

**An-Najah National University**

**Faculty of Graduate Studies**

**Training Needs of Engineers School Teachers In The  
West Bank Industrial Schools**

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**This Thesis is Submitted in Partial Fulfillment of the Requirements  
For The Degree of Master in Engineering Management, Faculty of  
Graduate Studies, An-Najah National University, Nablus, Palestine**

**2012**

*Shamleh*

DEDICATION

I dedicate this humble work in particular to:

\*The soul of my father, whom I miss and feel his delight on my achievement.

\*My beloved mother whose prayers and blessing spurred me to accomplish

**Training Needs of Engineers School Teachers In The  
West Bank Industrial Schools**

\*My brothers Eng. Saad Jammal, Eng. Ala Jammal and my sister, may Allah bless them all.

\*My dear wife whose help, support, encouragement and constant assistance accompanied me all through my way to bring this work to light.

By

**Raed Musa Samieh Al Jammal**

\*To you all I dedicate my love and gratitude and the outcome of my work.

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## DEDICATION

I dedicate this humble work in particular to:

\*The soul of my father, whom I miss and feel his delight on my achievement.

\*My beloved mother whose prayers and blessing spurred me to accomplish my work successfully.

\*My brothers Eng Saed Jammal , Eng Ala Jammal and my sister, may Allah bless them all.

\*My dear wife whose help, support, encouragement and constant assistance accompanied me all through my way to bring this work to light.

\*Everyone who helped and supported me.

\* To you all I dedicate my love and gratitude and the outcome of my work.

Raed Al Jammal

## **ACKNOWLEDGEMENT**

First of all, Praise and thanks to Allah who granted me the power to finish this work.

I am deeply indebted to many people who have made the success of my research possible.

I would like to extend my thanks and appreciation to my instructors in An-Najah National University, especially my Supervisor Dr. Abdelfatah Shamleh whose support and encouragement was a great factor for my success. Allah bless him.

I would thank also Dr.Husam Arman the coordinator of the master program in engineering management , who honored me in his valuable discussions from which I benefited a lot.

Finally, thanks to all the official managers in MoEHE , industrial schools headmasters and all Engineers in industrial schools who provided me with valuable information.

A lot of thanks to my family “ mother , brothers, sister and wife “ to their physical and psychological support.

## الإقرار

أنا الموقع أدناه مقدم الرسالة التي تحمل العنوان:

# Training Needs of Engineers School Teachers In West Bank Industrial Schools

أقر بأن ما اشتملت عليه هذه الرسالة إنما هي نتاج جهدي الخاص، باستثناء ما تمت الإشارة إليه حيثما ورد، وإن هذه الرسالة ككل، أو أي جزء منها لم يقدم من قبل لنيل درجة أو لقب علمي أو بحثي لدى أية مؤسسة تعليمية أو بحثية أخرى.

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## **Training Needs of Engineers School Teachers In The West Bank**

### **Industrial Schools**

**By**

**Raed Musa Samieh Al Jammal**

**Supervisor**

**Dr. Abdul Fattah Shamleh**

### **Abstract**

This research aimed at pinpointing the training needs of engineer teachers in the West Bank industrial schools .to achieve this objective the researcher have designed questioner as a major data collection tool. The population of the study included all school teacher engineers in the West Bank .the sample also included policy and decision makers in the ministry of Education and Higher Education institutionally the sample included all government industrial schools. Sum off 165 questioners distributed the researcher was able to collect back 143 valid questioners. Theoretical data was also collected via conducting interviews, making documentary analyses. The data was analyzed using the SPSS program and theoretical analysis.

The findings of this research were classified in to five major training needs ,namely educational practices mean 3,96 , personal aspects mean 3.92, general aspects mean 3.91, evaluation and feedback mean 3.82 and administration needs mean 3.74.all the need in all aspects was rated as urgent , specifically the most sensitive training needs which were

considered as very urgent are : upgrading teacher personality ,training in specialized issues, linking theory to practice, self development and professional growth.

Based on research findings it was recommended to fulfill the identified training needs in a priority wise. It was also recommended that those needs should be integrated and given in a logical sequence and fulfilled as a package .the ministry of education and higher education should develop specialized training kits to enable self training for those teachers considering time limitations and functional burdens.

# **Chapter One**

## **Introduction**

## 1.1 Introduction

One of the most important areas of investment is investing in human capital .It is said that employee competence is the major factor for the efficient durability of organizations. To this end, budgetary sanctions and administrative arrangements are made. The training department within any organization carries out the duty of performing the planning implementing and monitoring these activates .Within its setup, this department has many sections to make this function a field reality for instance the section of planning aims at reaching the priority training needs ,and designing the plan for fulfilling those needs , whilst the section of implementation processes the training design and prepare the requirements and distribute work obligations The monitoring section is designated the responsibility of evaluating the output and outcomes of the training process. (Gaible 2005 ,Brian 2007)

The key component in the training function is to identify the training needs .It is said that the milestone of training function. It makes it clear where training leading objectives are .Furthermore ,it sheds light on what tools , methods , aids and arrangement are necessary to fulfill the identified needs.

## 1.2 Background

Palestinian society tends to consider industrial education to be at the lowest level of the educational system and the last option for students who are unable to continue in the academic stream. Therefore industrial education and training are generally regarded in a negative manner by Palestinian society.

There are nine governmental industrial schools in West Bank, offer 17 specializations and 2,156 students are enrolled in 2011/12. (MoEHE,2012).

At industrial secondary schools, students have already completed the primary educational cycle of ten years successfully. Currently, three percent of grade ten graduates move into this sector, which is expected within national plans to increase to seven percent, and there is no prerequisite for the acceptance of enrollment to this stream. The graduate of an industrial program receives an industrial tawjihi certificate, in contrast with a regular tawjihi certificate for a graduate of a general secondary school. This certificate qualifies a student to enroll in a community college or university. There are two years of study for these programs. In the first year students study general subjects and in the second year they study theoretical subjects and practical training related to the relevant occupation. Only between 3.5 and 4 percent of students enrolled in post-10th grade schooling attend these schools. Which is noticeably a very low percentage compared to other countries' industrial education percentages (MoEHE,2011)

### **1.3 Problem of The Study**

The problem of the study is confined to the identification of training needs for industrial school teachers engineer in Palestine .

### **1.4 Significance of The Study**

The study is of a great significance for all stakeholders in the field of education in Palestine .It is vital for industrial schools teachers since it highlight their realistic training needs which need to be fulfilled . Such benefits do not only respond to teachers overall satisfaction of the system, but also enhances competencies as a tool of innovation and creativity.

- Industrial schools and the Ministry of Education and Higher Education will focus their efforts on the needy areas of training which result into conservation of resources. Furthermore, it helps in formulating the training policies and preparing a better environment for the required training in this field.
- Students will benefit from the study outcomes , when the outcomes taken into consideration since it results into a highly qualified school teachers. This will help in a better way to achieve vision and objectives of the Industrial Education in Palestine.
- Policy makers, strategists and decision makers will have a wealth of facts to assist and guide them in doing a better job.

## 1.5 Research Questions and Assumptions

This study respond to its major question which is: what the training needs of engineer teachers in industrial schools in Palestine are.

The minor questions of the study are:

1. What are engineer school teachers training needs in relation to various areas?
2. What are training need priorities ?
3. What training programs are required to fulfill the training needs?
4. Are there any differences in engineer school teacher training needs in relation to factor such as gender, age ,educational qualification, specialization , years of experience ,job title and school.

This study is carried out with the following assumptions in mind:

- There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to school ,age , sex , qualification ,,etc.
- School teachers need more training in technical aspects, rather than in general and educational needs.

## 1.6 Population and Sample:

The population of this study cover all school teachers ,head masters and policy makers in the governmental industrial education in West Bank . The sample reports nine industrial schools , and 165 engineer teachers .table (1) illustrates the population of the research sample.

**Table 1 :** The population of the research sample.

Num	Industrial School	Eng. Teachers	
		Male	Female
1	Jenin industrial school	18	0
2	Selit eldaher industrial school	14	2
3	Tulkareem industrial school	24	6
4	Qalqiliah industrial school	11	0
5	Salfeet industrial school	8	0
6	Nablus industrial school	28	0
7	Dair Dibwan industrial school	18	0
8	Hebron industrial school	16	4
9	Doura girls industrial school	0	11
10	Official managers at MoEHE	5	0
<i>Total</i>		165	

## **1.7 Research Methodology :**

### **1.7.1 Data Collection Tools**

This study adopt a variety of tools for data collection as shown below:

- Questionnaire designed scientifically .The design will consider job analysis, task analysis and positional analysis . Problem faced will be pointed to check the possible training interventions.The questionnaire will be filled up by teachers , supervisors ,school headmasters and personals of the Directorate of Industrial Education .
- Interviews will be conducted with a sample of teachers, headmasters and policy makers in the MoEHE.

### **1.7.2 Data analysis**

The data analyzed using SPSS and theoretical analysis techniques. Theoretical data classified and analyzed as per relationships validity in relation to the comments and updated literature.

## **1.8 Study Approach**

This study adopt the descriptive analysis research methodology as this approach is seen to be the most appropriate for this kind of studies, since this approach well describe the situation and provide a deeper insight into field relations. Furthermore , the description raises many questions

which if answered will lead to a better chances for forecasting and controlling field practices .

**Chapter Two**  
**Literature Review**

## **2.1 Introduction**

The major pillars of any organization are men , money , material and machinery and the most important among them is the human factor . It determines everything and mainly the way the organization is managed and the level of its efficiency.

Therefore taking care of human resources is one of the most critical functions of all types of organizations. To this purpose human resource management departments are established. This administration performs to achieve the objectives of : HR planning, job analysis , recruitment and selection ,performance management ,activation and development . In short it takes care of getting ,sustaining and developing human resources that can best serve organization ends and needs .Human resources development comes with training and professional development .Training as a term refers to the process of enhancing employee competencies .

“Training is a systematic process to foster the acquisition of skills, concepts, or attitudes that result in an improved match between employee characteristics and employment requirements” (Milkovich and Boudreau, 1994, p.190). Training also a planned process to modify attitude, knowledge or skilled behavior through learning experience to achieve effective performance in an activity or range of activities. Its purpose, in the work situation, is to develop the abilities of the individual and to satisfy the current and future manpower needs of the organization.

Training is always a means to an end not an end in itself. Unless it improves the effective performance of work in an organization, it inevitable incurs a waste of valuable resources as research (Goldsmith, Irwin L, 1993, p.6).

## **2.2 Nature of Training**

Training is a process, endeavors to impart knowledge, skills and attitudes necessary to perform job-related tasks with an aim to improve job performance in a direct way. The main parties to this process are organizations, trainer, trainee and training institute . Some define training as a purposeful, systematic approach to helping individuals to improve their performance. However improving the performance is not the only benefit that we derive from training needs to be seen (Amoo, Elizabeth N. A., 1994, p.132).As such training refers to the organized efforts to import and/or sharpen the body of competencies.

## **2.3 Why to Train**

The points mentioned provide an insight into why training.” No enterprise can be guaranteed a permanent place in our highly competitive society, and no manager can last long unless keeping business competitive” (Milkovich and BoudreyJ 1994, p.24). If an

enterprise is to compete successfully and endure, its products or services must excel. In addition to an imaginative research and engineering effort, all this requires a sustained forward looking training effort.

To cope with change, and to prepare the enterprise for adjusting environmental changes, is a sensitive issue faced by managers. Changes occur in technology, products, competition, consumer taste, financial markets, audio-visual communication, basic and technical education, labour markets, government regulations, prices of raw materials and energy, and in many other area influence the performance of employees. When managers realize that old recipes no longer work and routine job experience no longer provide cure answers to new questions, they start looking out for help, training is one of the certified tool in such cases.

On the other side, one of the objectives of any organization is to provide opportunities for its employees to optimize their performance. In the case of the teaching industry, human asset is considered to be of paramount importance. It becomes quit essential for the organization to take care of the employees by providing them with adequate training. Thus organizations adopt training, to develop a person's behavioral patterns, in the areas of knowledge, skills and attitudes, in order to achieve a desired standard level of performance.

When a person is recruited into an organization, he/she is expected to perform certain tasks about which he/she has knowledge/ proficiency. At this point the employee may lack the sufficient awareness about the company's objectives, goals, missions, besides other possible weaknesses ,may be he/she also is poor in delegating ,managing conflict and leadership skills ,therefore ,training is considered as a sole alternative to tackle such contingencies.

Training is also considered as a tool to update databank of knowledge, the employee possesses ,if not consequently employee are left behind in the race for promotions. Therefore, the growth and development of employees in any organization is also of utmost importance in today's world, and training the employees is one of the best ways of securing such development, especially in teaching .Therefore, the development of each and every employee is stressed and the required training should be undertaken.

There are other good reasons to do assessment prior to commencing any training program. When designing training activities, it is extremely helpful to obtain case material directly from the workplace or personal situations of the participants. This way, the trainer can base the course design on real issues that participants actually face rather than simulated or canned material (Bartram, S. & Gibson, B., 1997, p.75-77). One further reason to conduct assessments is the opportunity

it affords to develop a relationship with participants before meeting them at the training . (Stanley, Llyod A., 1987, p.115).

Here are some examples of how assessment work completed prior to the training program paid off (Peterson, R. 1997, p.111-114). school master felt that his platform service personnel needed further training. An assessment survey reveals instead that what they need in specific.

- Prior to a training program, head start are asked to list the most common problem behaviors that they face in their classrooms. The list is then utilized in a course worksheet in which participants are asked to evaluate their consistency as classroom managers. The teachers report their evaluations revealing their own list, which they used.
- A trainer decides to interview some of the participants who would attend their course on performance appraisals. The trainer begins each interview with “I have been asked by the management to develop a training program to improve the performance. I would like to learn straight from the source what actually happens. That way I might learn more about the problems that are occurring”.

To summarize assessing participants prior to the beginning of the program is important for three major reasons:

- a. It helps to determine the training content.

- b. It allows to obtain case material.
- c. It permits to develop a relationship with participants.

This reinforces the importance of needs assessment for the subsequent stages of training cycle.

## **2.4 Benefits of Training**

The points mentioned in why to train discuss in detail exhaustively almost all the benefits of training. Training provides benefits to an organization as a whole and to an individual in an organization. (Palmer, Richard, 2002, p.148)

Some of these benefits may be summarized below :

- Training the engineers provides an opportunity to cope with wrenching changes occurring around.
- Training in methods of work and teaching , using of latest technology, modern machines . Gives the company an edge over others in its field.
- Training also motivates engineers to train and teach them students harder. The very fact that management is confident enough of their abilities to invest in training provides an assurance that they are valued employees. This increases the satisfaction index of the engineers teachers.

- Individual performance and organizational productivity see an upward swing with training effects and as a result of it.
- Training helps in removing the fear in the minds of engineers teachers regarding the unknown changes.
- Using new machinery or technology without proper training may prove hazardous to engineers and irretrievably costly for the ministry and the image of the teachers.
- Training looks after the personal growth and development of employees. Thus it helps them in quenching their infinite thirst for knowledge.

As such ,training serves the engineers and the MoEHE in creditability and becoming more efficient.

## **2.5 Training cycle**

The training process starts from the point of feeling and identifying the training needs. Those needs are put in a training design in the next stage, which contains , the later stage in implementing training in a pre designed environment that suites, the final stage ,which is a follow up and evaluation in which the outcomes and outputs of the conducted training are evaluated

This process in symbolized in the below diagram:



**Figure 1:** Training Cycle  
*Source: Palmer, 2002, p. 148*

## 2.6 Types Of Training

Training may broadly be categorized into two types: Pre-service training and in service training. Pre-service training is more academic in nature and is offered by formal institutions following definite curricula and syllabuses for a certain duration to offer a formal degree or diploma. In-service training, on the other hand, is offered by the organization from time to time for the development of skills and knowledge of the incumbents.

### 2.6.1 Pre-service Training

Pre-service training is a process through which individuals are made ready to enter a certain kind of professional job. They have to attend

regular classes in a formal institution and need to complete a definite curriculum and courses successfully to receive a formal degree or diploma. They are not entitled to get a professional job unless they can earn a certificate, diploma, or degree from the appropriate institution. Pre-service training contents emphasize mostly technical subject matter.

### **2.6.2 In-service Training and Staff Development**

In-service training is a process of staff development for the purpose of improving the performance of an incumbent holding a position with assigned job responsibilities. "It is a program designed to strengthen the competencies of extension workers while they are on the job" (Malone, 1984, p. 209).

In-service training may broadly be categorized into five different types:

#### **1. Induction or Orientation Training.**

This type of training is aimed at acquainting the new employees within the organization and its personnel. Induction training for all new personnel should develop an attitude of personal dedication to the service of people and the organization. This kind of training supplements whatever pre-service training the new personnel might have had (Halim and Ali, 1988).

When people start to work in an organization for the first time, they are eager to know what sort of outfit they are getting into, what they are supposed to do, and whom they will work with. They are likely to be more attentive and open minded than experienced employees. In fact, the most favorable time for gaining employees' attention and for molding good habits among them is when they are new to the job.

## **2.Foundation Training.**

Foundation training is made available to employees to strengthen the foundation of their service career, which is usually provided at an early stage of service life. This type of training is appropriate for newly recruited personnel. Besides technical competence and routine instruction about the organization, every staff member needs some professional knowledge about various rules and regulations of the government, financial transactions, administrative capability, communication skills, leadership ability, coordination and cooperation among institutions and their linkage mechanism, report writing, and so on.

## **3. Refresher Training.**

This training is offered to update and maintain the specialized subject matter knowledge of the incumbents, usually deals with new information, technology and new methods, as well as review of older

materials. This type of training is needed both to keep employees at the peak of their possible production and to prevent them from getting into a rut. This kind of training gives the engineers the ability to keep updated with new technology and to keep in phase with the market needs

#### **4.On-the-Job Training**

This training is generally problem or technology oriented and may include formal presentations, informal discussion, and opportunities to try out new skills and knowledge in the field. It is provided by the superior officer or the subject matter specialists to the subordinate field staff. The superior officer, administrator, or subject matter specialist of each extension department must play a role in providing on-the-job training to staff while conducting normal activities.

#### **5.Career or Development Training**

This type of in-service training is designed to upgrade the knowledge, skills, and ability of employees to help them assume greater responsibility in higher positions. (Malone, 1984) stated that "career development is the act of acquiring information and resources that enables one to plan a program of lifelong learning related to his or her work life" (p. 216). Although extension workers are responsible for designing their own career development education, the extension

organization sometimes sets some criteria and provides opportunities for the staff by offering options.

## **2.7 Techniques of Training and Development**

### **1. On-the-job Training and Lectures**

On-the-job training and lectures, are the most frequently used kinds of training although little research exists as to the effectiveness of either. This form of training is not successful when used to avoid developing a training program, though it can be an effective part of a well coordinated training program.

### **2. Programmed Instruction (PI)**

It is a systematically present information to the learner and elicit a response. They use reinforcement principles to promote appropriate responses. It was thought to be useful only for basic subjects. Today the method is used for skills as diverse as air traffic control, blueprint reading, and the analysis of tax returns.

### **3. Computer Assisted Instruction (CAI)**

With CAI, trainees can learn at their own pace, as with PI. Because the trainees interacts with the computer, it is believed by many to be a more dynamic learning device. Educational alternatives can be quickly

selected to suit the trainees capabilities, and performance can be monitored continuously.

#### **4. Audiovisual Techniques**

Both television and film extend the range of skills that can be taught and the way information may be presented. Many systems have electronic blackboards and slide projection equipment.

#### **5. Simulations**

Training simulations replicate the essential characteristics of the real world that are necessary to produce both learning and the transfer of new knowledge and skills to application settings. The main purpose of simulation, is to produce psychological fidelity, to reproduce in the training those processes that will be required on the job. Simulation can be done for a number of reasons, such as controlling the training environment, for safety, introducing feedback and other learning principles.

#### **6. Games**

Games have been used to train officers in combat techniques for hundreds of years. Almost all early business games were designed to teach basic business skills, but more recent games also include

interpersonal skills. Monopoly might be considered the quintessential business game for young capitalists.

Since this research targets training needs assessment, this literature focuses on this aspect.

## **2.8 Assessment of Training Needs**

The first phase of the training is training needs assessment. Anderson state that needs assessment is the starting point in the training process. It is the phase in which an organization's needs are identified, forming the foundation of an effective training effort. It tells where and what kind of training programs are needed, who needs to be included, conditions under which training will occur, and criteria to guide program evaluation (Anderson 1994, p 206).

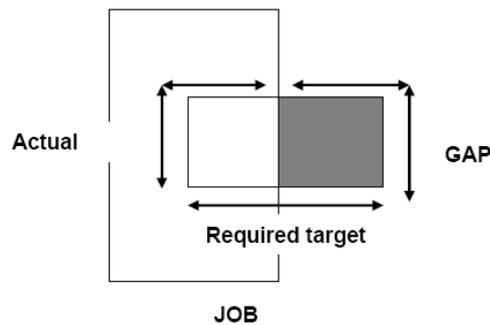
## **2.9 Dimensions of Training Needs**

Training needs are defined under three broad heads. Namely : individual, group and organizational. They are as described below:

### **2.9.1 Individual Needs**

Each employee is given certain targets to meet. He may be able to meet some and not be able to meet others. The problem arise when the level of

performance is below the standard . This problem is analysis as it illustrated in the following diagram:



**Figure 2:** problem analysis

*Source: Pepper, 1984, p.67.*

This gap forms the training need for such employees (Lynton, Roif P., and Pareek, Udal, 1978, p.408). Thus at the individual level training needs are assessed to determine the gaps between the required performance of the employee and his/her actual performance.

### **2.9.2 Group Needs**

For most organizations every employee needs to be a good team player. It becomes essential to determine whether an employee is operating well in his group or not . This is the job of the group level training needs assessment. Such needs assessment brings to light the training needs that are common to all the individuals belonging to the group.

### **2.9.3 Organizational Needs**

This level aims at relating the training and development needs to the organizational systems, problems, diagnoses, objectives, and performance improvement programs. Through training needs identification at this level the needs that encompass the organization as a whole are usually highlighted . The needs identification at this level involves mainly management (diagnostic) surveys for analysing the future threats and opportunities for the organization (Goldsmith, Irwin, 1993, p.69 -77). Doing that will shed the light on the very sensitive areas of training needs in relation to factors influencing competence eternally and externally.

When a problem exists within an organization, the first impulse often is to try solving it with a training program. Yet other forms of intervention may be far more beneficial. Thus without assessment information, it will be difficult to gear programs to the participants needs (Gupta K., 1998, p.55-57). This will provide the employee with a deeper insight of what to be done if facing problems.

### **2.10 What Information Should be Collected**

The trainer needs to collect information about the participants jobs, their performance and the required performance, etc. He/she also needs to analyse the future trends so as to determine the organizational level needs. In addition to that he needs to assess how good a team player each

employee is to determine the group level training needs (Kubr, Milan and Prokopenko, Joseph, 1989, p.104).

The trainer also needs to consider the expectations of the participants prior to the program. The trainer needs to consider, first asking directly what training needs the participants have. Going straight to the participants for their input gives them a hand in designing their own program. Moreover, involving them in this manner is usually well appreciated. For an in-house program, the trainer should consider sending a pre-course questionnaire similar to the one described in the following case example:

A training department instituted the practice of sending a pre-course participant feedback form to all participants of upcoming courses. It will ask three basic questions:

- What are your expectations of the course you are about to take?
- Based on the course description outlined in the catalogue, how do you perceive this program helping you in your current position?
- What additional objectives or needs would you like the course to address?

Next in importance is information about the knowledge, skills, and attitudes of the participants. Questions asked may entail or include:

- How familiar are participants with the content of your training program?
- How much opportunity have they had to practice or utilize skills that have been demonstrated to them previously?

- What are their views about the kind of training you are planning? Suppose a trainer was designing a program on coaching and counseling skills for project leaders. It would be useful to know what skills they already have acquired about coaching new employees or what attitudes they have held about the value of counseling troubled employees.

It is helpful to find out any conditions that will affect participant involvement in the training program. Furthermore get information about:

- What kind of support are the participants likely to obtain?
- Are they worried about their level of competence?
- Are they unaccustomed to the active learning methods you hope to employ?

### **How Can the Information be Collected**

The training needs assessment information can be gathered using a wide variety of techniques which are at the disposal. One should choose the best possible method (Rossett, A., 1987, p.95).

The following is a list of techniques, which could be applied for assessing the training needs:

## **1. Tests, Exercises & Examinations**

A test is a means of observing and describing how an individual performs in a methods of assessing training needs by asking specific questions and cross- checking and evaluating the answers. It is however, important to use questions that enable the assessor to test actual knowledge or skills, not impressions or intentions to do something. They are most frequently used to classify and group the trainees properly for the courses, and to define immediate training and development needs.

## **2. Questionnaires**

A questionnaire contains a set of questions for which the respondent supplies written information related to his/her job and training needs. Questionnaires are basically of two types: closed form questionnaire which provides a list of items to be checked, alternative answers to be selected, or blanks to be filled, and open form questionnaires which encourages respondents to go beyond the factual material and convey their attitudes, feelings and opinions. The researcher use both of the two types to gather more information about engineers training needs.

the questionnaire is preferred to many reasons as: it course a wider range of the research population , it raises issue as much possible without ignoring or missing any of them , the sample fills it to his convenience when he gets time to doing it.

### **3. Interviewing**

Interviewing is a universal fact finding technique, its purpose is to gather relevant information in face-to-face contact. It focuses upon a specific subject that is relevant to a specific situation.

### **4. Critical Incidents**

Critical incidents are those particular and distinct events in the life of the organization that are different from the ordinary daily routine. In facing these events, it is assumed; managers will apply and demonstrate certain skills, or will be unable to take appropriate action since they are ill prepared for such a situation.

### **5. Performance Appraisal**

Performance appraisal is the process of evaluating employee's effectiveness against predetermined, job-related performance standards or objectives usually set by job descriptions or other specific requirements. It aims to determine the relationship between the individual effort and results, as well as between individual results and the attainment of organizational objectives.

Consistent periodic performance appraisal of all employees in an organization would reveal problems and deficiencies, some of which could be traced to the absence of required knowledge, skills, behaviour,

and so on. These findings could be formulated, as training needs, thus providing information on which effective training programs can be built.

## **6. Self Assessment**

Self-assessment is a conceptual approach to needs assessment rather than a technique. In practice, it is essential that people have insights into their own strengths and weaknesses. It is normally achieved through systematic self-study in a variety of situations, and by being alert to signals that may indicate problems in individual's behaviour and performance (Soriano, F. I., 1995, p.129) .

In summary the goals of needs assessment is to enable the trainers to help individuals achieve better results in both the short run and the long run, making sure that engineer teacher needs are met with priority. Without proper needs assessment the effectiveness of a training programmer can be reduced to zero. hence needs assessment is very crucial to the success of a training programs .

### **2.11 Teacher competencies**

For a successful fulfillment of educational goal a teacher in industrial school should pass a group of competencies. Many of the studies on competencies of teachers focus on the teaching role of teachers in the classroom rather than teachers' competencies. Teachers' competencies have been broadening with respect to reform studies in education,

development of teacher education, scientific results of educational science and other fields. The aims of education change very quickly depending on the demands of the era requiring more capability. These demands directly affect educational system. Teachers are responsible for operating educational system and they need strong and efficient professional competencies.

Teachers' competencies must be reviewed so that teachers' competencies should be redefined depending on the development of the whole life of human and education. Competencies are defined as "knowledge, skills, attitudes, values, motivations and beliefs people need in order to be successful in a job"( Gupta ,1999) The common understanding related to teachers' competencies is divided into three main areas as field competencies, pedagogical competencies and cultural competencies. Teachers' professional competencies can be comprised of different dimensions other than the three main areas. The main feature of teachers' professional competencies are:

- Field Competencies
- Research Competencies
- Curriculum Competencies
- Lifelong Learning Competencies

- Social Cultural Competencies
- Emotional Competencies
- Communication Competencies
- Information and Communication
- Technologies (ICT) Competencies
- Environmental Competencies

#### **2.11.1 Field competencies:**

Field competencies are the main areas of teacher competencies that include academic studies about content. They are the ones necessary for teachers to conduct their profession. They are the teacher competencies regarding the subjects that teachers will teach or students will learn. Formerly, field competencies were deemed as the most important competency field based on the concept that teachers were the only responsible in transmitting the content.

#### **2.11.2 Research Competencies :**

Include the competencies of research methods and techniques, designing and carrying out research in teachers' fields. Research competencies are influential for teachers in following the developments in their fields and developing themselves based on these developments. Besides, the

research competencies of teachers are of great importance for students in gaining the scientific thinking and scientific process skills.

### **2.11.3 Curriculum Competencies:**

Curriculum competencies are related to the understanding of the curriculum plans for the teaching and learning. Curriculum competencies are the competencies of teachers oriented towards carrying out their teaching role more effectively. These competencies are related to both theoretical and practical competencies. Without curriculum competencies, it is quite difficult to produce an effective education service in schools. In order to discuss the curriculum competencies more effectively and explain why teachers need them, they can be analysed in two sub-competencies. Lifelong learning process requires that learners take responsibility of their own learning. As individuals, teachers are acting for their own learning in the lifelong learning process. Lifelong learning activity goes through the whole life continuing between individual and the world (Selvi, Phenomenology 489).

### **2.11.4 Lifelong Learning Competencies**

Include the abilities of learning to learn, and teachers' responsibilities of their own professional development. It means that lifelong learning includes two main abilities. The first one is related to teachers' own

lifelong learning ability and the second one is related to teachers' responsibility to develop students' lifelong abilities.

### **2.11.5 Emotional Competencies :**

Emotional competencies are composed of teachers' and students' values, morals, beliefs, attitudes, anxieties, motivation, empathy and so on. They are related to the implementation of psychological consultation and curriculum of guidance in school. Teachers' emotional competencies can help students to learn and students' willingness to learn can be increased if teachers know how to improve the emotional dimension of students' learning. Emotional competencies also help teachers become effective teachers while monitoring the students' learning. Learning requires emotional supports that create positive feeling for learning teaching process. Teachers become a learning consultant and mentor about learning for their students.

### **2.11.6 Social Cultural Competencies :**

include the knowledge about social-cultural background of students and teachers, local, national and international values, democracy and human rights issues, team and collaborative work with others, and social studies. All of them provide freedom to students and teachers in learning-teaching process and also promote the learning. The individuals become social and cultural beings in social life.

### **2.11.7 Communication Competencies:**

This kind of competencies includes communication models, interaction among teachers, students, social environment and learning topics. Teachers also have competencies in using oral, body and professional language in their fields. Communication competencies include voice, body language and words such as speaking, singing and sometimes tone of voice, sign language, paralinguistics, touch, eye contact, or the use of writing. They include communication skills in intrapersonal and interpersonal processing, listening, observing, speaking, questioning, analyzing, and evaluating.

### **2.11.8 Information and Communication Technologies-ICT**

ICT competencies are based on using tools and technical equipments for the reaching, disturbing and transferring the knowledge. They include any technology that helps to produce, manipulate, store, communicate, and disseminate information. It means that the ICT competency is very important to improve the communication in the learning and teaching processes.

### **2.11.9 Environmental Competencies**

This kind of competencies can be defined as competencies for ecological and environmental safety. It is a dimension of the sustainable development of teachers. Knowledge, attitudes and skills about ecological

system and environment such as keeping clean and available environment, management of ecological resources, being aware of ecosystem, feasible uses of natural resources and availability of natural resources.

In conclusion , teacher competencies should complement each other. Furthermore, the school management should perceive any deficiency in any of these competencies and consequently take the necessary measures to improve it.

## **2.12 Previous Studies**

**Abernathy (2000)** conducted on "A Descriptive Case Study of a Florida School District's Human Resource Management Development (HRMD) Plan: Preparing New Principals Program". The purpose of this qualitative case study was to examine and describe the characteristics of one part of a selected Florida school district's HRMD leadership development plan known as the Preparing New Principals' Program (PNPP) in relation to the development of Florida's nineteen Principal Competencies. An interesting finding of this research can be marked with the expression that the school principal could be the most pivotal person to develop the professional capability of the assistant principal. So the principals used to be worthwhile of problem based learning and reflective thinking. They also need to possess the quality of knowing how the real needs and problems are used in skill building from problem solving. While mentoring the learning process

of Assistant Principal, it is the requirement that the Principals need to possess the knowledge about the learning needs of adults.

**Badal (2000)** presented a study on “A Study Assessing the Effectiveness of a Performance Appraisal System for Elementary School Administrators”. Performance appraisal instruments used throughout the private and public sector have never been without flaws. The current certificated administrator performance appraisal instrument used in a central California unified school district is a case in point. The rationale for the current performance appraisal instrument's ineffectiveness appears to stem from two main factors: the lack of appropriate administration of the appraisal instrument, and the degree of subjectivity involved in measuring the principals' performance. Both factors may contribute to American public elementary schools' underachievement and weak competitive performance. The study-analyzed data gathered from questionnaires administered to 16 elementary school principals in a central California unified school district. The responses from the questionnaire were analyzed based upon strategic criteria and adapted for the educational administrators. Suggestions were made regarding the deficiencies of the performance appraisals. For the purpose of evaluating the effect of responses on the findings of the research, two alternate categories were revealed: (i) Coaching methodologies and (ii) Two option response scale. It was found that coaching method was more favorable and suitable to appraisal of current administrative performance, in Central California Unified School District. The purpose and intention of

presenting it as a qualitative dissertation, to encourage discussion, and the research was based on private school districts not only California but also throughout the United States.

**Vartinan and Elizabeth (2000)** conducted a study on “Power, Partnership and Professionalism: A Model for Needs-Based Teacher Professional Development”. The common and critical issues related to the continuation of professional development for elementary teachers was focused upon, in this research. The basic point behind this stress was that most of the teachers are usually faced with many challenges throughout their professional life. The professional growth and development of the educators in this way is the most important problem. Same is the case with school district. Hence it becomes emergent that resources need to be used in a way that it maximizes the teachers’ professional growth and development. The study concluded that power, partnership and professionalism must be part of the design, development and implementation of needs-based teacher professional development. The researcher encouraged school districts to form a staff development committee to serve as the facilitators of teacher professional development.

**Snow (2001)** conducted a study on “Teacher Induction: A Research-Based Framework”. The beginning teachers in Decatur City Schools, teachers have their own way to have a concept of an induction process (New Teachers Academy). This is a point on which the study stressed and

investigated, so as to develop an understanding and appreciation for the perspective of the beginning teachers, and also for obtaining information about the utility of induction process in the effectiveness of teachers. It was found through the study that beginning teachers had a positive perception about the New Teachers Academy. This academy has special features and influential programs about adult education as well as Human Resource Development. It has been expressed by the beginning teachers that the academy played an effective roles in developing a healthy perception among their teaching profession. Through the information provided by the beginning teachers, the frame work of induction came into light. The induction components were made clear, and more helpful in induction process. This whole information will help the policy makers and district personal in improving the performance of beginning teachers.

**Crain (2001)** conducted a study on “The Effects of a Formal Induction Program on Newly Hired Teachers Perceptions of Self-Efficacy”. Another output of the study was the comparative analysis of the induction program for the teachers and the existing status of their beliefs about self-efficacy. We can find the impact of the “Self-efficacy”, in this way ,on the working link between teachers demographic characteristics (age and gender, as well as their being from rural or urban background)before they further improve themselves through their experience. It also shows the effect of self efficacy on the role of a teacher in huge educational organizations and school. This study found that the induction program did not have a positive

effect on teachers' self-efficacy, In fact, teachers' self efficacy beliefs declined for both experimental and control groups. Additionally, the study finds no relationship between teacher characteristics and self-efficacy.

**Franks (2001)** undertake" An Investigation into The effectiveness of the "Trainer of Trainers" Model for In-Service Science Professional Development Program for Elementary Teachers". Another purpose of the study was to assess the level of success in the application of "Trainer of Trainers" (TOT) model of professional development of Elementary School Teachers (in the area of science teaching) through their participation in MSEC (Mathematics and Science Education Cooperation). Training material and equipment were distributed among the five of the Elementary School, after the work session for the core group of teachers within the School District. The under training teachers ever supposed to share information and experience, plan, and collaborate with their grade level team members, under the auspices of the Trainer of Trainer. Both qualitative and quantitative methods were used data collection. Focus groups, interviews, observations, and survey instruments were the primary sources of data collection. Triangulation methods were used to establish validity and verification of data. Analysis was an on-going process that included several levels of affinity groups, interrelationship diagrams, path diagrams, and system influence diagrams. Interview and feedback surveys were also used to evaluate the problem under investigation. Teachers considered the state mandated assessment test to have the largest impact on

the school curriculum and to be the primary reason that teachers could not find time for science teaching. Furthermore, they believed that the administration played a huge role in determining if science took a back seat at their respective schools.

**Chapman (2001)** studied "Performance of Training Performance Measurement: A Comparative Study of North Carolina Training Professionals and Non-Training Managers. The study addressed a perceived gap between training performance evaluation practice and decision-making criteria required in business, Investigated: 1) What training performance measurements are valued by managers leading non-training functions and by training professionals. 2) Whether there is a difference in preferred measurements of performance evaluation between the groups and 3) Whether the value of performance evaluation measurements can be predicated by an individual's demographic characteristics. A survey was developed containing measures found in training and non-training professional literature and used to compare the group's perceptions of training performance measurement. The conclusion of the study were; (i) The reaction of training personals and non training managers about training performance measures was different. (ii) More likely, the training professionals react to job individual-level training measures, (iii) Non-training managers mostly rely on the measures at organizational level. (iv) The non training managers have no concerns about the conversion of training benefits to \$ dollar figures, (v) Both the

training professionals and business industry value the on job test and customer services reports, (vi) A lack of interest but a big potential are suggested by the Job response, for the strategic positions of the training functions.

**Leland (2001)** conducted a study on *The Process of Becoming a Teacher Perspectives on Induction*. This narrative describes - how teaching identities are constantly renegotiated as a result of events both within and beyond the school context. It reveals how the multiple competing voices within the profession speak powerfully to those teachers who are anxious to negotiate a successful path for themselves and their students within a new school context. It illustrates how all teachers, regardless of their history, beliefs, or length of teaching experience, are disconcerted by these voices. Eventually, almost against their will, teachers heed these voices. Thus, it is clear that the events of those first years within a school setting have an impact on who or what we become as teacher? This study depicts how three teachers negotiated the real world of teaching amidst - the clash and clamor of the multiple voices vying for their attention and commitment. It reveals power-that particular voices garner in order to be heard, most of all it reveals the struggle that the participants wage in order to carry on the business of teaching and learning. This work also provides hypotheses for further research and study of beginning teachers' experiences during the induction years and points out the role that experienced colleagues play in the developing persona teacher.

**Meanor (2001)** conducted a study on "Teacher-Driven Professional Development". Study focus upon the adoption of teacher-driven professional development in a Delaware school district. The focus of analysis is, how the district implemented this aspect of teacher-assisted decision-making and the implications for increased teacher satisfaction with professional development. Following themes emerged from the analysis. (1) Understanding the importance of continued learning is essential for teachers and can lead to a sustained learning culture in schools, which benefits students. (2) Sharing power in schools, even perceived power, is not easy but can be facilitated through preparation, guidelines and support. (3) Recognizing the psychological and social needs and characteristics of educators when planning professional growth is essential. (4) Confronting the need for changing the traditional modes of professional development is fundamental. Two findings that came up in this study are, teachers recognize the need for continued learning and appreciate shared-decision making. In addition, teachers indicated satisfaction with professional development when the time commitment is recognized and they were provided with choices. Findings of the study; if professional development implemented, it could improve the education profession by infusing it with rigorous standards for continuous and sustained learning.

**Frost (2001)** undertaken "A Case Study of the Ways Individuals Conceptualized and Participated in a Professional Development School". This case study described the various ways individuals in one Professional Development School (PDS) conceptualized and participated in this partnership. The sample taken for this study comprised upon the faculty from a suburban elementary school and the faculty from the elementary and early childhood education department of the partner university. Documents, questionnaires, and interviews provided the primary data source for this study and were analyzed inductively. Findings of the study revealed that the ways participants conceptualized the PDS were linked integrally to the ways that they participated in it. Following three categories of participants emerged from the data analysis. (i) Individuals appeared to view the PDS as an agreement for them to implement. (ii) Some conceptualize the PDS as a commitment and to view their roles as collaborators in ongoing efforts to fulfill this commitment. (iii) Participants emerged to hold more dynamic conceptualizations of the PDS and to participate in inventing new visions. Interpretations of these findings include a discussion of developmental, personal, and social dimensions that may contribute to these differences.

**Chen (2001)** conducted a study on "The Experiences of Participating in Continuing Professional Development: A Study of Human Resource Development Professionals in Taiwan". The purpose of this study is to gain a deep understanding of the meaning and the nature of the selected human resource development (HRD) professionals' experience of

participating in continuing professional development (CPD). In this research Hermeneutic phenomenology method was used as the research methodology. A group of fourteen members of the Human Resource Development Association of Republic of China (Taiwan) were invited by the researcher purposefully, and the participants were given different tasks related to HRD, giving them an opportunity in the field to work on it where they gave a research text drawn by the researcher from them through face to face conversational interviews on the basis of some open ended questions. All those were interviewed twice. The conversation were recorded and transcribed as a research texts. Through thematic analysis of the research texts, several essential themes and sub themes emerged as follows: (1) "I felt changes:" (a) "I felt changes in the business environment," (b) "I felt changes in the HRD field," and (c) "I felt changes in my career (2) "I felt a drive for learning and development" (a) "I was preparing for my future" (b) "I desired to keep myself active" (c) "I desired to know more" and (d) "I felt self-challenge or self actualization" (3) "I felt CPD was part of my working life" (a) "I learned while working" (b) "I perceived organizational culture influenced my CPD" and (c) "I built my professional networks" (4) "I felt powerless and frustrated:" (b) "I felt anxious about participating in some continuing learning activities" and (c) "I felt my professional competencies and expertise did not give me power."

**Al-Khamis (2001)** conducted a study on "Human Resource Development in Saudi Arabia: The College of Technology Role in Supplying Skilled Manpower to the Private Sector". The purpose of the study was to assess the role of Colleges of Technology in relation to human resource development in Saudi Arabia, in general, and investigate and identify factors that have an impact on the hiring Colleges of Technology graduates in the private sector, in particular. Finally, the study also sought to determine the degree of importance of each of these factors. The overall quality of college programs were revealed by the three groups and it was reflected in the research. Some other factors such as graduate basic skills, job security in the private sector and the weekend work were also amongst some common perceptions. The factors which lowered the college graduates employment proved that the graduate basic skill has very moderate effect while rest of the two factors had the effect ranging from moderate to high. So far, as the factors, as the college objectives, college program outcomes, graduates profession, wages in the private sector ,daily working hours and college program variations are concerned, some different perceptions were found amongst these groups.

**Ray (2002)** conducted a study on "Impact of Staff Development Training on Technology Integration in Secondary School Teachers classrooms". The purpose of this qualitative study was to explore the relationship between a particular staff development design to explore the relationship between a particular staff development design and the extent to which the integration

of technology in classroom practice occurred after the training. It also noted whether or not teachers who participated in the staff development would become leaders in technology integration. It was found in the study and guided towards the conclusion that to ensure the effective Staff Development, which provides the teachers with the encouragement, following points, must be kept in mind: (a) Teachers placed in an active role in demonstration, Extended time to assimilate learning, Help teachers to develop material, Peer observations, Collaboration, Opportunities for feedback, Teachers ability to choose activities. (b) Follow up support. During the research execution it was found that ten out of twelve teachers were using technology in the class room during teaching activities to support the curriculum and enhance student learning. All of the teachers used skills learned at teacher technology training to research in preparation for class and to create institutional materials. Teachers reported a change in teaching using technology: increased access to all sources, especially current sources; shared teaching with experts in the field, reputable Internet sites, and students who presented information; ability to strengthen interest and understanding by presenting information. This project will serve as "living document" or road map for the growth of the company that will be periodically reviewed and updated and used as a means of maintaining focus on the true mission of the practice.

**Davis (2002)** conducted a study on "Perceptions of New teachers and Building Principals Regarding the Effectiveness of Site-Based Teacher Induction'. The purpose of this study was to determine the perceptions of new teachers and building principals regarding the effectiveness of site-based teacher induction practices and compare the differences in the perceptions of these two groups. The induction practices in the study related to three areas of concern in teacher induction: reasonableness of teaching and extra duty assignments, colleagues' support, and adequacy of feedback and encouragement provided by building principals. Two hundred and fifty-four new teachers and twenty-eight building principals participated in the study. Data was collected through a survey instrument with statements that represented specific induction practices. In all the three areas of concern, a statistically significant difference between perception of new teachers and building principles were indicated through the results of the study. To what extent was the reasonability of teaching and extra duty was considered by the building principles, the response were positive. It was found by new teachers as well as building principles that the role of the rest of the colleagues was also favorable and supportive. However the perception of the building principles on this issue was more strong and clear as compared to that of new teachers. So far as, the adequacy of the feedback is concerned, the feeling of building principles and new teachers felt alike and their perception was positive about the

feedback and encouragement. However the new teachers were comparatively less confident and clear in this regard.

**Abu Asbeh (2005)** conduct a study titled” Problems of Vocational Education in the Palestinian Secondary Vocational Schools from the Views of the Teachers and Students Involved in the Vocational Education “ This study aimed to define the problems of vocational education in the Palestinian secondary vocational schools from the views of the teachers and the students involved in the vocational education.

For the purpose of this study, stratified randomized samples were used for the teachers and students. The teachers sample consisted of (132) teachers forming (48.5%) of the study population, while the students` sample consisted of (479) male and female. Students` forming (9.4%) of the study population. Instruments were developed to fulfill the aims of the study; The teachers` instrument consisted of (62) items distributed over (6) areas dealing with the existing problems. The areas are administration and organizing, the teachers` professional development, curriculum and courses, financing the vocational education sector, and the society's view towards the vocational education

The findings of the study indicated the following:

- Concerning the teachers` view, the total degree of the problems facing the vocational education in the Palestinian schools was great.

- Financing the vocational education sector came first among the existing problems, while the teachers` professional development was the least. The percentages of the responses to these problems were (81%) and (61%) in order.

The total degree of the problems according to the students` view was fairly low. The percentages of the responses to these problems were (66%) regarding financing the vocational education sector and (49%) considering the teachers` professional development. There was no significant difference ( $\alpha = 0.05$ ) related to the means of problems from the view of the teachers due to gender, years of experience and region, while there was significant difference due to academic qualification in favor of those who got the Bachelor`s degree.

There was significant difference ( $\alpha = 0.05$ ) concerning the problems according to the students` views due to gender and grade, while there was astatistically significant difference due to major. The difference was between the agricultural, commercial and industrial branches, and finally there was significant difference due to region in favor of the West Bank. On the basis of these findings, the researcher recommended the following:

- Following certain vocational criteria to meet the local market needs on one hand, and the international standard on the other hand, and developing measures to guarantee and monitor the quality of the vocational education system.

- Conducting surveys in rotation, for the labour market to know the needed skills in certain majors and being in contact with the graduates majoring in this field.
- Founding an effective partnership with the private sector to finance and train the students, involved in the vocational stream.
- Preparing awareness programs to improve the society's positive view towards the vocational education.

**Hamdan (2002)** conducted a study titled “The problems of the governmental industrial schools in west bank from the teacher viewpoint “ This study aimed at determining the problems of the public industrial schools in the West Bank from the teachers viewpoint. It also aimed at identifying the effect of the variables of ( gender, age, teaching, field, years of experience, school site, teachers residence, qualification, salary, and teachers major) on the public Industrial schools problems in the West Bank.

The study was conducted on the whole population, which consisted of (164) teachers, Engineers, technicians and principals. (120) questionnaires, (73.2%) of whole population, were returned back and statistically analyzed. The questionnaire was the major data collection tool consisted of (62) items distributed on the following six domains to measure the following problems: financing, the organization and systems, the curricula problem

domain, the teachers/ trainers problems domain, the building and machines, and the parents and students.

The findings of the study revealed that

The degree of the problems of the public Industrial schools in the West Bank was high (74.4%). The domain of the parents and students problems came in the first rank (74.4%). While the curricula problems domain came in the last rank (65.4%).

Teachers agreed that the most appropriate suggestion to solve the problem in the public Industrial schools is the availability of the fund to modernize and maintain the machines ( 16.7%). The suggestion that took the least percentage was the activating of the production and service Activities (1.6%). There was no significant difference at ( $\alpha = 0.05$ ) in the problem Industrial schools in the West Bank districts due to the variables of age. Place of residence. Field of teaching, years of experience and school site.

some of study recommendations are:

- Industrial schools should be financed to purchase and maintain machines and instruments.
- There should be coordination between the authority that supervises the Industrial education and the universities and public education to agree on

the conditions for the admission in universities and the continuation of higher education.

- Attention should be given to the curricula so that it can be appropriate for the requirements of modern technology.
- Instructive programs should be held to explain to the tenth grade the importance of the Industrial in building the national economy.
- Further studies should be conducted on the other streams of the vocational education such as the commercial and the agricultural streams.
- Similar studies should be conducted on Industrial education in Gaza Strip to compare between its results and the results of this study.

### **Summery**

The above mentioned studies did not tackle with the topic of this study and mainly its audience. Furthermore, the described research helped a lot in designing the tools of data collection for this study.

## **Chapter Three**

### **Methodology**

### **3.1 Study Approach**

This study will rely on the descriptive analytical approach, which serves as the most suitable methodology for this type of research, the descriptive approach organizes and summarizes the information that is needed for the research problem. This approach implies collecting data that describes the current practices and analyzing them in relation, to investigate the current situation of the training programs of the engineers and teachers.

### **3.2 Data Collection Tools**

Data collection for this research utilizes a variety of tools as given below :

#### **3.1.1 Questionnaire**

A questionnaire was designed using related studies in the field of training. It was tested, and circulated to the targeted audience.

With regard to testing, it was sent to ten academicians in the field of specialization. In addition to that it was sent to Director Manager Dr. Ziad Jewelis, in the MOHE, three headmasters of industrial schools, and to five engineer teachers. They were asked to examine clarity and coverage. They made certain comments which were taken into account. Consequently some items were clarified, four items were added, and three were merged.

The questionnaire in its final form is described as follows:

a) **Part One:**

This section includes the introduction to the questionnaire that contains the covering letter, which pinpoints the nature of the study and its objectives. In addition it requests that respondents cooperate by filling it accordingly. It also stressed that the data provided will be used only for scientific purposes on this research and treated by the researcher alone.

b) **Part Two:**

contains the (demographic data ): about respondents as gender, age, educational qualification ,specialization, years of experience ,job title and school name, In total this part contained six items.

c) **Part Three:**

This part focused on the various sectors of training needs. Those were identified in five sectors as follows :

Questionnaire items and categories.- The categories are as follows:

1. General questions about the vocational schools mechanism. it contained seven items.
2. Personal training need for teacher of engineering in vocational schools. it contained twenty items.

3. Training need and educational practices that needed in the education process .it contained ten items.
4. Evaluation training needs and Feedback .it contained eleven items.
5. Administrative training needs. It contained twenty one items.

**d) Part Four:**

This part contained five open ended questions they were ;

How many training courses you have attended during the past three years:..... courses?

How far did the training you attend fulfill your training needs?

List four training needs of the top level priority to you?

List the most sensitive problems you face at work?

Any comments, observation please state them ?

This part has also included questions about the level of training needs to be achieved throughout the completed training. Answering these questions contributed to reinforcing and enriching the findings of this research.

After preparing of the initial draft of the questionnaire, the researcher presented it to a number of experienced arbitrators (university professors,

Ministry of Education and High Education, industrial school headmasters and engineers teachers) in order to ascertain the veracity of the questionnaire's content. The researcher also needed to ensure the suitability of the study's objectives and variants. After thorough examination, various experts validated the questionnaire as a comprehensive and accurate tool for the purpose of this research.

### **3.1.2 Interviews**

Interviews were conducted with three Managers and three headmasters of industrial education school of the Ministry of Education and High Education , primarily to analyze the questionnaire form . Interviews proved useful in clarifying and addressing issues to concern.

Interviewers expressed a very high level of commitment and provided the researcher with ideas and suggestions which contributed strongly to the outcomes of this research.

### **3.2 Population and Sample of the Study**

The population of the study covers Palestinian industrial schools in the west bank , distributed over all governorates in west bank , two in the Jenin governorate, two in Hebron , one in Nablus, one in Tulkarm, one in Qalqilia , one in Ramallah and one in Salfet.

The population consists also included all Ministry Mangers of vocational education , schools principals and engineers .Below is a brief description of the sample which covered the total population.

It is worth mentioning that the total population is 165 engineer teacher, 143 among them reported a valid questioners for analysis ( it means 86.7% from the total population).

Based on the information received from the survey of engineers , in various categories, were generated. These profiles are classified into the following categories.

- a) Gender .
- b) Age Group .
- c) Educational Qualification.
- d) Specialization.
- e) Years of Experience.
- f) Job Title.
- g) School.

### Gender wise ratio

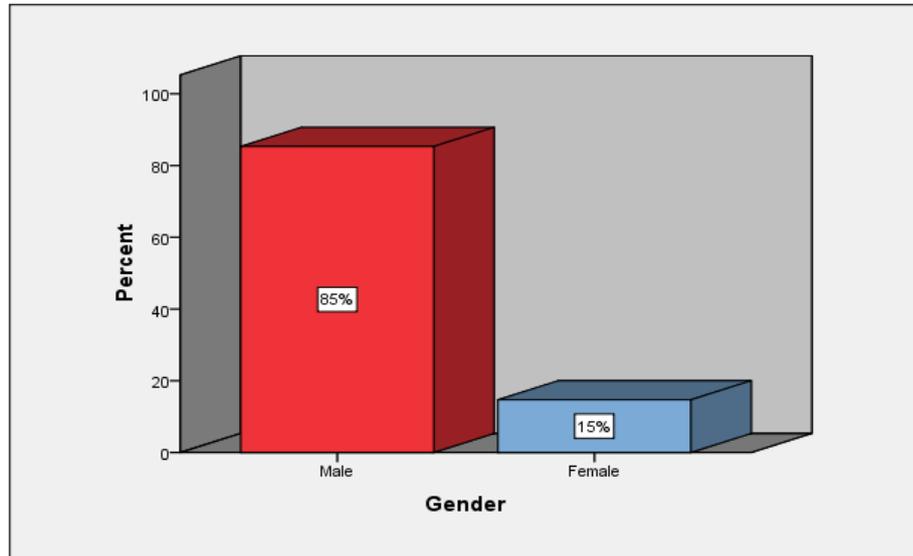


Figure 3: The population distribution by gender.

### Age group of the respondents.

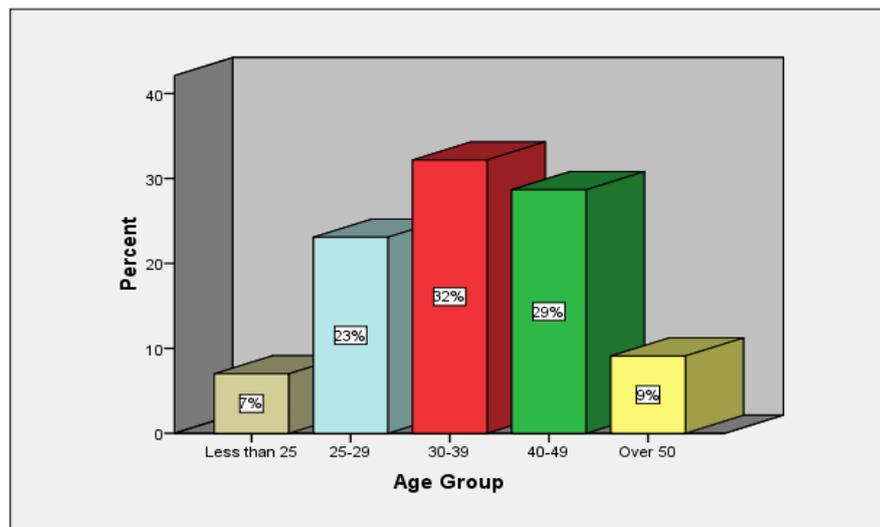
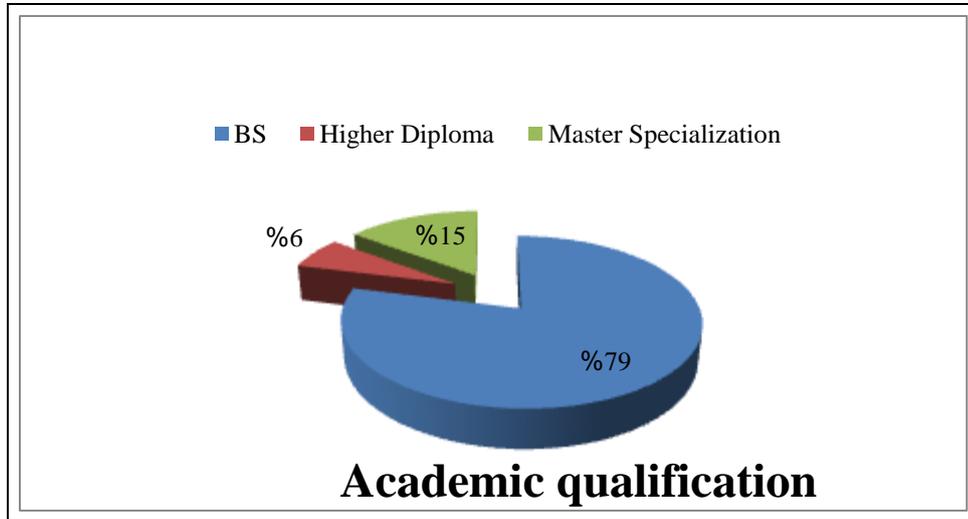


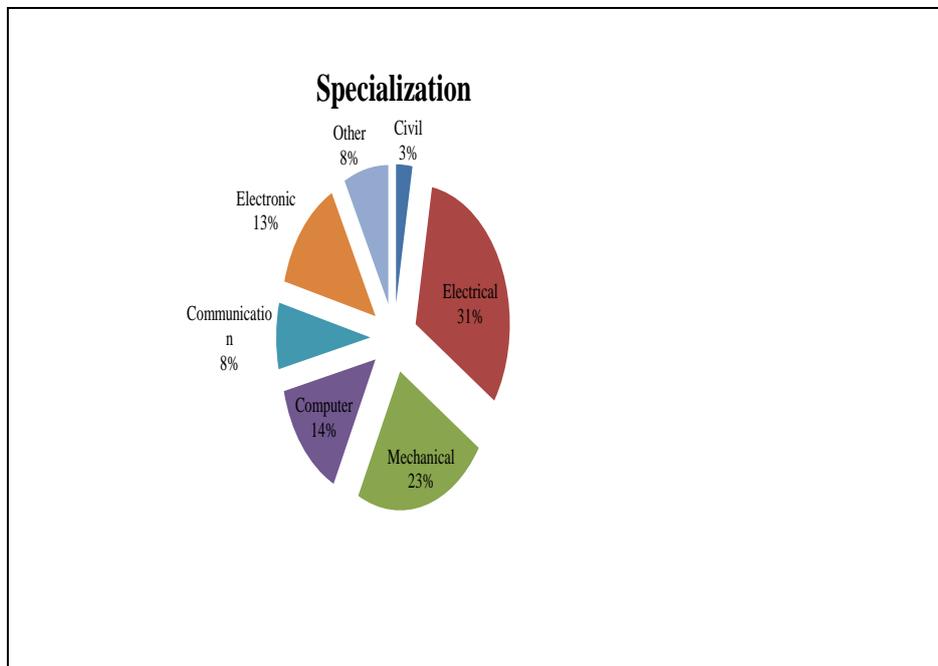
Figure 4: The population distribution by age group

### Academic qualification wise distribution of respondents



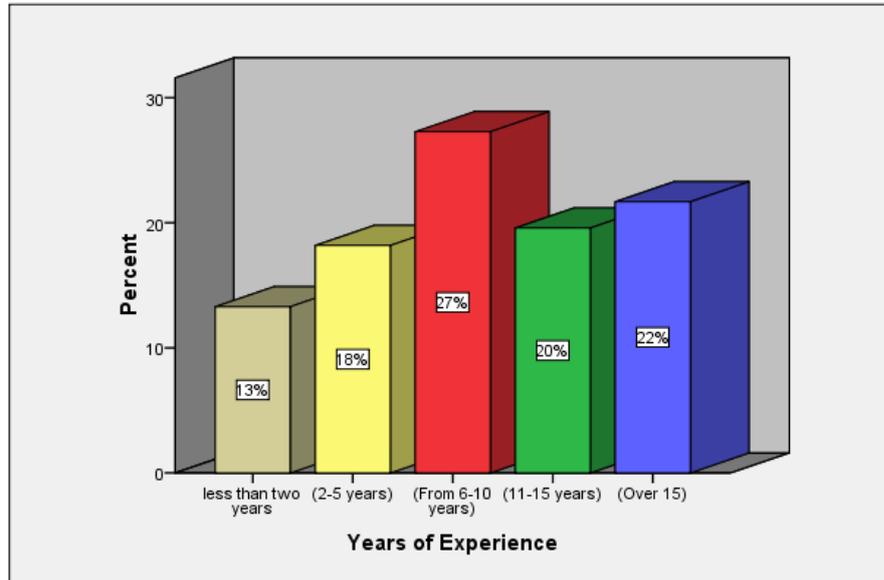
**Figure 5:** The population distribution according to academic qualification

### Academic specialization wise distribution of respondents



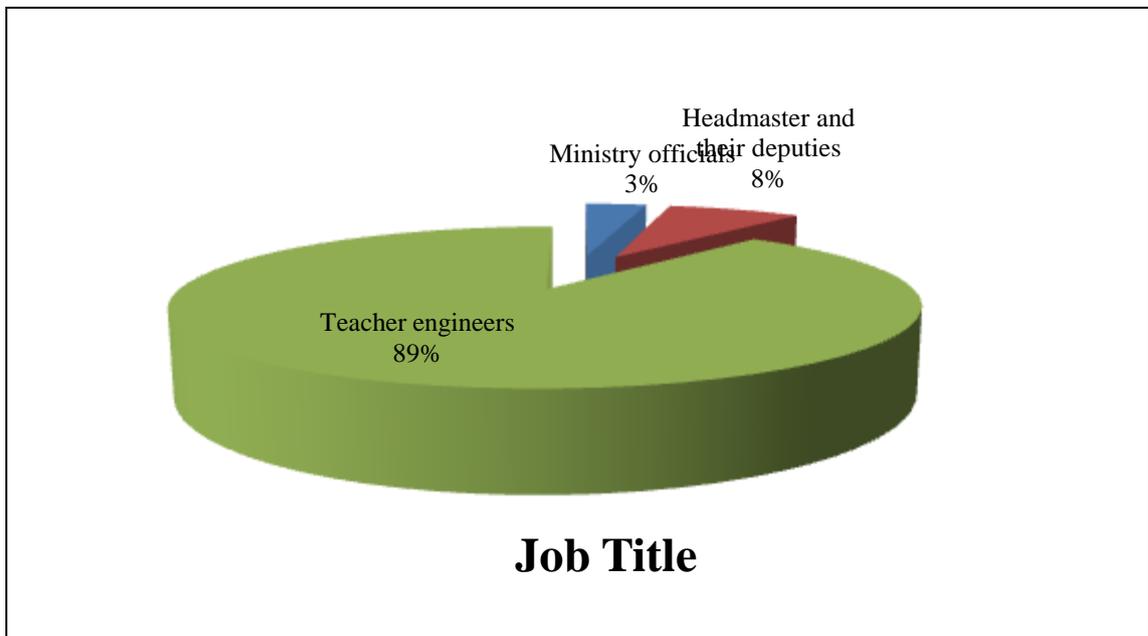
**Figure 6:** The population distribution according to academic specialization

### Job experience wise distribution of respondents



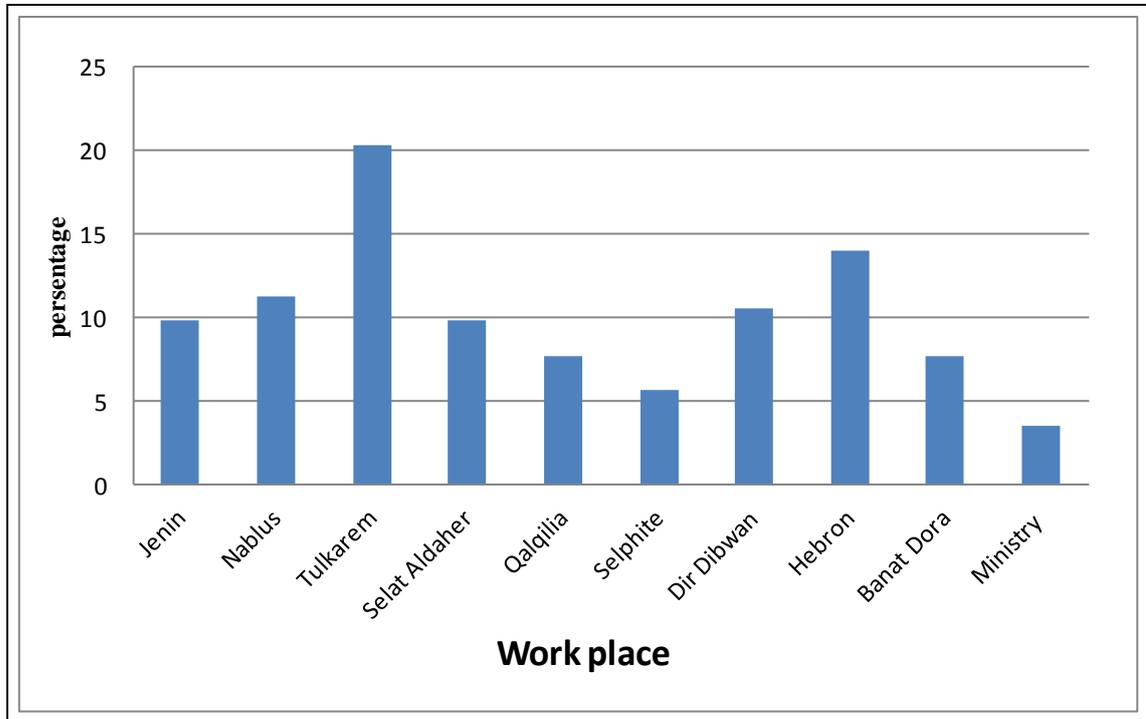
**Figure 7:** The population distribution by years of experience

### Job title wise distribution of respondents



**Figure 8:** T the population distribution by job title

### Work place wise distribution of respondents



**Figure 9:** The population distribution by work place

A reliability test was carried out using Cronbach's alpha , the result was 0.932 and this a very high reliability level to validate study results.

**Table 2** Reliability Statistics

Cronbach's Alpha	N of Items
0.932	20

### 3.3 Statistical Analysis

The researcher used SPSS to analyze the data. The following statistical procedures used were: Frequencies, means, percentages, and standard deviations.

### 3.4 Theoretical Analysis

The qualitative data was analyzed using the following techniques: logical arbitration, correlations, reason impact analysis, data validation (data collection from many sources using more than one tool), comparisons relevance to the scientific models and theories.

The key was calculated depending from the fact that five choices cover between 1-5. It means that every choice is represented by (0.80), means appearing in the study donates the following meanings:

<b>Mean</b>	<b>Meaning</b>
1-1.8	Very low
1.81-1.60	Low
1.61-3.4	Mid
3.41-4.2	Urgent
4.21-5	Very urgent

## **Chapter Four**

### **Findings**

## 4 Findings

The training needs of teacher engineers in industrial schools can be classified into five areas namely: general training needs, personal training needs, educational practices training needs, evaluation and feedback training needs and administrative training needs. Investigations in this regard resulted into the following, findings:

**Table 3** Areas of training needs

	Percent	Mean	Std. Deviation	Description
Educational Practices	79	3.96	.597	Urgent
Personal Aspects	78	3.92	.588	Urgent
General	78	3.91	.724	Urgent
Evaluation and Feedback	76	3.82	.727	Urgent
Administrative Needs	75	3.74	.763	Urgent

The table above indicates that training needs in all areas are perceived as urgent. Though educational practices training needs head the list, but means of other areas are very close and standard deviation in the same area . and between area is very low also .However , below is additional illustrations of the findings .

#### 4.1 General Training Needs:

General training needs were viewed under seven headings those are :  
 perceiving market need, managing industrial schools and mechanism of work, philosophy and objectives of the industrial schools, policy of industrial schooling, network of industrial schools relations, teacher language and pronunciation and laws , regulations governing work.

The level of these needs are given in table 4 :

**Table 4** :General Training Needs

	Percent	Mean	Std. Deviation	Description
Perceiving market need	83	4.15	1.037	Urgent
Managerial of industrial schools and mechanism	82	4.08	.840	Urgent
Philosophy and objectives of the industrial schools	78	3.92	.996	Urgent
Policy of Industrial Schooling	77	3.87	1.043	Urgent
Network of Industrial Schools relations	76	3.79	.992	Urgent
Teacher language and pronunciation	76	3.78	.806	Urgent
laws , regulations governing work	75	3.77	1.073	Urgent

Table shows that perceiving market needs is the top level priority training need in this sector. Careful analysis of this finding reveals that industrial schools do not speedily induce market developments. On other hand, curricula do not provide the required flexibility to teach students the updated market needs. The other need of priority is managing industrial schools. This need relates to teachers concerns about slow moving procedures in schools. the vision and mission of industrial schools didn't consider teachers participation which marginalized teachers abilities and competence. The least training need in this area was training in laws, regulation governing work. This shows that teachers know most of the laws and regulations affecting their operation.

#### **4.2 Personal Training Needs:**

Personal training needs were viewed in twenty items .The level of these needs is shown in table 5 :

**Table 5** Personal Aspects

	Percent	Mean	Std. Deviation	Description
Upgrading teacher personality	87	4.34	.733	V. Urgent
Specialized issues	87	4.33	.798	V. Urgent
Self-development & professional growth	85	4.24	.843	V. Urgent
Initiative, creativity and innovation	83	4.17	.825	Urgent
Professional ethics	83	4.15	.820	Urgent
practicum	83	4.15	.826	Urgent
Dealing with students	82	4.12	.880	Urgent
Utilization of available resources	80	4.02	.834	Urgent
Problem Solving	79	3.94	.896	Urgent
Personal appearance and behavior	78	3.92	.934	Urgent
Taking preventive action	77	3.85	.847	Urgent
Managing difficult situations	77	3.84	.876	Urgent
Dealing with students problems	76	3.78	.888	Urgent
Estimate of problems causes and impact	76	3.78	.875	Urgent

managing conflict	74	3.68	.976	Urgent
Mutual relations among colleagues	73	3.66	.997	Urgent
Data collection and analysis	73	3.66	1.050	Urgent
Diagnosis of the situation	73	3.66	.992	Urgent
Drafting ,conclusions and recommendations	72	3.61	1.007	Urgent
Situational Reporting	70	3.52	.820	Urgent

The table above shows that upgrading teacher personality is the top level priority training need in this sector . that there is weakness in training in specialized issues , self and professional development are very urgent training needs, the teacher's personality , this may be referred to lack of pre service training . This makes it difficult for them to control and manage students in the adulscence stage. It is not worthy to state that in this age students are over active. Furthermore , the behavioral characteristic of industrial schools students are low performance in prior stage and at most they are careless.

Next in priority is for teachers to be trained in specialized subjects this need is justified as some of teachers teach courses out of there specialization . Furthermore teachers are not that much concerned about latest developments in the market. It was also found that students don't care about their personal and professional development. Furthermore libraries in schools are not well equipped to help in personal and professional development of teachers.

### 4.3 Educational Training Needs:

Educational training needs were viewed in ten items .The level of those needs are given in table 6 :

**Table 6** Educational Practices

	Percent	Mean	Std. Deviation	Description
Linking the theory to practice	86	4.32	.728	V. Urgent
Delivery of information to students	83	4.17	.822	Urgent
attracting the students attention	82	4.08	.818	Urgent
Developing the ability of student thinking	81	4.07	.845	Urgent
Interaction with students	80	4.01	.839	Urgent
Directing students to learning sources	80	3.99	.896	Urgent
Readiness and preparation of the article	78	3.90	.925	Urgent
teaching methods	78	3.88	.975	Urgent
Responding to questions and inquiries	77	3.87	.821	Urgent
Pinpoint challenges and tackle them a	76	3.79	.777	Urgent

In this sector the top level priority need was linking theory with practice. There is a shortage in equipment and tools in the workshops of industrial schools and teacher engineers are not well trained to operate available once. Additionally they have problems in linking theory to practice .This makes delivery of information to students depending mainly on the engineers self initiative.

#### **4.4 Evaluation Training Needs:**

Evaluation and feedback training needs were viewed in eleven items .The level of such needs are illustrated in table 7 :

**Table 7 :** Evaluation and Feedback

	Percent	Mean	Std. Deviation	Description
Consider professional changes	83	4.15	.855	Urgent
Utilization of technology	82	4.10	.937	Urgent
Encourage students creativity	81	4.04	.918	Urgent
Perceiving work challenges	80	3.99	.896	Urgent
Innovation in presenting and discussing	79	3.97	.911	Urgent
Offering training material	79	3.96	.887	Urgent
Discussion Management	77	3.87	.898	Urgent
Training others	77	3.83	.787	Urgent

Designing program of professional growth for students	76	3.79	.895	Urgent
Monitoring and modifying students behavior	75	3.76	.815	Urgent
Ensuring the exchange of experiences among students	73	3.64	.875	Urgent

Considering professional changes is a key priority for the teacher engineers, as they teach technical subjects with yearly or monthly update, therefore engineers have to keep abreast with the new technique to develop their knowledge and to transfer it to their students. The problem, however, is that there is no update or refreshment for the textbooks every year or a review to update the information and techniques and due to the traditional teaching methods that been used in the industrial schools. Furthermore, many engineers do not use the technological methods of teaching like computer programs, internet and interactive methods in the teaching process. The third priority was encouraging students creativity , which make sense as there is a problem in adopting current technology advances for the engineers teacher that make it hard for them to encourage students creativity with all limitation by traditional way and old textbooks which hinder creativity .

#### 4.5 Administrative and Technical Training Needs:

Administrative training needs were demonstrated in twenty one items. The level of such needs are illustrated in table 8 :

**Table 8** Administrative and Technical Training Needs

	Percent	Mean	Std. Deviation	Description
Operating machines and equipments	81	4.06	.918	Urgent
Link courses together	78	3.90	.906	Urgent
Motivating students	77	3.86	.931	Urgent
Time utilization	77	3.85	.966	Urgent
Remedial action	77	3.84	.917	Urgent
leadership ability	77	3.84	1.092	Urgent
Allocating work requirements	77	3.83	.919	Urgent
Decision making ability	77	3.83	.964	Urgent
to discussing results and utilizing them	76	3.81	.872	Urgent
Organizing work	76	3.81	1.000	Urgent
designing tests	76	3.80	.866	Urgent
Scheduling tasks	76	3.80	1.011	Urgent
communication with school administration	76	3.80	.936	Urgent
dealing with the school administration	76	3.80	.981	Urgent
setting goals	76	3.79	.926	Urgent
Measuring students competence	76	3.78	.915	Urgent
dealing with students individual differences	75	3.77	.940	Urgent
supporting planning	75	3.77	.998	Urgent

competence to students				
Effective listening	75	3.77	1.026	Urgent
Practicum evaluation	75	3.75	.945	Urgent
Discovering students talents and competence	75	3.75	.968	Urgent
Perceiving measures and indicators	75	3.73	.880	Urgent
Work procedures	74	3.68	.990	Urgent
Control students	73	3.67	.991	Urgent
Communicating with students and colleagues	73	3.66	1.082	Urgent
Coordination with colleagues	73	3.64	.952	Urgent
organizing and managing meetings	71	3.55	.886	Urgent
Perceiving body language	70	3.52	1.060	Urgent
Prediction ability	70	3.50	.978	Urgent

In the administrative needs operating machines and equipment was the most important priority in this sector for engineers. This shows that some engineers don't use all equipments or machines they have in their workshops. This makes it difficult for them to use it or they have general qualification in the subject they teach not as a specialization. On the other hand there is no training offered by the Ministry for the use of equipments or machines . The only way to gain knowledge is from user manuals , previous experience or by colleagues . The next in priority was linking courses together which implies that there is a gap between the theoretical and practical courses . The teacher's ability to do this will make a big difference to students' learning.

Student's interest in learning is maximized when they see the relevance of the content or how the content can be use in reality.

Teachers expressed their idea on what is the best way to achieve the identified training need. Responses as shown in table 9 :

**Table 9** Teachers idea on what is the best way to achieve the identified training need

	Workshop	Meeting	Training material	Training program
No	13.5%	49.5	38.7	2.7
Yes	86.5%	50.5	61.3	97.3
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

The table above shows that teacher engineer prefer mostly of the fulfillment of their training meetings needs through separate training programs and through workshops. As they feel that they can participate and exchange their views with other collogues, Furthermore they will be freed to this activity.

The research investigated prior\_training provided to teachers in the last three years .findings are shown in table 10 :

**Table 10** The prior training provided to teachers in the last three years

Number of courses	Frequency	Percent
0	45	31.5
1	44	30.8
2	17	11.9
3	18	12.6
4	6	4.2
5	7	4.9
7	2	1.4
10	3	2.1
12	1	.7
Total	143	100.0

It shows that 31.5% did not attend any training. and 30.8% have attended only one program .it reveals that training provided is insufficient.

The sample assessed the attended training as:

	Didn't fulfill	Low	Med	To large extent	In full
Percentage	5%	71%	15%	7%	2%

This shows low level of satisfaction for the training they attended .This clarified the urgent of the identified training needs.

When the engineers teachers were asked to list four training needs of top level priority. Findings was as shown in table 11 :

**Table 11** top level priority from engineers side view

<b>Training need</b>	<b>Frequency</b>
Specialization training	89
Training program to update market need	45
Evaluation methods training need	42
Dealing with advance machines and materials	42

This identification is identical with the above listed training needs that been shown in previous tables.

When the engineer teachers were asked to list the most sensitive problems that they facing at them work , the finding were as shown in table 12 :

**Table 12** The top sensitive problems for engineer teachers

<b>Problem</b>	<b>Frequency</b>
Low level of students	71
Budgets of workshop is not sufficient	39
Lack of attention to the needs and demands of the teachers by the Ministry	22
Economical situation of engineers	11
The absence of a clear policy for vocational education	9

The identified problems reveal that training is one of the necessary interventions for tackling with those problems.

The overall most urgent training needs that detected by survey was as in table 13:

**Table 13** The top priorities

No	Need	Percent	Mean	Std. Deviation	Description
1	Upgrading teacher personality	87	4.34	.733	V. Urgent
2	Specialized issues	87	4.33	.798	V. Urgent
3	Linking the theory to practice	86	4.32	.728	V. Urgent
4	Self-development & professional growth	85	4.24	.843	V. Urgent
5	Initiative, creativity and innovation	83	4.17	.825	Urgent
6	Delivery of information to students	83	4.17	.822	Urgent
7	Perceiving market need	83	4.15	1.037	Urgent
8	Professional ethics	83	4.15	.820	Urgent
9	practicum	83	4.15	.826	Urgent
10	Consider professional changes	83	4.15	.855	Urgent
11	Dealing with students	82	4.12	.880	Urgent
12	Utilization of technology	82	4.10	.937	Urgent
13	Managerial of industrial schools and mechanism	82	4.08	.840	Urgent
14	attracting the students attention	82	4.08	.818	Urgent

15	Developing the ability of student thinking	81	4.07	.845	Urgent
16	Operating machines and equipments	81	4.06	.918	Urgent
17	Encourage students creativity	81	4.04	.918	Urgent
18	Utilization of available resources	80	4.02	.834	Urgent
19	Interaction with students	80	4.01	.839	Urgent
20	Directing students to learning sources	80	3.99	.896	Urgent

### **Hypothesis testing**

**First hypothesis** : There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to gender .

**Table 14 T- test of gender relation to training needs**

Felid	Male		Female		t	df	sig
	Mean	Std. Deviation	Mean	Std. Deviation			
general	3.88	.730	4.07	.680	-1.097	141	.274
Aspects of self	3.92	.579	3.91	.651	.056	141	.955
Educational practices	3.96	.619	3.98	.473	-.145	140	.885
evaluation and feedback	3.91	.659	3.97	.450	-.376	141	.708
Administrative requirements	3.79	.761	4.02	.443	-1.334	140	.184
Total Degree	3.89	.558	3.99	.454	-.763	140	.447

The T-test analysis shows that no significant difference in engineer school teacher according to gender as all the significant difference were greater than 0.05 .Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to gender “ is accepted.

**Second hypothesis :** There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to Age .

**Table 15:** ANOVA test of age group relation to training needs

		Sum of Squares	df	Mean Square	F	Sig.
general	Between Groups	4.001	4	1.000	1.961	.104
	Within Groups	70.383	138	.510		
	Total	74.384	142			
Aspects of self	Between Groups	1.237	4	.309	.893	.470
	Within Groups	47.825	138	.347		
	Total	49.062	142			
Educational practices	Between Groups	3.459	4	.865	2.518	.044
	Within Groups	47.060	137	.344		
	Total	50.519	141			
evaluation and feedback	Between Groups	1.870	4	.467	1.177	.324
	Within Groups	54.806	138	.397		
	Total	56.676	142			
Administrative requirements	Between Groups	2.685	4	.671	1.281	.280
	Within Groups	71.764	137	.524		
	Total	74.449	141			

Total Degree	Between Groups	1.971	4	.493	1.700	.154
	Within Groups	39.713	137	.290		
	Total	41.684	141			

The ANOVA analysis shows that no significant difference in engineer school teacher according to age group in the fields (general training needs, , educational practices training needs, evaluation and feedback training needs and administrative training needs) as all the significant difference were greater than 0.05 . Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to gender “ is accepted.

In the other hand there is significant difference in engineer school teacher according to age group in the field of educational practices training needs Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to educational practices training needs “ is rejected. The researcher did the LSD test to gain more analysis about the relation between industrial schools teachers training needs referred to educational practices training needs.

**Table 16:** LSD test industrial schools teachers training needs referred to educational practices training needs.

(I) Age Group	(J) Age Group	Mean Difference (I-J)	Sig.
Less than 25	25-29	-.421*	.049
	30-39	-.088-	.667
	40-49	-.111-	.591
	Over 50	-.409-	.099
25-29	Less than 25	.421*	.049
	30-39	.333*	.015
	40-49	.310*	.026
	Over 50	.012	.951
30-39	Less than 25	.088	.667
	25-29	-.333*	.015
	40-49	-.023-	.856
	Over 50	-.321-	.084
40-49	Less than 25	.111	.591
	25-29	-.310*	.026
	30-39	.023	.856
	Over 50	-.298-	.113
Over 50	Less than 25	.409	.099
	25-29	-.012-	.951
	30-39	.321	.084
	40-49	.298	.113

\*. The mean difference is significant at the 0.05 level.

Table 16 shows that there is deference between the age group (25-29) and (less than 25),(30-39),(40-49) , which shows that the age group (25-29) is more interested in educational practice training need.

**Third hypothesis** : There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to academic qualification .

**Table 17:** ANOVA test of academic qualification relation to training needs

general	Between Groups	1.002	2	.501	.956	.387
	Within Groups	73.382	140	.524		
	Total	74.384	142			
Aspects of self	Between Groups	.316	2	.158	.454	.636
	Within Groups	48.746	140	.348		
	Total	49.062	142			
Educational practices	Between Groups	.314	2	.157	.435	.648
	Within Groups	50.205	139	.361		
	Total	50.519	141			
evaluation and feedback	Between Groups	.235	2	.118	.292	.747
	Within Groups	56.441	140	.403		
	Total	56.676	142			
Administrative requirements	Between Groups	.803	2	.401	.757	.471
	Within Groups	73.646	139	.530		
	Total	74.449	141			

Total Degree	Between Groups	.233	2	.116	.390	.678
	Within Groups	41.451	139	.298		
	Total	41.684	141			

The ANOVA analysis shows that no significant difference in engineer school teacher according to academic qualification as all the significant difference were greater than 0.05 .Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to academic qualification “ is accepted.

**Forth hypothesis :** There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to specialization .

**Table 18:** ANOVA test of specialization relation to training needs

		Sum of Squares	df	Mean Square	F	Sig.
general	Between Groups	2.916	6	.486	.925	.479
	Within Groups	71.468	136	.525		
	Total	74.384	142			
Aspects of self	Between Groups	2.476	6	.413	1.205	.307
	Within Groups	46.586	136	.343		
	Total	49.062	142			

Educational practices	Between Groups	2.710	6	.452	1.276	.273
	Within Groups	47.809	135	.354		
	Total	50.519	141			
evaluation and feedback	Between Groups	4.093	6	.682	1.764	.111
	Within Groups	52.583	136	.387		
	Total	56.676	142			
Administrative requirements	Between Groups	1.575	6	.262	.486	.818
	Within Groups	72.874	135	.540		
	Total	74.449	141			
Total Degree	Between Groups	2.162	6	.360	1.231	.294
	Within Groups	39.521	135	.293		
	Total	41.684	141			

The ANOVA analysis shows that no significant difference in engineer school teacher according to specialization as all the significant difference were greater than 0.05 .Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to specialization “ is accepted.

**Fifth hypothesis** : There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to years of experience .

**Table 19:** ANOVA test of years of experience relation to training needs

		Sum of Squares	df	Mean Square	F	Sig.
general	Between Groups	3.377	4	.844	1.641	.168
	Within Groups	71.007	138	.515		
	Total	74.384	142			
Aspects of self	Between Groups	1.457	4	.364	1.056	.381
	Within Groups	47.605	138	.345		
	Total	49.062	142			
Educational practices	Between Groups	2.783	4	.696	1.997	.098
	Within Groups	47.737	137	.348		
	Total	50.519	141			
evaluation and feedback	Between Groups	1.981	4	.495	1.249	.293
	Within Groups	54.695	138	.396		
	Total	56.676	142			
Administrative requirements	Between Groups	3.128	4	.782	1.502	.205
	Within Groups	71.321	137	.521		
	Total	74.449	141			

Total Degree	Between Groups	1.609	4	.402	1.375	.246
	Within Groups	40.075	137	.293		
	Total	41.684	141			

The ANOVA analysis shows that no significant difference in engineer school teacher according to years of experience as all the significant difference were greater than 0.05 .Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to years of experience “ is accepted.

**Sixth hypothesis** : There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to job title .

**Table 20:** ANOVA test of job title relation to training needs

		Sum of Squares	df	Mean Square	F	Sig.
general	Between Groups	2.766	2	1.383	2.704	.070
	Within Groups	71.617	140	.512		
	Total	74.384	142			
Aspects of self	Between Groups	.915	2	.457	1.330	.268
	Within Groups	48.147	140	.344		
	Total	49.062	142			

Educational practices	Between Groups	.139	2	.070	.192	.825
	Within Groups	50.380	139	.362		
	Total	50.519	141			
evaluation and feedback	Between Groups	.411	2	.205	.511	.601
	Within Groups	56.266	140	.402		
	Total	56.676	142			
Administrative requirements	Between Groups	.155	2	.077	.145	.865
	Within Groups	74.294	139	.534		
	Total	74.449	141			
Total Degree	Between Groups	.401	2	.201	.675	.511
	Within Groups	41.283	139	.297		
	Total	41.684	141			

The ANOVA analysis shows that no significant difference in engineer school teacher according to job title as all the significant difference were greater than 0.05 .Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to job title “ is accepted.

**Seventh hypothesis** : There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to school.

**Table 21:** ANOVA test of school relation to training needs

		Sum of Squares	df	Mean Square	F	Sig.
general	Between Groups	10.901	8	1.363	2.855	.006
	Within Groups	61.567	129	.477		
	Total	72.467	137			
Aspects of self	Between Groups	3.757	8	.470	1.371	.215
	Within Groups	44.189	129	.343		
	Total	47.946	137			
Educational practices	Between Groups	2.325	8	.291	.783	.619
	Within Groups	47.898	129	.371		
	Total	50.222	137			
evaluation and feedback	Between Groups	3.068	8	.383	.932	.492
	Within Groups	53.063	129	.411		
	Total	56.131	137			
Administrative requirements	Between Groups	4.528	8	.566	1.059	.396
	Within Groups	68.948	129	.534		
	Total	73.476	137			

Total Degree	Between Groups	2.497	8	.312	1.038	.411
	Within Groups	38.793	129	.301		
	Total	41.290	137			

The ANOVA analysis shows that no significant difference in engineer school teacher according to school in the fields( educational practices training needs, evaluation and feedback training needs and administrative training needs) as all the significant difference were greater than 0.05 . Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers training needs referred to school “ is accepted.

In the other hand there is significant difference in engineer school teacher according to schools in the field of general training needs .Hence the statement “There is no signified importance at a point of 0.05 difference between industrial schools teachers according to schools in the field of general training needs “ is rejected. The researcher did the LSD test to gain more analysis about the relation between industrial schools teachers training needs referred to schools in the field of general training needs.

**Table 22:** LSD test industrial schools teachers training needs referred to general training needs

(I) School	(J) School			
		Mean Difference (I-J)	Std. Error	Sig.
Jenin	Nablus	.277	.253	.276
	Tulkarem	.690*	.225	.003
	Selat Aldaher	.276	.261	.293
	Qalqilia	.740*	.278	.009
	Salfiet	.446	.306	.147
	Dir Dibwan	.648*	.257	.013
	Hebron	-.014-	.241	.953
	Banat Dora	.506	.278	.071
Nablus	Jenin	-.277-	.253	.276
	Tulkarem	.413	.215	.057
	Selat Aldaher	-.001-	.253	.996
	Qalqilia	.463	.271	.089
	Salfiet	.170	.299	.572
	Dir Dibwan	.371	.248	.138
	Hebron	-.291-	.232	.211
	Banat Dora	.230	.271	.397
Tulkarem	Jenin	-.690-*	.225	.003
	Nablus	-.413-	.215	.057
	Selat Aldaher	-.414-	.225	.068
	Qalqilia	.051	.245	.836
	Salfiet	-.243-	.276	.380
	Dir Dibwan	-.042-	.220	.849
	Hebron	-.704-*	.201	.001
	Banat Dora	-.183-	.245	.455

Selat Aldaher	Jenin	-.276-	.261	.293
	Nablus	.001	.253	.996
	Tulkarem	.414	.225	.068
	Qalqilia	.465	.278	.097
	Salfiet	.171	.306	.578
	Dir Dibwan	.372	.257	.150
	Hebron	-.290-	.241	.231
	Banat Dora	.231	.278	.408
Qalqilia	Jenin	-.740-*	.278	.009
	Nablus	-.463-	.271	.089
	Tulkarem	-.051-	.245	.836
	Selat Aldaher	-.465-	.278	.097
	Salfiet	-.294-	.321	.362
	Dir Dibwan	-.093-	.274	.736
	Hebron	-.755-*	.259	.004
	Banat Dora	-.234-	.295	.429
Salfiet	Jenin	-.446-	.306	.147
	Nablus	-.170-	.299	.572
	Tulkarem	.243	.276	.380
	Selat Aldaher	-.171-	.306	.578
	Qalqilia	.294	.321	.362
	Dir Dibwan	.201	.302	.507
	Hebron	-.461-	.289	.113
	Banat Dora	.060	.321	.852
Dir Dibwan	Jenin	-.648-*	.257	.013
	Nablus	-.371-	.248	.138
	Tulkarem	.042	.220	.849
	Selat Aldaher	-.372-	.257	.150
	Qalqilia	.093	.274	.736
	Salfiet	-.201-	.302	.507
	Hebron	-.662-*	.236	.006

	Banat Dora	-.141-	.274	.608
Hebron	Jenin	.014	.241	.953
	Nablus	.291	.232	.211
	Tulkarem	.704*	.201	.001
	Selat Aldaher	.290	.241	.231
	Qalqilia	.755*	.259	.004
	Salfiet	.461	.289	.113
	Dir Dibwan	.662*	.236	.006
	Banat Dora	.521*	.259	.047
	Banat Dora	Jenin	-.506-	.278
Nablus		-.230-	.271	.397
Tulkarem		.183	.245	.455
Selat Aldaher		-.231-	.278	.408
Qalqilia		.234	.295	.429
Salfiet		-.060-	.321	.852
Dir Dibwan		.141	.274	.608
Hebron		-.521-*	.259	.047
*. The mean difference is significant at the 0.05 level.				

Table 22 shows that there is deference between Jenin and (Tulkarem , Qalqilia, Dir Dibwan , which shows that Jenin more interested in general training need. Also Table 22 shows that there is deference between Tulkarem and Hebron , which shows that Hebron more interested in general training need.

**Chapter Five**  
**Recommendations**

## **Recommendation**

Based on the research findings, it is recommended to:

- Fulfill the stated training needs priority wise.
- Training needs identification should be an integral procedure within performance evaluation formula.
- Teachers should be encouraged to develop their professional expertise using many ways. MoEHE should develop training kits to this purpose.
- Organizing training programs in an integral setting where all needs should be fulfilled.
- Teachers should teach in their specialization.
- connect education and Labor market with the required competence of teachers.
- curriculum development to modernize the courses contents as introduction of new program, courses; different definition of professional practice; satisfying balance between general and vocational education;
- Ensuring conditions for obtaining systems of certificates and diplomas and qualifications in accordance with European standards

- Rationalization and compliance of Vocational secondary School Network with the economics needs, Labour market and employment policy
- Developing system of standards for institutions, teachers and education programs.
- Ensuring quality of VET and constant monitoring and evaluation of results of students and teachers as well as schools and educational institutions as a whole.
- Ensure better vertical and horizontal mobility of the participants within VET and their further accessibility.
- Creating conditions for continuous lifelong learning of teachers.

There is a need to discover what the different qualities of teachers are which employers seek for in their employees as teachers. The teacher training and prospective teachers may then be better able to tune themselves with the needs of the market.

A liaison between teacher training institutions and the schools is necessary for improving teacher training. In many developed countries the universities and schools are linked together and take the benefit of experiences of each other to make the teacher training more market oriented. So, our teacher training institutions needs to know the market mechanism to meet the challenges of rapidly changing world of knowledge

and to tune themselves to the demands and requirements of the market. The private sector in education is expanding in Palestine both in quality and quantity. If the training institutions transform themselves according to the needs of job market and their end product can find placement there quite easily.

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## **Appendix**

Appendix I

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

An-Najah

National University

Faculty of Graduate Studies

Dear Educational staff members...

Including principals, teachers of industrial schools in Palestine

The researcher scientific study entitled "Training Needs for Engineers teachers in Industrial Palestinian Schools " in order to identify the training needs of the target group as a prelude to propose training programs that meet them, which affects positively the effectiveness of industrial schools. Note that he is the implementation of this study as part of the graduation requirements for the degree Master's in engineering management under the supervision of Dr. Abdel-Fattah Shamleh.

I hopefully ask for your cooperation fill this survey (questionnaire) to collect information for the purposes of this study, reflecting the fact that your point of view, note that the information that you will be making out and put it in a file is closed in preparation for the researcher returned within two days. will only be used for research purposes. For further information please contact the researcher on the phone

0599396374

Thank you for your cooperation and Kind Regards

Raed Jammal

First Section: Personal Information

---

Gender : 1) Male  2) Female

Age Group:

1) Less than 25  2) 25-29  3) 30-39  4) 40- 49  5) Over 50

Educational Qualification:

1) BA  2) Higher Diploma  3) Master

Specialization :

1) Civil  2) Electrical  3) Mechanical  4) computer   
5) Communication  6) Electronic  7) Other

Years of Experience:

1 ) less than two years  2) 2-5 years  3) 6-10 years   
4) 11-15 years  5) Over 15 years

Job Title:

- 1) in the administrative ministry  2) Director  3) Teacher

School

- 1) Jenin  2) Nablus  3) Tulkarem  4) Selat Aldaher  5) Qalqilia   
6) Sulphite  7) Dir Dibwan  8) Hebron  9) Banat Dora

### **Section II**

Please tick the (x) in the right place for your opinion in the degree of urgency of the training needs mentioned

	<b>General</b>	<b>Very low</b>	<b>Low</b>	<b>Amid</b>	<b>Urgent</b>	<b>Very urgent</b>
1	Philosophy and objectives of the industrial schools					
2	Managerial of industrial schools and mechanism					
3	Policy of Industrial Schooling					
4	Net of industrial schools relations					
5	laws , regulations governing work					
6	Perceiving market need					
7	Teacher Language and pronunciation					

**personal Aspects**

	General	very low	low	amid	urgent	Very urgent
8	Upgrading teacher personality					
9	Self-development and professional growth					
10	Personal appearance and behavior					
11	Initiative,creativity and innovation					
12	Specialized issues					
13	Dealing with students					
14	Mutual relations among colleagues					
15	Dealing with students problems					
16	Data collection and analysis					
17	Professional ethics					
18	practicum					
19	Utilization of available resources					
20	Diagnosis of the situation					
21	Estimate of problems causes and impact					
22	Managing difficult situations					
23	managing conflict					
24	Taking preventive action					
25	Situational Reporting					
26	Drafting ,conclusions and recommendations					
27	Problem Solving					

### Educational practices

	General	very low	low	amid	urgent	Very urgent
28	Readiness and preparation of the article					
29	Methods of teaching					
30	Interaction with students					
31	Developing the ability of student thinking					
32	Directing students to learning sources					
33	linking the theory with practice					
34	Delivery of information to students					
35	attracting the students attention					
36	Responding to questions and inquiries					
37	Defining and patching with challenges					
38	Consider professional changes					
39	monitoring and modifying students behavior					
40	Discussion Management					
41	ensure the exchange					

	of experiences among students					
42	training others					
43	Perceiving work challenges					
44	Utilization of technology					
45	designing program of professional growth for students					
46	Innovation in presenting and discussing					
47	Offering training material					
48	Encourage students creativity					

### **Evaluation and Feedback**

	General	very low	low	amid	urgent	Very urgent
49	Remedial action					
50	Measuring students competence					
51	Practicum evaluation					
52	Operating machines and equipments					
53	Perceiving measures and indicators					
54	to discussing results and utilizing them					

55	Link courses together					
56	dealing with students individual differences					
57	designing tests					
58	Discovering students talents and competence					

### Administrative Needs

	General	very low	low	amid	urgent	Very urgent
59	supporting planning competence to students					
60	setting goals					
61	Scheduling tasks					
62	Prediction ability					
63	Allocating work requirements					
64	Organizing work					
65	Work procedures					
66	communication with school administration					
67	Coordination with colleagues					
68	Time utilization					
69	organizing and managing meetings					
70	control students					
71	Motivating students					
72	dealing with the					

	school administration					
73	Decision making ability					
74	leadership ability					
75	Communicating with students and colleagues					
76	Effective listening					
77	Perceiving body language					

### Section III

Better meet the training needs through:

	training program	Training	Meeting	Workshop
Yes				
No				

- ❖ How many training course you attended during the past three years: ----- courses?
- ❖ How far the attended training fulfilled your training needs?
  - 1) didn't fulfill
  - 2) low
  - 3) Med
  - 4) to large extent
  - 5) in full

List four training needs of top level priority to you :

1. -----
2. -----
3. -----
4. -----

List the most sensitive problems you face at work :

1. -----
2. -----
3. -----

Any comments , observation please state below :

1. -----
2. -----
3. -----

Thank you for your cooperation

## Appendix II

بسم الله الرحمن الرحيم

السادة مدراء و مدرسي المدارس الصناعية في فلسطين المحترمين.

تحية وبعد ،

يقوم الباحث بدراسة علمية بعنوان " الاحتياجات التدريبية للمهندسين المدرسين في المدارس الصناعية الفلسطينية " وذلك بهدف الوقوف على الاحتياجات التدريبية للفئة المستهدفة تمهيداً لاقتراح البرامج التدريبية التي تلبّيها ، الأمر الذي يؤثر إيجاباً في فاعلية المدارس الصناعية. علماً بأنه يتم تنفيذ هذه الدراسة كجزء من متطلبات التخرج لدرجة الماجستير في الإدارة الهندسية بإشراف د. عبد الفتاح الشملة.

أرجو منكم التعاون بتعبئة هذه الإستبانة لجمع المعلومات لأغراض هذه الدراسة بما يعكس حقيقة وجهة نظركم، علماً بأن المعلومات التي ستدلون بها لن تستخدم إلا لأغراض البحث.

للاستفسار يمكنكم الاتصال بالباحث على الهاتف 0599396374

شكراً لتعاونكم وتقبلوا فائق الاحترام

رائد الجمال

القسم الاول : معلومات شخصيه

يرجى وضع إشارة (X) في المكان المناسب :

❖ الجنس : ( ) ذكر ( ) انثى

- ❖ الفئة العمرية: ( ) اقل من 24 ( ) 25-29 ( ) 30-39 ( ) 40-49 ( )  
 ( ) فوق 50 سنة
- ❖ المؤهل العلمي : ( ) بكالوريوس ( ) دبلوم عالي ( ) ماجستير
- ❖ التخصص : ( ) مدني ( ) كهرباء ( ) ميكانيك ( ) كمبيوتر ( ) اتصالات  
 ( ) الكترونيات ( ) اخرى
- ❖ سنوات الخبرة : ( ) اقل من سنتين ( ) من 2-5 سنوات ( ) من 6-10 سنوات ( )  
 من 11-15 سنة ( ) فوق 15 سنة.
- ❖ المسمى الوظيفي :  
 ( ) اداري في وزاره ( ) مدير ( ) معلم
- ❖ المدرسة: ( ) جنين  
 ( ) نابلس ( ) طولكرم ( ) سيلة الظهر ( ) قلقيله ( ) سلفيت ( ) دير  
 ديوان ( ) الخليل ( ) بنات دورا

## القسم الثاني: فقرات الاستبانة

يرجى وضع إشارة x في المكان المناسب لرأيك في درجة إلحاح الاحتياجات التدريبية المذكورة :

درجة إلحاح الحاجة					الحاجة التدريبية	
متدنية جدا	متدنية	وسط	ملحة	ملحة جدا		
					عامة	
					1 فلسفة المدارس الصناعية وأهدافها	
					2 إدارة المدارس الصناعية وآلية عملها	
					3 السياسة العامة للمدارس الصناعية	
					4 شبكة علاقات المدارس الصناعية	
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					29	طريقة شرح الحصة
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					31	تطوير قدرة التفكير لدى الطالب
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### القسم الثالث : أسئلة الاستبانة

أفضل تلبية الاحتياجات التدريبيه من خلال:

برنامج تدريبي	مادة تدريبيه مستقلة	لقاءات او محاضرات	ورشة عمل	
				نعم
				لا

❖ كم دورة تدريبيه شاركت بها خلال الثلاثة سنوات الماضية: ----- دورة

❖ ما مدى تلبية التدريب الذي شاركت به لاحتياجاتك التدريبيه :

( ) بشكل كبير ( ) كبير ( ) متوسط ( ) متدني ( ) متدني جدا

❖ اكتب أربعة احتياجات تدريبية لمدرسي المدارس الصناعية بدءاً بالأكثر إلحاحاً:

- :1  
 ----- :2  
 ----- :3  
 ----- :4

❖ اكتب أكثر ثلاث مشاكل يعاني منها مدرسي المدارس الصناعية:

- :1  
 ----- :2  
 ----- :3

❖ هل لديك ملاحظات أخرى، اذكرها:

-----  
 -----  
 -----

وشكراً لتعاونكم

جامعة النجاح الوطنية

كلية الدراسات العليا

الاحتياجات التدريبية للمهندسين المدرسين في المدارس الصناعية  
في الضفة الغربية

إعداد

رائد موسى سميح الجمال

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د. عبد الفتاح الشملة

قدمت هذه الأطروحة استكمالاً لمتطلبات درجة الماجستير في الإدارة الهندسية بكلية الدراسات

العليا في جامعة النجاح الوطنية في نابلس، فلسطين

2012

ب

## الاحتياجات التدريبية للمهندسين المدرسين في المدارس الصناعية في الضفة الغربية

إعداد

رائد موسى سميح الجمال

إشراف

د. عبد الفتاح الشملة

### الملخص

الهدف من هذه الدراسة هو تشخيص الاحتياجات التدريبية للمهندسين المدرسين في المدارس الصناعية الفلسطينية ، من اجل تحقيق هذه الاهداف قام الباحث بتصميم استبانته كمصدر رئيسي لجمع المعلومات ، هذا وقد شملت عينة الدراسة جميع المهندسين المدرسين في المدارس الصناعية في الضفة الغربية ، وقد شملت الدراسة كذلك واضعي السياسات ومتخذي القرار في وزارة التربية والتعليم العالي الفلسطينية، وقد غطت الدراسة جميع المدارس الصناعية الحكومية في الضفة الغربية ، علما أن مجموع الفئة المستهدفة هو 165 مهندس ومهندسه وقد تمكن الباحث من استرجاع 143 استبانته مكتمله . كما تم جمع بعض المعلومات والبيانات النظرية من خلال المقابلات و تحليلها . وتم تحليل البيانات الإحصائية باستخدام برنامج الرزم الإحصائية SPSS .

بناء على نتائج البحث تم تصنيف نتائج البحث الى خمس مجموعة رئيسية للاحتياجات التدريبية و هي كالاتي : احتياجات الممارسات التعليمية بمتوسط 3.96 ، احتياجات الجوانب الذاتية بمتوسط 3.92 ، الاحتياجات العامة بمتوسط 3.91 ، احتياجات التقويم والتغذية الراجعة بمتوسط 3,82 ، الاحتياجات الإدارية بمتوسط 3,74 ، هذا وقد أظهرت النتائج و جود حاجة ملحه لعقد دورات تدريبية وعلى وجه الخصوص الاحتياجات التدريبية الأكثر أهمية والتي تم تقييمها على أنها ملحه جدا وهي كالاتي : الارتقاء بشخصية المعلم ، المعرفة المتخصصة، ربط الجانب النظري بالتطبيق العملي ، التطوير الذاتي و النمو المهني.

وفقا للنتائج البحث تم وضع مجموعه من التوصيات لمعالجة الاحتياجات التدريبية لدى المهندسين المدرسين في المدارس الصناعية وذلك وفقا لأهميتها ، وقد تم التوصية بان هذه الاحتياجات التدريبية يجب أن تكون متكاملة و وفق ترتيب منطقي وأن تعطى على شكل رزمه تدريبيه متكاملة ، كما انه على وزارة التربية و التعليم العالي تطوير رزم تدريبيه متخصصة من اجل تمكين المهندسين المدرسين في المدارس الصناعية لديها من القدرة على التطور الذاتي مع الأخذ بعين الاعتبار المحددات الزمنية و المحددات التقنية والإجرائية لعملية التدريب.