hard to change overnight.



After analysis of the findings, one can clearly notice that the Ministry's Plan has set the necessary guidelines to improve the quality of Technical and Professional education in Lebanon and consequently reduce the gap that is forging between the market demand and the supply of labor force. However, its implementation is yet to see the light of day due to the lack of financial and human resources.

The next Chapter, Chapter V, will present concluding remarks.

CHAPTER V

Conclusion and Recommendations

5-1 Conclusion

Further to the analysis conducted in chapter IV, we wish to stress on the importance of one crucial element in the findings. The purpose of the research project was to evaluate the plan set by the Ministry of Technical and Professional education in 1993 in order to improve the quality of apprenticeship in Lebanon. The analysis of the findings clearly showed that all those interviewed were in favor of improving the quality of apprenticeship. This need is further stressed by the dangerous gap that is forging between the supply and demand of the Lebanese labor market.

Undoubtedly, the plan tackles all the different aspects which characterize the technical and professional education system. The low level of education provided by the system, the poorly shaped infrastructure and the lack of qualified teachers and personnel draw the picture of apprenticeship in Lebanon as it is known nowadays. To aid in its improvement, funds are being provided by International organizations such as the World Bank, the European Union and the Arabic Financial Partners.

Although the plan outlines the different areas that need to be addressed by the Ministry so as to improve the quality of the system, no steps so far has been implemented.

5.2 Recommendations:

Starting from the present situation of Technical and Professional education and the above mentioned findings, some steps should be adopted in order to improve the quality of Technical and professional education:

- 1- The Ministry of Technical and Professional education should modify or update the curriculum of all the fields on the theoretical as well as the practical level. The ministry should appoint a committee represented by highly qualified personnel. The responsibility of the committee is to keep track of the progress and development of technology on a national and international level.
- 2- A coordination between the private sector (commercial, agricultural, touristic sectors) and the public sector is needed. The Ministry of Technical and Professional education is to hire qualified personnel specialized in gathering, storing, updating and analyzing data in order to create a qualitative and quantitative data base. As a result, both private and public schools of Technical and Professional Education will be able to properly guide apprentices in their fields of specialization thus supplying the market constantly with the required technical labor force.
- 3- A coordination between the technical and professional schools and the industrial firms is needed so that apprentices will be able to receive the practical part of education not only in the workshop of schools but also in the market place ie: in the industrial firms. In this way, the number of practical hours offered to apprentices will increase without additional cost on the Technical and Professional schools. To do so, the ministry should hire qualified and active personnel as coordinators between the workshop teachers and the representatives of firms. In addition, the government can reduce the taxes on industrial firms as a return of hiring apprentices with a minimum wage to learn and apply classroom knowledge in the market

place. As a result, the apprentices will receive a higher number of practical hours, will apply the theoretical part of education directly in the market and will start to live and experience the working environment.

- 4- The fact that the plan of 1993 has not yet been implemented is due to lack of proper management and proper usage of financial resources available. As a result, there is a crucial need to change the relationship among unmotivated personnel and management. Proper job descriptions is parallel to the respective responsibilities of each and every member at the Ministry are to be defined. This step is very crucial since without it no matter how hard we try to improve the system no success will be witnessed and money will be wasted in the attempt. Simply put, the core of the system which lies within the Ministry needs to be structured and strictly controlled and the activities must be exercised.
- 5- The Ministry has to create new fields of specialization which are in demand by the market but yet unavailable. Once the fields have been determined programs relevant to each field should be developed. To illustrate we can create in Lebanon a field for navigation under which programs are developed to graduate electricians, cooks, weather specialists, code and sign specialists which are required on boats. Furthermore, fields need to be created in order to meet new technologies offered by the market. Such technologies are for instance the new line of cellular phones which requires personnel qualified in their repairment and familiar with all the accessories introduced by this new line.
- 6- Damaged and deteriorating school buildings have to be renovated and brought to acceptable standard to allow the absorption of an important number of students without problem. In addition, obsolete equipment must be replaced by new and suitable ones to satisfy the standards set for the schools of technical and professional education.

7- The Ministry has to provide the schools with books that meet the programs of all 72 professions currently available in Lebanon. Qualified teachers with knowledge of apprenticeship in Lebanon and abroad are the ones to be selected for the creation of these books.

Although this process is expensive it is a necessary step to improve the quality of apprenticeship system in Lebanon

8- Once the base of the technical and professional education system is developed in terms of well defined and distributed job descriptions and responsibilities, properly developed fields and relevant programs, trained teachers, up to standards schools and educational aids the government must encourage the local production in order to favour and to boost the need for graduate apprentices. The way to do so is by setting high taxes on customs on goods imported by local companies. In other words, this process will open job opportunities to those graduates and will encourage students at schools to enroll in programs offered by the apprenticeship system.

9- Most of those who are directly concerned with preparing and teaching apprenticeship programs complain about low salaries which explain the numerous strikes the educational system in Lebanon has been facing lately. In order to motivate them a review of the wages offered is needed.

5.3 Future Research Proposal:

All those concerned agreed that the plan of 1993 set by the Ministry of Technical and Professional Education presents the guidelines necessary to improve the quality of apprenticeship in Lebanon. Unfortunately, this plan is yet to see the light of day in terms of its implementation.

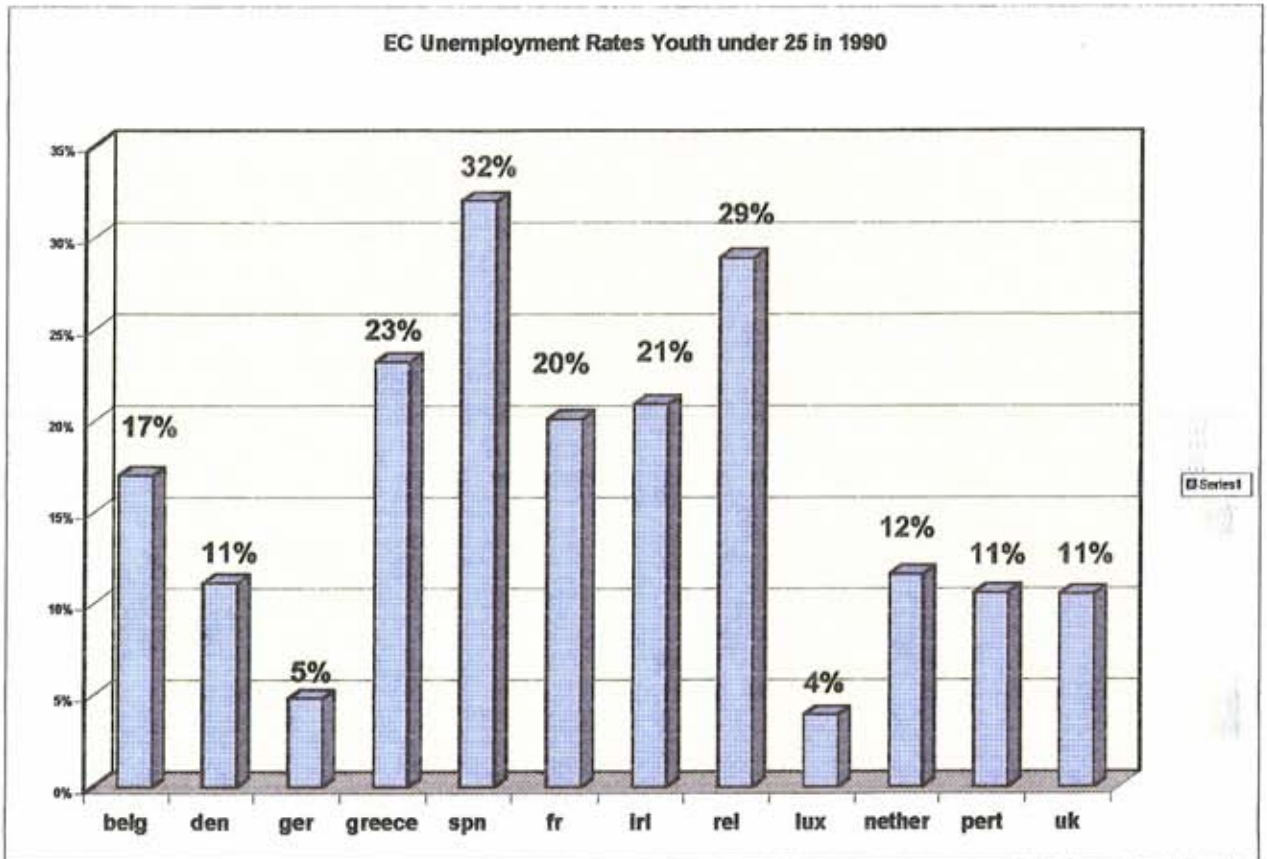
Today, a complement to this plan is being drafted by the Ministry inspired from the German apprenticeship system known as the dual system. An interesting sequence to the present research project would be to conduct a quantitative as well as a qualitative analysis of the possible success of an apprenticeship system in Lebanon based on the German model.

Appendix A

Apprenticeable Occupations

| Occupational Title | Term in years | Occupational Title | Term in Years | Occupational Title | Term in years |
|---|---------------|--|---------------|---|---------------|
| Cylinder grinder (printing and publishing) | 5 | Electric-meter installer I | 4 | Engraving press operator | 3 |
| Cylinder-press operator | 4 | Electric-meter repairer | 4 | Envelope-folding-machine adjuster | 3 |
| | | Electric-meter tester | 4 | Equipment installer (telephone and telegraph) | 4 |
| Dairy equipment repairer | 3 | Electric-motor assembler and tester | 4 | | |
| Dairy technologist | 4 | Electric-motor repairer | 4 | Estimator and drafter | 4 |
| Decorator (any industry) | 4 | Electric-motor-and-generator assembler | 2 | Etcher, hand (print and publishing) | 5 |
| Decorator (glass manufacturing) | 4 | Electric-sign assembler | 4 | Etcher, photoengraving | 4 |
| Dental assistant | 1 | Electric tool repairer | 4 | Experimental mechanic (motor and bicycles) | 4 |
| Dental ceramist | 2 | Electric track switch maintainer | 4 | Experimental assembler | 2 |
| Dental-equipment installer and servicer | 3 | Electrical technician | 4 | Exterminator, termite | 2 |
| Dental-laboratory technician | 3 | Electrical-appliance repairer | 3 | Extruder operator plastics | 1 |
| Design and pattern maker (boot and shoe) | 2 | Electrical-appliance servicer | 3 | Fabricator-assembler, metal products | 4 |
| Design drafter, electromechanisms | 4 | Electrical-instrument repairer | 3 | Farm-equipment mechanic I | 3 |
| Detailer | 4 | Electrician | 4 | Farm-equipment mechanic II | 4 |
| Diamond selector (jewelry) | 4 | Electrician (ship and boat building and repairing) | 4 | Farmer, general (agriculture and agricultural service) | 4 |
| Dictating-transcribing-machine-servicer | 3 | | | Farmworker, general I | 1 |
| Die-designer | 4 | Electrician (water transportation) | 4 | Fastener technologist | 3 |
| Die finisher | 4 | Electrician, aircraft | 4 | Field engineer (radio and television broadcasting) | 4 |
| Die maker (jewelry) | 4 | Electrician, automotive | 2 | | |
| Die maker (paper goods) | 4 | Electrician, locomotive | 4 | Field service engineer | 2 |
| Die maker, bench, stamping | 4 | Electrician, maintenance | 4 | Film develop | 3 |
| Die maker, stamping | 3 | Electrician, powerhouse | 4 | Film laboratory technician | 3 |
| Die maker, trim | 4 | Electrician, radio | 4 | Film laboratory technician I | 3 |
| Die maker, wire drawing | 3 | Electrician, substation | 3 | Film or video editor | 4 |
| Die polisher (nonferrous metal alloys and primary products) | 1 | Electromechanical technician | 3 | Finisher, denture | 1 |
| | | Electromechanical equipment repairer | 2 | Fire apparatus engineer | 3 |
| Die setter (forging) | 2 | Electronic prepress system operator | 5 | Fire captain | 3 |
| Die sinker | 4 | Electronic-organ technician | 2 | Fire engineer | 1 |
| Diesel mechanic | 4 | Electronic-production-line-maintenance | | Fire fighter | 3 |
| Diesel engine tester | 4 | Mechanic | 1 | Fire fighter, crash, fire | 1 |
| Director, funeral | 2 | Electronic-sales-and-service-technician | 4 | Fire inspector | 4 |
| Director, television | 2 | Electronics mechanic | 4 | Fire medic | 3 |
| Display designer (professional and kindred) | 4 | Electronics technician | 4 | Fire-control mechanic | 2 |
| Displayer, merchandise | 1 | Electronics tester | 3 | Firer, Kiln (pottery and porcelain) | 3 |
| Door-closer mechanic | 3 | Electronics utility worker | 4 | Fish and game warden (government services) | 2 |
| Dot etcher | 5 | Electrotypist | 5 | Fitter (machine shop) | 2 |
| Drafter, automotive design | 4 | | | Fitter I (any industry) | 3 |
| Drafter, automotive design layout | 4 | Elevating-grader operator | 2 | Fixture maker (lighting fixtures) | 2 |
| Drafter, Architectural | 4 | Elevator constructor | 4 | Floor layer | 3 |
| Drafter, cartographic | 4 | Elevator repairer | 4 | Floral designer | 1 |
| Drafter, civil | 4 | Embalmer (personal service) | 2 | Floor-covering layer (railroad locomotive and car building) | 3 |
| Drafter, commercial | 4 | Embossor | 2 | Folding machine operator | 2 |
| Drafter, detail | 4 | Embossing press operator | 4 | Forge shop machine repairer | 3 |
| Drafter, electrical | 4 | Emergency medical technician | 3 | Forging press operator I | 1 |
| Drafter, electronic | 4 | Engine model maker | 4 | Form builder (construction) | 2 |
| Drafter, Heating and ventilating | 4 | Engine repairs, service | 4 | Former, hand (any industry) | 2 |
| Drafter, landscape | 4 | Engine turner (jewelry) | 2 | Forming-machine operator | 4 |
| Drafter, marine | 4 | Engine lathe set up operator | 2 | Foundry metallurgist | 4 |
| Drafter, mechanical | 4 | Engine-lathe set up operator, tool | 2 | Four slide machine setter | 2 |
| Drafter, plumbing | 4 | Engineering assistant, mechanical equipment | 4 | Fourdrinier machine tender | 3 |
| Drafter, structural | 3 | Engineering model maker | 2 | Freezer operator (dairy products) | 1 |
| Drafter, tool design | 4 | Engraver glass | 2 | Fretted instrument repairer | 3 |
| Dragline operator | 1 | Engraver I | 5 | Front end mechanic | 4 |
| Dredge operator (construction, mining) | 1 | Engraver, block (printing and publishing) | 4 | Fuel injection servicer | 4 |
| Dressmaker | 4 | Engraver, hand, hard metal | 4 | Fuel system maintenance worker | 2 |
| Drilling machine operator | 3 | Engraver, hand, soft metal | 4 | | |
| Dry cleaner | 3 | Engraver, machine | 4 | | |
| Dry-wall applicator | 2 | Engraver, pantograph I | 4 | | |
| Electric-distribution checker | 2 | Engraver, picture (printing and publishing) | 10 | | |

Appendix B



Appendix C

Questionnaire

This questionnaire was prepared for purpose of research project. All information provided will be kept confidential.

1- How can you define technical and professional education or apprenticeship in your opinion?

- It is a cooperative link between an employer and an employee during which the worker, or apprentice, learns a skilled trade or profession.
- It is the best way to enter a skilled trade since it covers all aspects of the trade and includes both on-the job training and related instructions.
- It is an educational method that helps the students to apply classroom knowledge in the workplace in order to gain competence later on by taking responsibility for more challenging aspects of the tasks.

2- Is there a need to improve the quality of technical and professional education in Lebanon?

Yes

No

Comment:

3- The ministry of technical and professional education proposed a plan in 1993 to improve the education system. According to the ministry's plan, there are several areas that should be addressed in order to improve the quality of technical and professional education in Lebanon. In your opinion, which of the below mentioned areas need to be urgently addressed. Please rank from 1 to 6 (1 being most important, 6 being least important):

- Oldness of determined field
- Lack of flexibility in learning methods
- Oldness of programs
- Lack of educational aids (teachers, books, buildings, schools,)
- Difference between work market demand and nature of Specialization.
- Imbalance between work market demand and number of Specialization graduates.
- Others: such as coordination between government and industry, coordination between industry and schools.

4- Do you think that ministry of technical and professional education is organized and well equipped in order to improve the quality of technical and professional education?

Yes

No

Comment:

5- In order to reorganize the Ministry to attract qualified personnel some objectives need to be addressed. In your opinion what objectives should be first addressed. Please rank from 1 to 3, (1 being the most important, and 3 least important).

- Fill out the available vacancies
- Centralize the development of curricula and educational methods
- Computerize the work of the ministry
- Others (Comment if any)

6- The gap between the supply and demand of the work market is a result of insufficient or unavailable database by the ministry. Do you agree?

Yes

No

Comment:

7- By updating the data and information about the market by using qualitative and quantitative database, this will serve to accommodate between preparation outlets and the market demand. In your opinion, will such device in the ministry's hand create an interaction between the ministry and the market place?

Yes

No

Comment:

8- According to the ministry's plan, there is a need to have a proper description of professions.

Agree

Disagree

Comment:

9- According to the ministry's plan, the proper description of profession should deal with the following. Please rank from 1 to 3, (1 being the most important and 3 the least important).

- Lay out interactive plan between profession: such interaction can be horizontal (on the same line) or vertical (on different level)
- Draft a description by enumerating the required skills
- Select professions that require preparation and work out a complete list.
- Others (if any)

10- Do you think that the programs that are currently available prepare students for each profession, or part of profession?

Yes

No

Comment:

11- Do you believe that both public and private technical schools face a shortage of well-trained teachers, especially for the practical courses?

Yes

No

Comment:

12- The ministry intends to extent its supervision to the books used by private technical schools. In your opinion, does this decision fall within the ministry's responsibility?

Yes

No

Comment:

13- In your opinion, how many private school buildings are up to standard in total area, class area, workshop equipment and other facilities:

< 50

Between 50 and 100

Between 100 and 150

> 150

14- In you opinion, is there a need to implement an awareness program outlining the importance of technical and professional education starting with parents?

Yes

No

Comment:

Bibliography

Books:

- 1- Greinert Wolf – Dietrich, The Dual System of Vocational Education and Training in the Federal Republic of Germany, Holland + Josenhans Verlag, 1995.
- 2- Lambin Jean – Jacques, La Recherche Marketing, Mc Graw Hill, Paris, 1990.
- 3- Zikmund G. William, Business Research Methods, Third Edition, 1991.

Magazines / Journals:

- 1- The Economist, August 20, 1994
- 2- Occupational Outlook Quarterly, Winter 1991-1992
- 3- Joperd, October 1993
- 4- The General Manager, April 1996
- 5- Training and Development, November 1994
- 6- Social Education, September 1993.
- 7- The American Enterprise, November / December 1993.
- 8- Business Week, February 7, 1991.
- 9- Vocational Education Journal, March 1994.
- 10- Vocational Education Journal, February 1995.
- 11- Vocational education Journal, January 1996.
- 12- Educational leadership, October 1992.
- 13- Nation's Business, June 1992.
- 14- Industry Week, January 20, 1992
- 15- Industry Week, February 1, 1993
- 16- Business Week, January 11, 1993.
- 17- Business week, April 26, 1993.

Report:

Working paper draft for modernizing and developing technical and professional education system, August 1995.

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