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Improving Technical Instructor Performance through Conducting Computer Based - Training

Case Study for UNRWA - Technical and Vocational Training Centers in Gaza Strip

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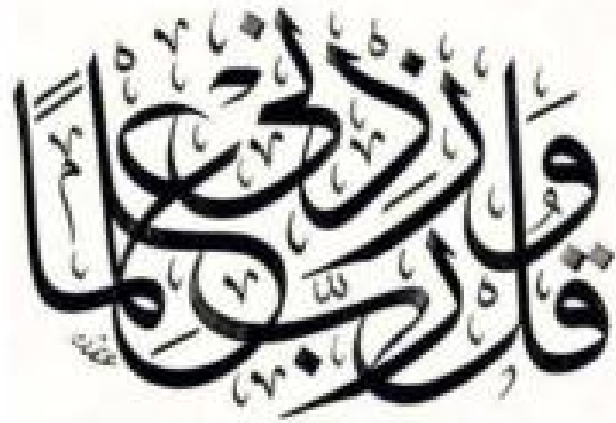
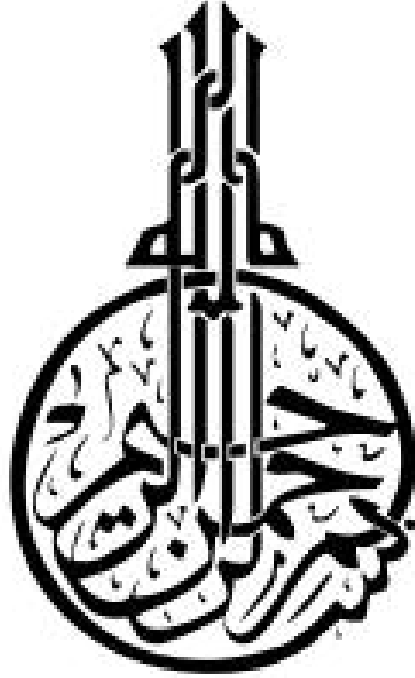
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(طه، 114)

صَدَقَ اللهُ الْعَظِيمُ

Dedication

I dedicate this research to my beloved mother whose love,
care, support and inspired me to reach this far.

I dedicate this research to my father who has always loved
and supported me, not only during this research, but also
throughout all my life.

I dedicate this research to my beloved life partner, my wife,
and our children (Waseem and Omar).

I dedicate this research to my beloved brothers and sisters.

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List of abbreviations

AWPD	Attitudes toward Web-Based Professional Development
BEM	Behaviour Engineering Model
BWL	Web-Based Learning
CAI	Computer-assisted instruction
CAL	Computer-Assisted Learning
CAT	Computer-Assisted Testing
CBT	COMPUTER – BASED TRAINING
CD-ROM	Compact Disc Read-only memory
CEI	Computer-enriched instruction
ETD	Electronic Thesis and Dissertations
GTC	Gaza Training centre
HRCI	Human Resource Certification Institute
IBT	Internet-Based Training
ICT	Information and Communication Technology
ISE	Internet Self-Efficacy
IT	Information Technology
KYTC	KhanYonis Training centre
PA	Performance Appraisal
PI	Programmed Instruction
UNRWA	United Nations Relief and Works Agency
WBT	Web-Based Training

Abstract

Computer Based- Training (CBT) is, in the present era, one of the most important achievements in the area of vocational and technical training field, relying on computer and technology, which aims to provide reliable and integrated tools in a timely manner to the general users of training system, where the extent of the evolution of its enterprise information management and the level of use of this system, would raise the efficiency of the performance.

This research aims to identify to what extent Computer Based Training (CBT) can improve the performance of technical instructors in the UNRWA – Vocational and Technical Training centres. Descriptive analytical approach used to achieve the objective of the research, so questionnaire was designed and developed for data collection and measurement of research variables. Then it was distributed to members of the sample (56) staff, and relies on the statistical package SPSS for statistical analysis of this research, using the following statistical methods: descriptive statistical measures, factor Pearson correlation analysis, and multi-regression analysis.

The research found several results and the most important findings demonstrated that there is a positive attitude toward the requirements of the operating and managing CBT (Hardware, Software, Human Resource, and Organization Structure) in improving the performance of technical instructors in UNRWA – Vocational and Technical Training centres of GTC and KYTC , moreover there are no statistically significant differences between the perceptions of respondents in UNRWA – Vocational and Technical Training centres, due to the demographic variables (Gender, Age, Years of experience, Educational qualification, and department (specialization)).

The research concluded a series of recommendations including the most important as follow:

1. Urgently, Information Technology department should be established with enough qualified staff to meet the work needs.
2. The continuity of the need to keep abreast of technological developments in the field of training and keep using modern equipment to meet the duties needs, which directly improve the outcomes of Computer – Based Training efficiently.

3. Disseminating circulars of Information Technology updates to the concerned staff in order to make awareness environment of Hardware and Software capabilities and how it can improve their career, minimize effort and raise productivity.
4. Pursuing corporations between administration and technical instructors in a manner of discussing the decision of the CBT and encouraging the instructors to use technology in order to increase the loyalty and job satisfaction and reduce the causes of resistance and morale, therefore see what fit the work needs and nature.

ملخص الدراسة

في العصر الحديث يعد التدريب باستخدام الحاسب و تكنولوجيا المعلومات واحد من أهم الإنجازات في مجال التدريب المهني و التقني والذي يهدف إلى توفير أدوات تدريبية متكاملة و فاعلة في الوقت المناسب, كما أن تطوير أنظمة المعلومات و ادارتها سيؤدي إلى زيادة فاعلية الأداء و رفع مستوى الإنتاجية.

هدفت هذه الدراسة إلى التعرف على أي مدى يمكن للتدريب باستخدام الحاسب أن يحسن من أداء المدربين الفنيين في كليات تدريب الأونروا باستخدام المنهج الوصفي التحليلي ولهذا تم تطوير و تصميم استبانة لغرض جمع البيانات و قياس متغيرات الدراسة.و لقد تم توزيع الإستبانة على أفراد العينة البالغ عددهم 56 مدرب و تم الاستعانة بالحزمة الإحصائية SPSS للقيام بالتحليل الوصفي الإحصائي و باستخدام الأساليب الإحصائية التالية: الإحصاء الوصفي, معامل الارتباط بيرسون و تحليل الإنحدار المتعدد.

توصلت الدراسة إلى عدة نتائج أهمها وجود أثر ذات دلالة إحصائية لمتطلبات تشغيل و إدارة التدريب باستخدام الحاسوب (المادية و البرمجية و البشرية و التنظيمية) على أداء المدربين الفنيين في كليات التدريب المهني و الفني غزة و خانيونس التابعة للأونروا. و أيضاً عدم وجود فروق ذات دلالة إحصائية بين تصورات المبحوثين حول " تحسين أداء المدربين الفنيين من خلال تنفيذ التدريب المعتمد على الحاسب" تعزى للمتغيرات الديموغرافية (الجنس و العمر و سنوات الخبرة و الدرجة العلمية و مكان العمل).

و لخصت الدراسة مجموعة من التوصيات أهمها ما يلي:

1. هناك ضرورة ملحة الى تشيد قسم خاص بتكنولوجيا المعلومات وبعدهد كاف و مؤهل من الفنيين.
2. الاستمرارية بتطوير التكنولوجيا في مجال التدريب و استخدام اجهزة حديثة و متطورة لتلبية احتياجات العمل لما لها أثر فاعل و مباشر على مخرجات التدريب.
3. توزيع نشرات و دوريات بالبرمجيات و المعدات المستخدمة و كيفية استخدامها من أجل خلق بيئة توعوية و تقليل الجهذ و من ثم تحسين الإنتاجية.
4. الاستمرارية بنقاش القرارات المتعلقة بالتدريب مع الموظفين و تشجيعهم على استخدام التكنولوجيا بالتدريب من أجل خلق روح عمل تعاونية و زيادة الإنتماء و الرضا الوظيفي.

Chapter One

The Research General Framework

Introduction

Problem Statement

The Research Hypotheses

The Research Variables

The Research Objectives

The Research Importance

Chapter One

The Research General Framework

Introduction

Today an increasing number of people are interacting with technology; at the same time more and more people are being replaced by the introduction of Computer -based and automated systems. With the rapid technological development, traditional methods are increasingly unable to meet the demand thus created. These rapid developments in technology are in some ways responsible for the increased requirement for training programs. Most companies provide information about new training technologies in several ways. Inevitably, with Information Technology (IT), there is a need to be concerned with the development of the technology itself so that it can keep up to date with the facilities it has to offer (**Van der Aalst, Wil M. P., 2011**).

The new understanding of technology and its applications to training make the new training methods attractive to companies. Training through the new technology is different from conventional training through lectures, television or printed manuals. Education and training technologies will follow the vision of education and training in the 21st century and this vision should take into account the potential of technology, but the vision should be driven by the needs of individuals as well as technological development (**Rosenberg, 2002**).

The new wave of training is based on 'new training technologies' known as Computer-Based Training (CBT) and this is related to two sides of the development path. On the software side, the term covers an important range of authoring tools offering trainer-authors the chance to ensure that the software can handle the company's specific training problems. The term also covers the hardware that trainers can use, the mainframe computers and telecommunication systems and even satellites. Trainers see the introduction of new computer technologies as vital to their businesses, as they hope the technology will make training more efficient (**Bayraktaroglu S., 2003**).

CBT will still most likely be utilized to reference out-of-classroom and in-classroom educational experiences via technology, even as advances continue in regard to devices and curriculum. Content is delivered via the Internet, audio or video tape, satellite TV, and CD-ROM. It can be self-paced or instructor-led and includes media in the form of text, image, animation, streaming video and audio (**Technology's Impact on Learning, 2012**).

Also, CBT depends on Human Resource Management which is concerned with organizational activity aimed at bettering the performance of individuals and groups in organizational settings. The term talent development is becoming increasingly popular in several organizations, as companies are now moving from the traditional training and development (Rosemary H., 2005, p. 5).

Moreover, an organisational structure is an essential to identify how the organisation is working and what team works in which department and programs. Employees want to be recognized in the department to get a positive attitude towards the organisation, when employees attitudes change from negative to positive they perform better (Meijaard, Brand & Mosselman. 2002, p. 83-96).

Abbreviations like CBT (Computer-Based Training), IBT (Internet-Based Training) or WBT (Web-Based Training) have been used as synonyms to e-learning. Today one can still find these terms being used. CBT comprises all forms of electronically supported learning and teaching. The information and communication systems, whether networked learning or not, serve as specific media to implement the learning process (Jaggars, S. S. & Xu, D., 2010).

Computer-Based Instruction makes teaching techniques more effective than those of the traditional teaching methods as it is used for presenting information, testing and evaluation and providing feedback. It makes a contribution to the individualization of education. It helps to develop creativity and problem solving skills, identity and self-reliance in learners. It serves to control lots of variables having an impact on learning, which cannot be controlled by means of traditional educational techniques (Tavangarian D., Leybold M., Nölting K., Röser M., 2004).

As Israeli occupation already found, UNRWA has delivered its services to Palestinian people. Today, UNRWA is the main provider of basic services. Especially in Technical Education sector for the Palestinian refugees in Palestine. Accordingly UNRWA technical and vocational canter are in mass need to improve their instructors' performance since that impact on the performance of the graduated trainees and to deliver better training service. With respect to the technology and its rapid development, training should take a step toward E-learning or Computer – Based Training rather than traditional way.

Annually, UNRWA allocate a significant budget for Education program and Human

Resources training whether for developing skills or motivating staff, that depends on United Nations funding.

So the researcher will try to find how much CBT can improve technical instructors' performance from their viewpoints through applying a questionnaire as a tool, whose number is 48 in GTC and 12 in KYTC, also to identify and highlight CBT contributions to improve technical performance.

Problem Statement

There are many terms that are currently in use so far as ICT in Training is concerned, which is categorized the uses of computer into three as follows: learning about computers, learning with computers and learning through computers. Gaza Training Centre (GTC) and Khanyonis (KYTC) specialized in technical and vocational training with 48 and 12 technical instructors respectively. Through site visit and appraisal performance, instructors don't use Technology in the training and the educational process. Moreover, they don't implement computer skills in a fully integrated manner in accomplishing their duties; so that lead to lack and miss the local market needs of professional and skilled trainees.

Through 8 years of experience in technical training at UNRWA-GTC, I had observed there is a real need for using computers and technology in delivery training courses. Particularly, many instructors ask for help to use technology, so annually a number of computer training courses in different fields were held to assist a number of instructors in delivering their courses in professional manner in order to improve their performance for meeting the local market needs whether they were held locally or externally.

Consequently the problem statement of the research can be formulated in the following statement **“To what extent can Computer - Based Training improve Technical Instructors Performance from their viewpoints”?**

The present work is highlighting the training activities and attracting attention to CBT impact on the human resources' skills and performance in UNRWA-Technical and Vocational Centers. It raises and provides answers for questions such as:

1. What are the expectations of Technical Instructors toward the requirements for operating and managing Computer – Based Training (hardware, software, human resources, and organizational structure)?
2. What are the contributions of Computer – Based Training in improving Technical Instructors' performance?

The Research Hypotheses

This research aims at identifying and explaining CBT improvements over technical instructors' performance, the research includes constructs and relationships which may prove to be important in the context of CBT. These constructs are grouped into four factors: Hardware, Software, Human Resource, and Organization Structure. Based on the above mentioned, the following hypotheses were formulated:

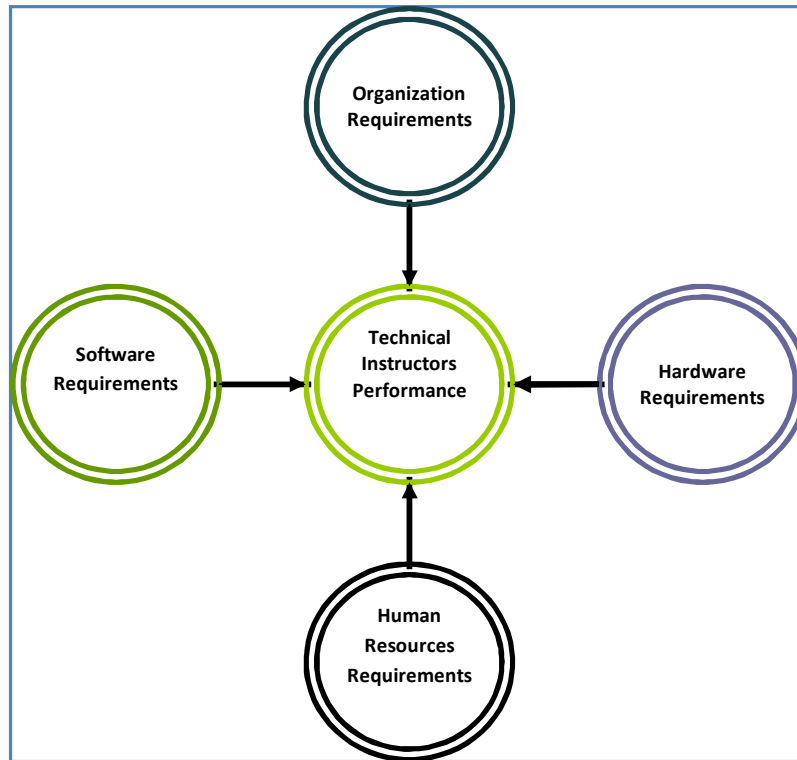
1. There is significant statistical relation ($\alpha \leq 0.05$) between hardware requirements and Technical Instructors' performance.
2. There is significant statistical relation ($\alpha \leq 0.05$) between software requirements and Technical Instructors' performance.
3. There is significant statistical relation ($\alpha \leq 0.05$) between human resources requirements and Technical Instructors' performance.
4. There is significant statistical relation ($\alpha \leq 0.05$) between organization structure and Technical Instructors' performance.
5. There are significant statistical differences ($\alpha \leq 0.05$) in the response of the research sample "Can Computer - Based Training improve Technical Instructors Performance?" due to socio-demographic variables (gender, age, education, specialization, and experience).

The Research Variables

As shown in figure 1, four independent variables related to operating and managing Computer Based- Training are chosen to measure how they will improve the technical instructor's performance as a dependent variable as follow:

1. The dependent variable: Technical Instructor performance.
2. The independent variables:
 - a. Hardware requirements.
 - b. Software requirements.
 - c. Human resources requirements.
 - d. Organization Structure requirements.

Figure 1: The Research Variables



Source: articulated by the researcher

The Research Objectives

The research has the following objectives which emerge from the research questions:

1. To discover how much can CBT enhance the technical instructors' performance and productivity.
2. To identify the set of requirements and limitations which are significant in CBT delivery.
3. To discover the benefits of using computer in technical training programs.
4. To help decision makers to empower the staff skills through implementing Computer-based Training.
5. To provide recommendations and suggestions on how to conduct Computer-based Training efficiently.

The Research Importance

In the age of rapidly developing Technology, there are many researches had done to research the effects of technology in every discipline of the life. This research in particular, focuses on how much CBT can improve the technical instructors' performance at UNRWA- Training centres of Gaza strip.

The research has its own significances from the following aspects:

1. Assist other researchers by offering some useful information about CBT requirements and practices for Technical training discipline in Gaza strip.
2. Help Gaza Training Centre and other technical training centres in
 - a) Meeting the local market needs and improving the performance in order to overcome the deficits of using technology in training process.
 - b) Providing pursuing training opportunities, which can steadily increase employees' professional competencies and experiences. Particularly, Computer and Internet are available everywhere at any time.
3. Empower the technical instructors through
 - a) Adding something different in the skills field, because of the significant strict needs of computer in the practical and scientific life today.
 - b) Enhancing the competency and raising the confidentiality of instructors, that needed to serve the trainees effectively by using technology in-classroom or out-of-classroom.
4. On the personal level, I will be able to learn more about technical training concerns, issues, training process and technology roles in training process; in order to get benefits and make efficient decisions in technical training discipline.

Chapter two

Literature Review

Section one: Training

What is training?

Training process

Types of training

Training methods and techniques

Section two: Computer – Based Training

What is Computer – Based Training (CBT)

CBT Importance

CBT Benefits

CBT Techniques

CBT Components and requirements

Section three: Performance Management

Introduction

Systematic Process of Performance Management

Factors affecting Employees Performance

Performance appraisal

Development of Employees Performance

Chapter two

Section one: Training

What is training?

Training is a learning process that involves the acquisition of knowledge, sharpening of skills, concepts, rules, or changing of attitudes and behaviours to enhance the performance of employees (Naukrihub.com, 2007, Introduction of Training). It helps people to become qualified and proficient in doing some jobs, training has specific goals of improving one's capability, capacity, and performance. Usually an organization facilitates the employees' learning through training so that their modified behaviour contributes to the attainment of the organization's goals and objectives, It forms the core of apprenticeships and provides the backbone of content at institutes of technology (Rosemary Harrison, 2005, p. 5). In addition to the basic training required for a trade, occupation or profession, observers of the labour-market recognize the need to continue training beyond initial qualifications: to maintain, upgrade and update skills throughout working life (Derek Torrington, Laura Hall, and Stephen Taylor, 2004, p. 363). People within many professions and occupations may refer to this sort of training as professional development.

“Training is a never ending story. Once you have an answer, at least three times more questions appear” (Training for Trainers Final Report, 2000, p.11).

“Bringing to desired standard of performance or behaviour by instruction and practice”.

What the desired standard is, and how it is achieved can clearly vary.

“Training is about involving and empowering people.”

Training is like “a tree that grows. It is a metaphor for people who develop themselves. The tree becomes a sun, which is the symbol of life.”

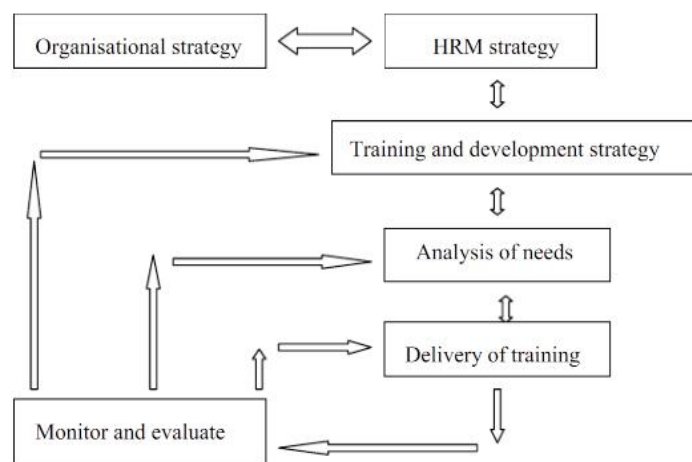
The official and on-going educational activities within an organization designed to enhance the fulfilment and performance of employees. Training and development programs offered by a business might include a variety of educational techniques and programs that can be attended on a compulsory or voluntary basis by staff (business dictionary, 2012, training and development).

While training is concerned with those activities which are designed to improve human performance on the job that employees are at present doing or are being hired to do, education is concerned with increasing general knowledge and understanding of the total environment. Education is the development of the human mind, and it increases the powers of observation, analysis, integration, understanding, decision making, and adjustment to new situations (Abdul Halim and Md. Mozahar Ali, 1997, Training and professional development).

Training process

Training is one of the most profitable investments an organization can make. No matter what business or industry you are in the steps for an effective training process are the same and may be adapted anywhere. If you have ever thought about developing a training program within your organization consider the following four basic training steps. You will find that all four of these steps are mutually necessary for any training program to be effective and efficient (Beardwell, al. 2004, Steps in the Training Process).

Figure 2: Training Process



Source: Beardwell, al. 2004, Steps in the Training Process

1. Establishing a need analysis: The first step in the training process in an organization is the assessment of its objectives and strategies. What business are we in? At what level of quality do we wish to provide this product or service? Where do we want to be in the future? It is only after answering these related questions that the organization must assess the strengths and weaknesses of its human resources (Scribd, 2012, The Training Process).

This step identifies activities to justify an investment for training (Brown, J., 2002, p. 569-578). The techniques necessary for the data collection are surveys, observations, interviews, and customer comment cards. Several examples of an analysis outlining specific training needs are customer dissatisfaction, low morale, low productivity, and high turnover. The objective in establishing a needs analysis is to find out the answers to the following questions (Rosemary Harrison, 2005, p. 5):

- Why is training needed?
- What type of training is needed?

- When is the training needed?
- Where is the training needed?
- Who needs the training?
- Who will conduct the training?
- How will the training be performed?

The information gleaned from a need analysis can be used to help you define program goals. These goals can then be stated as specific teaching objectives, which in turn will function as the foundation on which to develop lesson plans, materials, tests, assignments and activities. Basically, a needs analysis will help you to clarify the purposes of your language program (**Amie N. Casper, 2003, Needs Analysis**).

2. Training Design: The design of the training program can be undertaken only when a clear training objective has been produced. The training objective clears what goal has to be achieved by the end of training program i.e. what the trainees are expected to be able to do at the end of their training. Training objectives assist trainers to design the training program. Establish the development of current job descriptions and standards and procedures. A complete list of standards and procedures should be established from each responsibility outlined in the job description (**Naukrihub.com, 2007, Training Design**).
3. Deliver the training program: Once you have designated your trainers, the training technique must be decided. One-on-one training, on-the-job training, group training, seminars, and workshops are the most popular methods. For a training program to be successful, the trainer should be conscious of several essential elements, including a controlled environment, good planning, using of various training methods, good communication skills, and trainee participation (**Armstrong, 2001, p. 579**).

Before presenting a training session, make sure you have a thorough understanding of the following characteristics of an effective trainer. The trainer should have (**Armstrong, 2001, p. 579**):

- A desire to teach the subject being taught.
- A working knowledge of the subject being taught.
- An ability to motivate participants to "want" to learn.
- A good sense of humor.
- A dynamic appearance and good posture.
- A strong passion for their topic.
- A strong compassion towards their participants.

- Appropriate audio/visual equipment to enhance the training session.

For a training program to be successful, the trainer should be conscious of several essential elements, including a controlled environment, good planning, and the use of various training methods, good communication skills, and trainee participation (Armstrong, 2001, p. 579).

4. Evaluate the training program: This step will determine how effective and profitable your training program has been by establishing of a cost/benefit analysis outlining your expenses and returns, and an increase in customer satisfaction and profits. Evaluations will provide feedback on the trainer's performance will indicate its cost-effectiveness and will determine the overall effectiveness of the training program for the employees as well as the organization. To be successful, all training must receive support from all levels of management and must be implemented by all members of the organization to be fully successful (Armstrong, 2001, p.581).

The reason for an evaluation system is simple. The evaluation of training programs is without a doubt the most important step in the training process. It is this step that will indicate the effectiveness of both the training as well as the trainer. There are several obvious benefits for evaluating a training program (Armstrong, 2001, p.581).

- a) Evaluations will provide feedback on the trainer's performance, allowing them to improve themselves for future programs.
- b) Evaluations will indicate its cost-effectiveness.
- c) Evaluations are an efficient way to determine the overall effectiveness of the training program for the employees as well as the organization.

The importance of the evaluation process after the training is critical. Without it, the trainer doesn't have a true indication of the effectiveness of the training (Donald L. Kirkpatrick and James D. Kirkpatrick, 2009, *Evaluating Training Programs*).

Types of training

The training literature is replete with methods, tools, and techniques to help individuals learn better. Many of the newer tools are refinements that are designed to reduce training time or increase learning content. However, not all techniques work equally well in all situations. It is also important to note that not everyone responds equally well to the same types of techniques. Training may broadly be categorized into many types according to some criteria:

1. According to the service time:
 - a) 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 (**Abdul Halim and Md. Mozahar Ali, 1988, Training and professional development**).
 - b) 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. "It is a program designed to strengthen the competencies of extension workers while they are on the job" (**Malone, 1984, p. 209**).
2. According to number of trainees:
 - a) Individual Training: Occurs using a variety of methods. The decision on how to deliver individual training depends on such things as the best environment in which to learn, the complexity of the skills to be taught, and cost efficiency (**Nzarmy, 2012, Individual training**).
 - b) Team Training: Training a team together has been shown to be a more effective way to improve the performance of a specific team. Interacting with your work team during the training is a great way to reinforce the relevance of the training. Shared team training also enables team members to learn about each other's' strengths and skills without the pressure of work deadlines (**Hub, 2008, Team Training vs. Individual Training**).
3. According to methods of training at work
 - a) ON-the Job Training: Takes place in a normal working situation, using the actual tools, equipment, documents or materials that trainees will use when fully trained. On-the-job training has a general reputation as most effective for vocational work (**Wikipedia, 2012, Job Training and Development**).
 - b) Off-the Job training: This is any form of training which takes place away from the immediate workplace. Off-the-job training includes more general skills and knowledge useful for work, as well as job-specific training. Training may be provided by specialist trainers inside or by an outside company hired to help with training. Off-the-job training is particularly effective for non-technical skills, as employees can use these across different areas of the company (**National Grid, 2011, Off-the-job training**).

4. According to training approach
 - a) Traditional approach, the training staff designs the objectives, contents, teaching techniques, assignments, lesson plans, motivation, tests, and evaluation. The focus in this model is intervention by the training staff **(Rama, Etling, & Bowen, 1993)**.
 - b) Experiential approach, the trainer incorporates experiences where in the learner becomes active and influences the training process. Unlike the academic approach inherent in the traditional model, experiential training emphasizes real or simulated situations in which the trainees will eventually operate. In this model, the objectives and other elements of training are jointly determined by the trainers and trainees. Trainers primarily serve as facilitators, catalysts, or resource persons **(Abdul Halim and Md. Mozahar Ali, 1988, Training and professional development)**.
 - c) Performance-based approach to training, goal is measured through attainment of a given level of proficiency instead of passing grades of the trainees. Emphasis is given to acquiring specific observable skills for a task **(David Dubois and William Rothwell, 2011, Competency-Based or a Traditional Approach to Training)**.
5. According to the purpose:
 - a) Orientation Training is given immediately after employment to introduce the new extension staff members to their positions. It begins on the first day the new employee is on the job **(Rogers & Olmsted, 1957, p. 83)**. It can avoid costly mistakes by recruits not knowing the procedures or techniques of their new jobs. The length of induction training will vary from job to job and will depend on the complexity of the job, the size of the business and the level or position of the job within the business **(Jim Riley, 2011, Induction Training)**.
 - b) Career or Development Training is designed to upgrade the knowledge, skills, and ability of employees to help them assume greater responsibility in higher positions. The training is arranged departmentally for successful extension workers, at all levels, for their own continuing education and professional development. 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" **(Malone 1984, p. 216)**.
 - c) Motivation Training: An important part of managing people is to let them know how they are performing. Various methods of performance appraisal can be used and an important output from this process should be an assessment of an employee's training needs **(Jim Riley, 2011, Induction Training)**.

6. According to target group:

- a) Managerial training is the knowledge gained from training that improves leadership, supervising and managing. It's more toward their interpersonal skills such as communication, thinking, decision making, leader ship and many more as they are the employee who managed the organization as the first, second and top manager in the organization (**David Kennedy, 2012, eHow Contributor**).
- b) Non-managerial employee are the people who completed the job so their method of training are different with the managerial employee, for non-managerial their training output or objective are more toward the skill, productivity, knowledge and many more in term of field that related to their field of work (**Lawson K. Savery, 1988, p.17-22**).

7. According to techniques:

The majority of training techniques fall under one of three general categories (**Sylvia J. Hysong, Laura Galarza, 2007, p.11**):

- a) Information-based techniques, such as lectures and conferences, are designed to impart large amounts of factual information to many people simultaneously, making them very efficient and cost-effective. However, because they are usually unidirectional, they are not suitable for learning procedures or skills.
- b) Demonstration-based methods, such as recordings, films, and slides, are most useful for imparting procedural information. They are also especially useful for demonstrating events or procedures that cannot be recreated in the classroom. Like information-based methods, however, demonstration-based methods are unidirectional and allow no opportunity for clarification or feedback; further, depending on the topic, development costs can be quite high.
- c) Practice-based methods, such as role-play, and simulations, are designed to allow the learner to rehearse the material being learned, and receive feedback on his or her performance. Practice-based methods are best suited for learning interpersonal skills, complicated procedures, or the use of tools or equipment (such as an airplane or a computer). Because of the feedback and practice design, learning occurs more quickly and with better retention. However, most practice-based methods can only be used in small groups, and are usually very expensive to develop.

Training methods and techniques

Training methods pertain to the types of training that can be provided to employees to sharpen their existing skills and learn new skills.

1. **Lecture:** A lecture is a method in which he or she may use hand-outs, visual aids, question/answer, or posters to support the lecture, in which communication is primarily one-way: from the instructor to the audiences. Lectures are used because of their low cost and their capacity to reach many people. Lectures, which use one-way communication as opposed to interactive learning techniques, are much criticized as a training device (**Lowenberg G, Conrad KA., 1998, p. 299**).
2. **Coaching:** When a manager takes an active role in guiding employee we refer to this activity as coaching. Process enables learning and development to occur and thus performance to improve. To be a successful a Coach requires knowledge and understanding of process as well as the variety of styles, skills and techniques that are appropriate to the context in which the coaching takes place (**Eric Parsloe, 1999, p. 8**).
3. **Role playing:** A technique where trainees act out simulated roles. It is most commonly used in the training of interpersonal skills, attitude change, and decision-making. Role playing can be considered a specific type of behaviour modelling; i.e., one where the task being rehearsed is an interpersonal role. As such, it shares the same strengths and weaknesses as behaviour modelling. It is most effective in the teaching of interpersonal skills such as communication, negotiation, and conflict resolution (**Goldstein IL., 1991, p. 23–26**).
4. **Programmed Instruction (PI):** These devices systematically present information to the learner and elicit a response; they use reinforcement principles to promote appropriate responses. Today the method is used for skills as diverse as air traffic control, blueprint reading, and the analysis of tax returns (**Goldstein IL., 1993, p. 274**).
5. **Computer-Assisted Instruction (CAI):** CAI refers to any training, tutorial, or programmed instruction that is delivered by means of a computer. Because the student 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 student's capabilities, and performance can be monitored continuously. As instruction proceeds, data are gathered for monitoring and improving performance (**Goldstein IL., 1993, p. 274**).

6. Audio-visual 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. The use of techniques that combine audio-visual systems such as closed circuit television and telephones has spawned a new term for this type of training (**Salas E, Cannon-Bowers JA., 1997, p. 249**).
7. 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 control the training environment, safety, to introduce feedback and to reduce cost (**Gall AI., 1987, p. 54-58**).
8. Panel training: A panel includes 3-5 instructors and 10 – 15 learners, which provides several points of view on a topic to seek alternatives to a situation, in which instructors discuss together, learner listen and make feedback when they are asked (**Serfaty D, Entin E., Johnston Jh., 1998, p. 221**).
9. Conference: The conference is a variation of the lecture method, where a small group of participants convenes to discuss a given topic in depth. The conference overcomes several of the lecture's shortcomings by providing direct feedback, promoting individual participation, and allowing participants to clarify any material they do not understand. Because the learners enjoy more interactive participation, their learning process is more effective than with passive, one-way communication. Interactive learning promotes appropriate feedback and motivation, which is consistent with the principles of operant learning (**Weiss HM., 1991, p. 171-221**).
10. Business games: A business game is a contrived situation which imbeds players in a simulated business environment where they must make management-type decisions from time to time, and their choices at one time generally affect the environmental conditions under which subsequent decisions must be made. Further, the interaction between decisions and environment is determined by a refereeing process which is not open to argument from the players (**Goldstein II., 1993, p. 274**).

Section two

Computer – Based Training (CBT)

Overview

The world of business has changed dramatically since the introduction of the first modern multipurpose computer over 50 years ago. A computer is a programmable machine designed to automatically carry out a sequence of arithmetic or logical operations. The particular sequence of operations can be changed readily, allowing the computer to solve more than one kind of problem. As a consequence of their decreasing size and cost, computers can be found today in virtually every corner of any society, from research facilities and corporate headquarters, to schools and homes, to do different tasks, such as computer-based training, which can be an effective and efficient method for upgrading employees' skills, but it isn't always. Before committing to a program of computer-based training, you must first decide whether computer-based training is the best instructional method for your needs. If it is, determine what type of computer-based training can best suit your needs. Small and mid-sized companies should not rule out any training strategies that might meet their needs until they explore all of the alternatives available to them (Stair, Ralph M., et al., 2003, p.132).

What is Computer – Based Training (CBT)

Computer-based training is any training that uses a computer as the focal point for instructional delivery. With CBT, training is provided through the use of a computer and software, which guides a learner through an instructional program.

CBT programs can be classified (Attaran, M. 2002):

1. Computer-assisted instruction (CAI), in which the program provides drill and practice (Castellani, J., & Jeffs, T., 2001, p. 33).
2. Computer-enriched instruction (CEI) in which the computer serves as a simulator or programming device (Attaran, M. 2002).
3. Computer-Assisted Learning CAL, using a computer as an adjunct tool to aid in a traditional learning situation, like classroom training. The computer is a device to assist the instructor during the training process, like a blackboard or hand-outs (Horne J., 2007, p. 47–55).
4. Computer-Assisted Testing CAT, Assessing an individual through the medium of a computer. An individual take the test at the computer, and the computer records and scores the test (Kulik and Peter, 1985, p. 525).

CBT Importance

Computer training is an important factor in 21st century workplaces. The importance of computer training can be viewed in two ways. First, it is vital for job applicants to obtain computer training to make themselves more valuable to potential employers and to obtain higher-paying jobs. Second, it is important for companies to utilize computer training in their new-hire training programs and employee development initiatives (**Robin McDermott, 2000, computer-based training**):

1. **Job Skills:** Computer skills are a basic requirement for a large number of jobs. Almost any office job you apply for will require you to possess basic typing and data entry skills. Factory positions may require employees to use computers to log their hours worked or to enter production information each day.
2. **Learning on the Job:** Basic computer training provides a foundation on which employees can build new skills on the job. Employees may need to learn how to use a proprietary software program for a new job. Learning how to operate software you've never worked with before can be much easier if you already have a solid foundation of computer experience on which to build.
3. **Productivity:** Small businesses can realize important benefits from leveraging computer technology in their training programs. Using computers to facilitate training exercises may avoid the loss of productivity; on the other hand, can give employees the skills and confidence they need to serve customers effectively from their first day on the job.
4. **Employee Development:** Using computer technology to provide continual training opportunities for your workers can steadily increase employees' professional competencies and experience, while accruing the benefits of a comprehensive employee development program to your business.

CBT Benefits:

CBT has many positive features and effects, many of which are particularly important to small and mid-sized companies.

1. **Increased control over training activities (Congram, G., 1995, P.52-54):**
 - a) Flexibility of schedules it provides. Training can be taken by most employees on a twenty-four hour basis without leaving the work site. Further, it is accessible almost anywhere a computer can be located.
 - b) Reduced training time when compared with a traditional classroom instruction.

2. Cost effective (**Dhanjal & Calis, 1999, p.13-14**):
 - a) Since employees can train on-site avoiding the need to travel to training facilities, this results in savings in costs on travel and accommodation costs.
 - b) Using CBT you can teach any number of trainees at the same time. After initial costs, by customizing CBT programs to focus only on what trainees need to learn, training time and costs can be significantly reduced.
3. Self-paced, flexible, and individualized (**Lawson, S. 1999, p. 30-32**):
 - a) Within a self-paced instructional program, an employee may review specific topics on which he/she needs clarification. Or, if familiar with the topic, the employee may quickly complete the course and progress at a faster rate.
4. Tireless (**Lawson, S. 1999, p. 33**):
 - a) It never needs a break, it is always there.
 - b) It can train greater numbers of students in a given time frame compared to other methods.
 - c) It meets the need for round-the-clock (continuous) training.
5. Reduce resource requirements (**Blanken horn, 1999, p. 29**):
 - a) You can have a higher trainee-to-trainer ratio, where the instructor serves facilitator, assisting trainees as needed.
 - b) There is less need for a centralized training facility. Facilitators can serve more than one company with a CBT program, lessening the investment each company would have to make.
6. Improve job performance(**Blanken horn, 1999, p. 30**):
 - a) It trains people in specific skills for specific performance.
 - b) It trains people in general skills that broadly affect general performance.
 - c) It provides increased access to information tools for decision making.
7. Measurability:
 - a) This can be accomplished using self-check questions, pre-tests and post-tests (**Lawson, S. 1999, P. 30-33**).

CBT Techniques

Most CBT uses one or a combination of the following techniques:

1. Tutorial: The most common of all techniques is the tutorial. It is used to introduce new information that must be taught in a sequential manner. It is useful for teaching factual information, simple discrimination, rules, and simple application of rules (**Webster, Jeremy, 2010, Honors Tutorial College**).
2. Presentation: Demonstration or presentation is best used to support the introduction of new information. It can also be used as a review tool (**Cutrim & Van Hazebrouck, 2009, p. 15**).
3. Drill and Practice: Another commonly used technique is known as drill and practice. It provides opportunities for practice when mastery of a new skill or information is desired. It should be used after initial instruction (**Cutrim & Van Hazebrouck, 2009, p. 12-16**).
4. Training Games: Training games supplement other instruction and are used to provide motivating and engaging opportunities for practice after a skill or new information is taught. Training games capitalize on the competitive interests of learners and add entertainment value to instruction (**Goldstein IL., 1993, p. 274**).
5. Simulation: The technique of simulation is most often used when practicing a skill in its real context is too costly or dangerous. It provides an opportunity for experimentation, and allows students to test assumptions in a realistic context, in order to build realism and relevance into the training situation (**Sokolowski, J.A., Banks, C.M, 2009, p.6**).
6. Problem Solving: One of the most challenging techniques used in CBT is problem solving. It helps to develop skills in logic, solving problems, and following directions, and is generally used to augment higher order thinking skills (**Wikipedia, 2012, Problem solving**).
7. Distance learning: Is a field of education that focuses on teaching methods and technology with the aim of delivering teaching, often on an individual basis, to students who are not physically present in a traditional educational setting such as a classroom (**Honey man, M. Miller, 1993, p. 67-73**).
8. Expert systems: An expert system is a computer system that emulates the decision-making ability of a human expert. Expert systems are designed to solve complex problems by reasoning about knowledge (**Jackson, Peter 1998, p.2**).

CBT Components and requirements

In many computer-based training projects, most of the attention and funding goes to the acquisition of hardware and software; little goes to implementing the computer-based training. Also there is a need for a number of basic logistical and administrative tasks, as well as technical tasks to handle and operate the training (**Brett Bixler, 2012, implementing training**):

1. Warranties: The warranties for the computer-based training, as well as the hardware and any support software, must be adequate, and the warranty forms completed and returned to manufacturers (**cisco, 2012, IT Essentials**).
2. Maintenance Agreements: If you plan on using the hardware and/or software for a period of time beyond the time limit of the warranty, you may want to have extended maintenance agreements for the hardware, the computer-based training, and any support software you are using. The maintenance agreements should cover failures, bug fixes, and updates. Maintenance agreements are usually cost-effective only if you are dealing with relatively large numbers of computers, or with very expensive products (**cisco, 2012, IT Essentials**).
3. Installation: All the hardware, computer-based training, and support software should be installed and running properly. The people responsible for maintaining the system should be well-versed in its operation and able to verify that there are no bugs when the system is used (**cisco, 2012, IT Essentials**).
4. Materials: Any support materials (e.g., hand-outs, workbooks) should be ready to use and in adequate supply (**Delano P Wegener, 2012, “Developing Computer Based Training”**).
5. Technical Staff: The technical staff must be able to adequately deal with emergency situations and keep the CBT system operating. They should have skill in troubleshooting and solving technical problems quickly (**webopedia, 2012, CBT**).
6. Administrative Staff: The administrative staff must have a system in place for keeping records of the training, and ensuring the training fits within the organizations overall policies and procedures (**webopedia, 2012, CBT**).
7. Hardware and software Maintenance: If you do not have a long-term maintenance agreement, an adequate budget for hardware and software fixes must be maintained. You should have extra equipment available to temporarily replace broken hardware. You also should plan for hardware and software upgrades, and build the costs of these into existing and future budgets (**Delano P Wegener, 2012, “Developing Computer Based Training”**).

8. Good documentation: it will minimize the disruptive aspects of staff turnover, allowing new people to come up to speed quickly. It will also enable the organization to provide smooth operation and maintenance, and further the development and revision of the computer-based training (Delano P Wegener, 2012, “**Developing Computer Based Training**”).

There are additional issues that must be addressed for on-site classes (webopedia, 2012, CBT):

1. Classrooms: You need to make sure that your classroom has enough space and appropriate doors, windows, lighting, ventilation, heating, air conditioning, telephone outlets, and electrical outlets.
2. Instructional Staff: The instructional staff must have considerable expertise in the course's subject in order to provide content assistance to trainees. They also should be well-versed in the computer-based training operation and prepared to answer all trainees' questions.
3. Monitoring and Evaluation: The trainer should assess trainees' progress periodically, so he or she can fill in and flesh out concepts not grasped by the trainees. An evaluation form should be available to the trainees so they can evaluate the trainer, the course content, supporting materials, the computer-based training itself, and the training environment. This evaluation should be used to revise and improve subsequent training sessions.
4. Networking: Making sure the network is available when needed, and the electronic records of trainees cannot be accessed by unauthorized individuals, in another word is full secure.
5. Duration of Lessons, Tests, and Sessions: Handling the logistical elements needed for scheduling and calculating training times. The training schedule should provide adequate breaks to allow for reflection and absorption.

Section three

Performance Management

Introduction

Managing performance well is like speaking prose. Many managers have been “speaking” and practicing effective performance management naturally all their supervisory lives, but don’t know it! Some people mistakenly assume that performance management is concerned only with following regulatory requirements to appraise and rate performance. Actually, assigning ratings of record is only one part of the overall process (U.S. office of personnel management, 2010, performance management).

Systematic Process of Performance Management:

1. Planning work and setting expectations: Set performance expectations and goals for groups and individuals to channel their efforts toward achieving organization’s objectives. The regulatory requirements for planning employees’ performance include establishing the elements and standards of their performance appraisal plans. Performance elements and standards should be measurable, understandable, verifiable, equitable, and achievable (Douglas Max and Robert Bacal, 2005). Employee performance plans should be flexible so that they can be adjusted for changing program objectives and work requirements. When used effectively, these plans can be beneficial working documents that are discussed often, and not merely paperwork that is filed in a drawer and seen only when ratings of record are required (A Handbook for Measuring Employee Performance, 2011, p.6).

Figure 3: Performance Management’s Five Key Components



Source: US. Office of personnel management, 2010, Performance management

2. **Monitoring:** In an effective organization, assignments and projects are monitored continually. Monitoring well means consistently measuring performance and providing on-going feedback to employees and work groups on their progress toward reaching their goals. Regulatory requirements for monitoring performance include conducting progress reviews with employees where their performance is compared against their elements and standards. By monitoring continually, supervisors can identify unacceptable performance at any time during the appraisal period and provide assistance to address such performance rather than wait until the end of the period when summary rating levels are assigned (**A Handbook for Measuring Employee Performance, 2011, p.6**).
3. **Developing the capacity:** Providing employees with training and developmental opportunities encourages good performance, strengthens job-related skills and competencies, and helps employees keep up with changes in the workplace, such as the introduction of new technology. Carrying out the processes of performance management provides an excellent opportunity for supervisors and employees to identify developmental needs. Planning and monitoring work, deficiencies in performance become evident and should be addressed. Areas for improving good performance also stand out, and action can be taken to help successful employees improve even further (**human Technology, Inc. of McLean, 2011, p. 3**).
4. **Periodically rating performance:** From time to time, organizations find it useful to summarize employee performance. This helps with comparing performance overtime or across a set of employees. Organizations need to know who their best performers are. Within the context of formal performance appraisal requirements, rating means evaluating employee or group performance against the elements and standards in an employee's performance plan and assigning a summary rating of record. -The rating of record is assigned according to procedures included in the organization's appraisal program. It is based on work performed during an entire appraisal period. The rating of record has a bearing on various other personnel actions, such as granting within grade pay increases and determining additional retention service credit in a reduction in force (**OPM.gov, 2012, Performance Management**).
5. **Rewarding good performance:** In an effective organization, rewards are used well. Rewarding means recognizing employees, individually and as members of groups, for their performance and acknowledging their contributions to the agency's mission. A basic principle of effective management is that all behaviour is controlled by its

consequences. Those consequences can and should be both formal and informal and both positive and negative (**Bob Nelson, 2007, p. 1**). Good managers don't wait for their organization to solicit nominations for formal awards before recognizing good performance. Recognition is an on-going, natural part of day-to-day experience. A lot of the actions that reward good performance—like saying “Thank you”—don't require a specific regulatory authority. Nonetheless, awards regulations provide a broad range of forms that more formal rewards can take, such as cash, time off, and many recognition items. The regulations also cover a variety of contributions that can be rewarded, from suggestions to group accomplishments (**Bob Nelson, 2007, p. 2**).

All five components working together and supporting each other achieve natural, effective performance management.

Factors affecting Employees Performance

The competency areas currently tested by the Human Resource Certification Institute (HRCI) reflect this broad area of knowledge. These areas truly are a critical foundation for improved employee performance. A relatively simple, but highly effective way of looking at this issue was provided by Tom Gilbert, who developed a diagnostic tool called the Behaviour Engineering Model (BEM) (**David Ripley, 2002, p.1-6**):

1. Information is critical for obvious reasons: It starts with output specifications. People have to know what they are expected to produce. They need to get feedback. They need to be aware of policy and procedures and the reasons for these policies and procedures, and so on (**Arnold Anderson, Demand Media, 2010, Factors Affecting Employee Performance**).
2. Resources, again, is fairly obvious: No matter how skilled an employee, without the tools and materials (and information can overlap with resources here) needed to do the job, it probably isn't going to get done (**Aruna Vayuvegula, 2012, Training Options**).
3. The issue of incentives: it is a bit more complex, but boils down to this. In the work environment, are there truly incentives for good performance and truly consequences for poor performance? Often, we end up, in effect, punishing our best performers. They get all the tough jobs because we know we can count on them and the poor performers get the easier work (**Roslyn Frenz, 2005, The Effect of Incentives on the Performance of the Employee**).

4. Skills and knowledge is certainly a familiar area: People have to know how to do their jobs. If employees do not have the necessary capability, skill or knowledge to do the job, their performance suffers (**Aruna Vayuvegula, 2012, Training Options**).
5. Capacity: it is important for obvious reasons also: No matter how committed the employee (**Arnold Anderson, Demand Media, 2010, Factors Affecting Employee Performance**).
6. Motivation: it is important also. A strictly person-based definition of performance is that performance is a function of motivation and ability. It's harder to work on motivation because it is so internal to the individual, but we can work on the environment and make sure we remove the barriers to performance (**Armstrong & Murlis 2004, P.68**).

The first three areas, information, resources and incentives, represent the work environment (system factors) and should be looked at first. We need to ensure there are no problems in these areas before we rush to support the employees, who are represented by the last three areas, skills and knowledge, capacity and motivation (person factors) (**Charity Tinfirel, 2011, p. 35**).

Performance appraisal

A Performance Appraisal (PA) or performance evaluation is a systematic and periodic process that assesses an individual employee's job performance and productivity in relation to certain pre-established criteria and organizational objectives. To collect PA data, there are three main methods: objective production, personnel, and judgmental evaluation. Judgmental evaluations are the most commonly used with a large variety of evaluation methods. A PA is typically conducted annually. The interview could function as "providing feedback to employees, counselling and developing employees, and conveying and discussing compensation, job status, or disciplinary decisions". PA is often included in performance management systems (**Abu-Doleh, J. & Weir, D. 2007, p. 75-84**).

The employee performance evaluation helps:

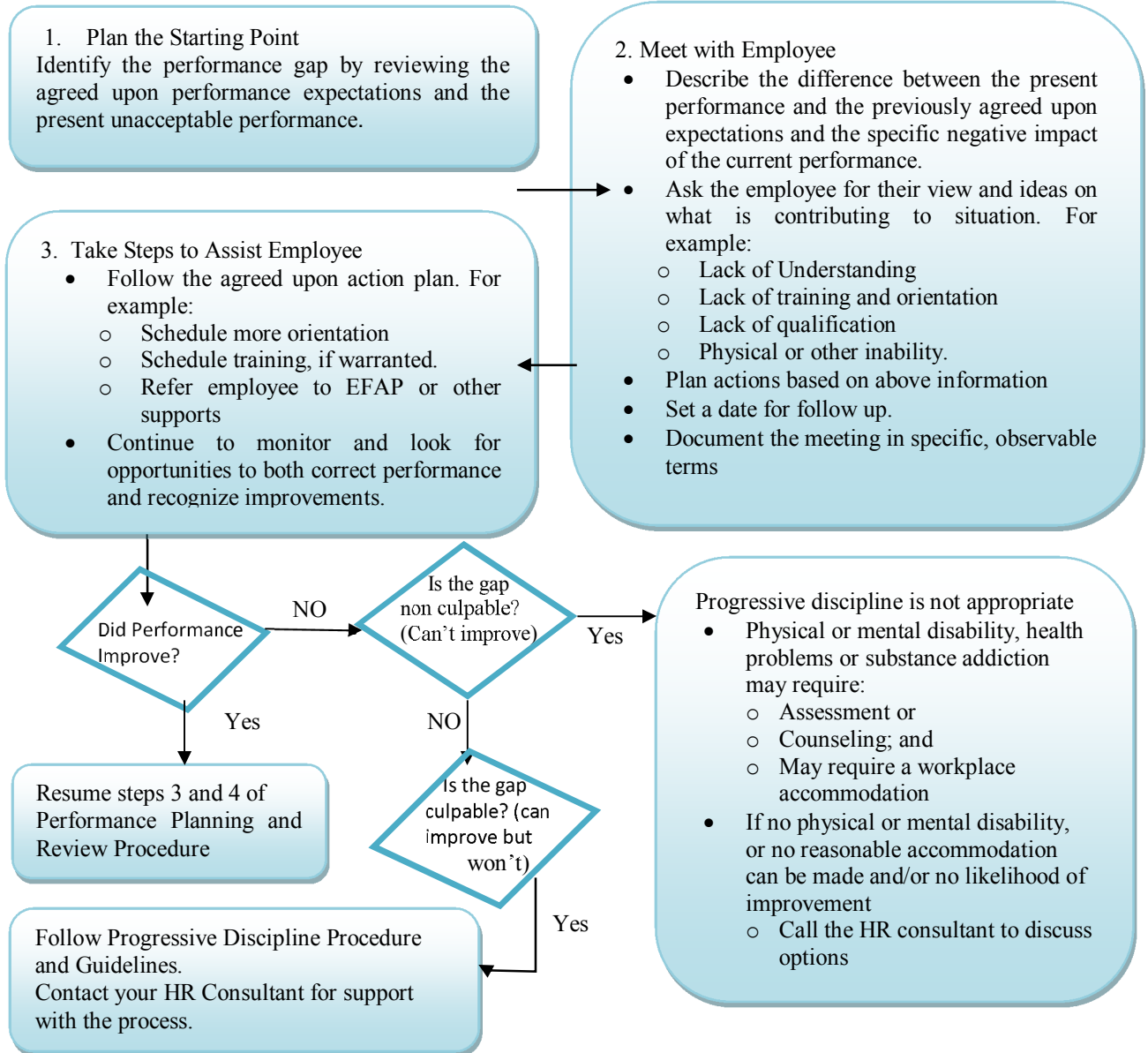
1. Employees accomplish both personal development and organizational goals.
2. Providing legal, ethical, and visible evidence that employees were actively involved in understanding the requirements of their jobs and their performance.
3. In many organizations numeric rankings are used to compare an employee's performance with the performance of other employees.
4. Provides evidence of non-discriminatory promotion, pay, and recognition processes.

Development of Employees Performance

Successful employee development can be summed up in one word: Customization. Openness to tailoring employee experience gives leadership the leverage it needs to effectively develop employees of all generations (**Employee Development Systems, 2010, How to Improve Employee Performance**):

1. Offer mentoring programs that are toggled to training programs. Break down stereotypes by organizing mentors by strengths and mentees by weakness as they relate to the current training initiative. If the training focuses on processes or systems within the organization, boomers or traditionalists may be better qualified to be mentors.
2. Keep them engaged A disengaged worker can often cost more than an open position in a company, so maintaining an employee development program, even in difficult times is better for the bottom line than cutting out all employee development activities, and running the company on a staff of disgruntled workers. Avoid this by providing regular educational and training opportunities as well as career advice.
3. Open up the office: Recognize that a (real or perceived) rigid management structure is de-motivating for Millennial. They prefer open plans that allow them to collaborate with colleagues, share information and feel that they are directly contributing to results.
4. Create recognition programs: Accommodate motivators of each generation by providing the recognition that each one seeks. Boomers and Traditionalists seek respect and roles of authority.
5. Focus on the meaning and purpose of the work: Don't let a day go by without focusing again on the meaning of the work everyone is being asked to do. This cuts through generational (and other) differences and reminds employees of why they are here.
6. Leverage unique skills: Maximize what each member brings to the table: ask team members to reply to statements such as, "Here's what I have to offer the team for this project," or "Here is the kind of support I'd like to receive." These kinds of statements help team members focus on their own skills and entreat their colleagues to do the same.
7. Talk about appropriate communication methods: as a group, discuss communication expectations. Reconsider the usefulness of email. Outline when it is more appropriate to communicate in person or on the phone. For example, conflict should never be resolved via email, and there are instances in which the telephone should only be used to make arrangements for face-to-face communication.

Figure 4: Performance improvement flowchart



Source: University of Victoria, 2011. Performance improvement flowchart

8. Limit meetings: Consider how much each of your employees' time actually costs. If you have called a meeting, are you using that time wisely by sitting together, taking turns listening to weekly updates and activities? All employees will thank you for prudence in meeting schedules.
9. Set a high bar for professionalism: While some generations may be less informed in their professionalism, others also may be out of practice, and may have been letting professional behaviours slide. Clearly communicate the expectation of highly professional behaviour and many workplace issues will melt away.

Chapter Three

UNRWA – Vocational and Technical Centers

Gaza Community - Training College (GTC)

GTC Courses

GTC Organization Structure

GTC Staff

Khan – Younis Training Centre (KYTC)

KYTC Courses

KYTC Organization Structure

KYTC Staff

Chapter Three

UNRWA – Vocational and Technical Centers

Gaza Community - Training College (GTC)

Gaza Training Centre (GTC) is located on a site of approximately 22,850m² in the Rimal Quarter of Gaza City. It is the largest UNRWA's nine vocational training centres and the largest one in the Gaza Strip. It was inaugurated in 1953 and has come into operation since October 1954 on a day school basis with boarding section. At the time, it provided non-residential facilities for trainees who live in Gaza town and residential facilities for trainees who live outside Gaza town. GTC began its first journey in 1953 with one trade course (Auto Mechanic) and then new courses were added bringing the number to 14 trade courses and 17 technical courses. These courses were designed to meet the impending demand of the Arab market for skilled manpower.

Vision: A distinguished technical and vocational education and training that would prepare qualified graduates to have job opportunities available in the labour market and would help achieve decent living for the Palestine refugee's society (GTC Directory, 2011, p.3).

Mission: Preparation and implementation of specialized and diversified technical and vocational programs to meet the needs of local and regional markets and to cope with the latest developments and provide the Palestine refugee youth with the desired knowledge, skills, and attitudes to secure suitable job opportunities (GTC Directory, 2011, p.3).

Strategic Objectives (GTC Directory, 2011, p.4):

1. To achieve high level of harmony between programs of vocational & technical education on the one hand, and the needs of the labour market on the other.
2. To develop educational and training techniques, facilities, and resources in line with recent developments.
3. To attract and recruit highly qualified technical and administrative staff to conduct the educational and training process and to upgrade and update their competencies continually.
4. To continuously develop criteria of admission of trainees and to follow up their progress during training and after graduation.
5. To enhance the administrative and supervisory abilities of staff to enable them to cope with recent concepts in administration and supervision.
6. To provide mechanisms that would achieve cost-effectiveness in education and training and would foster high level of staff accountability and self-evaluation.

GTC Courses

GTC offers two Majors to serve the community, which are the Trade and Technical Courses.

1. Vocational Training Courses (Trade courses) (GTC Directory, 2011. p.19):

- a. Mechanical: Automotive:
 - i Diesel and Construction Equipment Mechanics
 - ii Auto Mechanics
 - iii Auto Body Repair
- b. Electronics:
 - i Office Equipment and Computer Maintenance
 - ii Audio/Video Equipment Maintenance
- c. Mechanical: Metal Works:
 - i Slithery & welding
 - ii Machining/welding & Aluminum Fabrication
- d. Climatization and Sanitation:
 - i Plumber and Central Heating
 - ii Refrigeration and Air Conditioning
- e. Building:
 - i Building Construction Craftsmanship
 - ii Building Finishing Decoration
 - iii Carpenter & Furniture Making
- f. Electrical:
 - i General Electrical installations
 - ii Auto Electrical Systems

2. Semi Professional Courses (Technical Courses) (GTC Directory, 2011. p.18):

- a. Applied Arts:
 - i Graphic Design
 - ii Fashion Design & Garment Production
- b. Administrative & Financial Sciences:
 - i Banking and Financial Management
 - ii Business and Office Practice
 - iii Executive Secretary
 - iv Commerce & Trade
- c. Information and Communication Technology ICT:

- i Programming and Database
- d. Para-Medical:
 - i Physiotherapy
 - ii Safety & Hygiene
- e. Architecture:
 - i Architecture Engineering
- f. Civil Engineering:
 - i Civil Engineering
- g. Electronics:
 - i Industrial Electronics & Computer Technology
 - ii Telecommunication
 - iii Mechatronics Engineering
 - iv Computer in Technology
- h. Mechanical:
 - i Marine Engineering
 - ii Services:
 - iii Food Processing Technology

3. Online Courses & Community Services (**GTC Directory, 2011. p.20**):

The College plays an effective role in the local society, through its participation to meet the training needs of individuals and institutes, whereas several types of short term courses prepared and conducted during the afternoon shift to upgrade the skills of technicians of the man power in the local community.

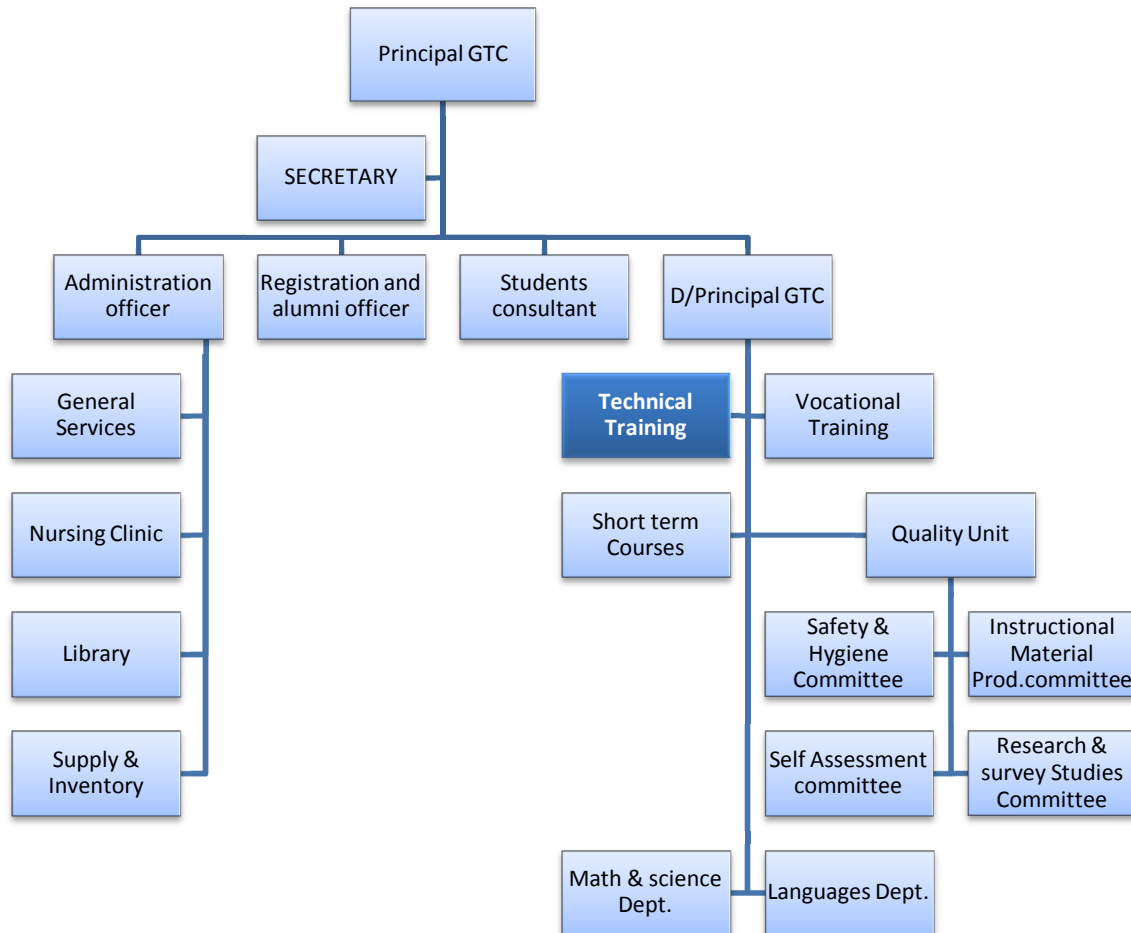
The G.T.C is a credible Centre at Gaza Strip to conduct Training Courses and Tests:

- a. ICDL: International Computer Driving License.
- b. CCNA: CISCO Certified Networking Academy.
- c. Conducting different short term training courses in various vocational subjects for NGOs institutions and local universities.

GTC Organization Structure

The following chart clarifies the centre’s hierarchy, which shows the relationships between the different departments.

Figure 5: GTC organizational Structure



Source: GTC Directory, 2011, P23

GTC Staff

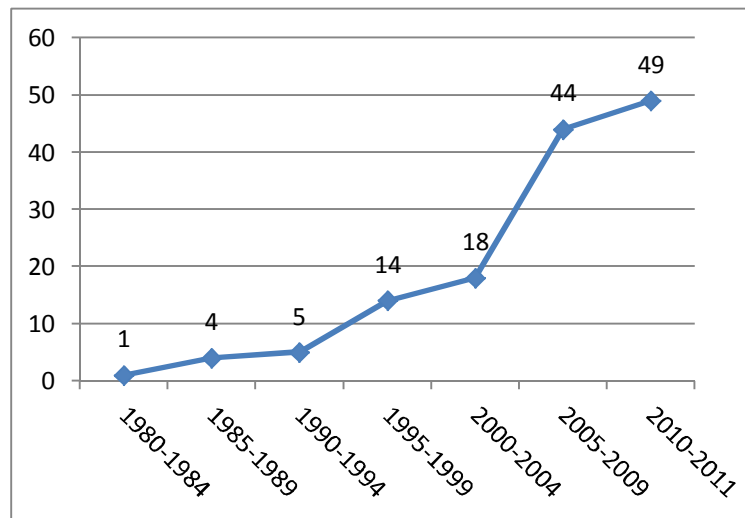
GTC has an appropriate number of faculty members who are qualified in theoretical and practical issues, and they have significant culture of technical and vocational functions, as they are qualified to serve the local community, and do a pursuing search to keep up with what is new and modern in the area of specialization. They are hired in accordance with the policies of UNRWA.

The number of faculty members at the college nearly than 130 trainers classified into three area technical (for technical diploma) and trades(for Professional Diploma) and academics (teaching different courses such as mathematics and physics, English and other disciplines as needed at each section separately).

The following figures show some characteristics about the technical staff:

1. The figure below shows the increasing number of technical staff.

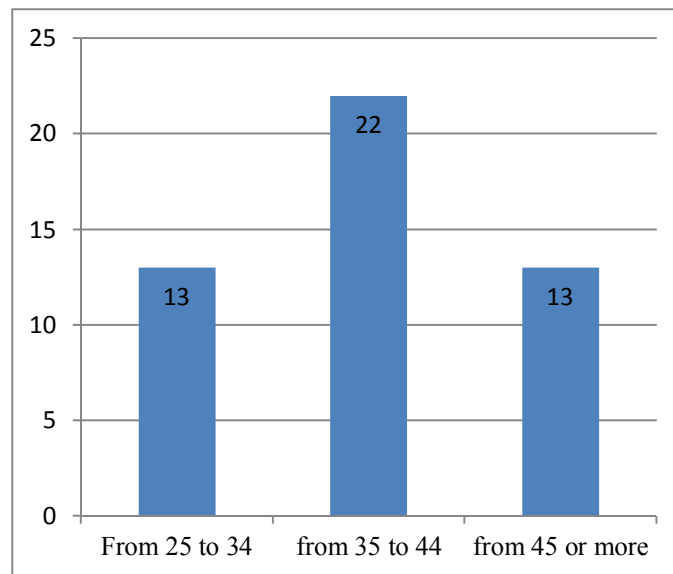
Figure 6: Growth number of the hired staff



Source: GTC Secretary, 2012, GTC Manning Table

2. The figure below shows the number of technical staff over age periods

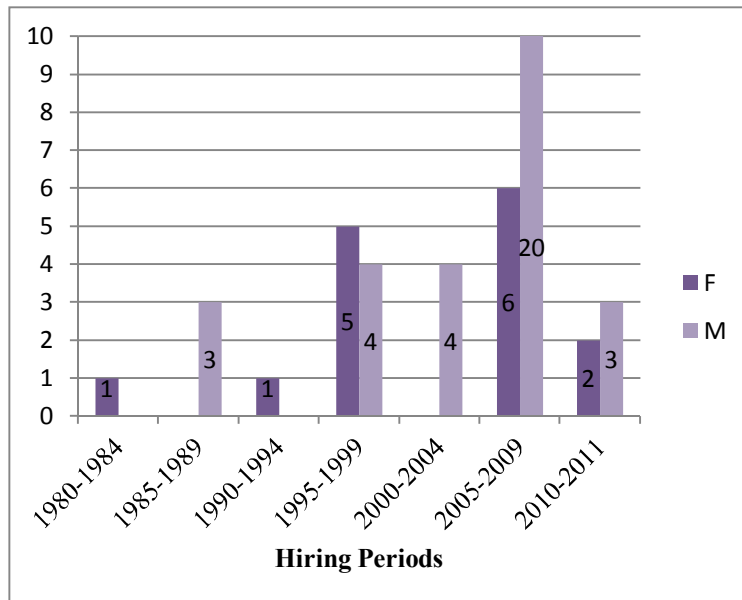
Figure 7: No of staff over age periods



Source: GTC Secretary, 2012, GTC Manning Table

3. The figure below shows the number of technical staff hired over the years, with respect to the sex, also the number of female and male staff.

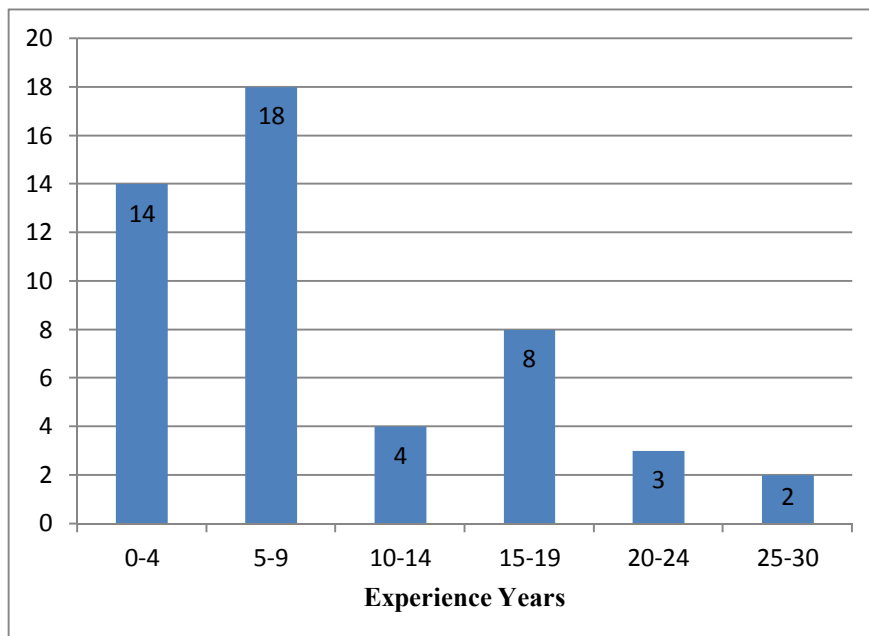
Figure 8: No of staff hired over the years according to the sex



Source: GTC Secretary, 2012, GTC Manning Table

4. The figure below shows the number of technical staff over experience periods.

Figure 9: No of Staff over the experience years



Source: GTC Secretary, 2012, GTC Manning Table

Khan Younis Training College (KYTC)

UNRWA established Khan Younis Training College in 2006, which is vocational training/education includes two areas Technical, and professional disciplines (KYTC, 2010, p.1).

Vision: KYTC aims at achieving leading objective among the applied and technical academic organization in Gaza strip.

Mission: KYTC is committed to offer vocational and technical courses for both female and male in incredible and distinguishable manner, moreover, full commitment toward the belief and values. That to let the graduates gain the required capabilities of communication skills in the local and global workplace environment, also the technical skills to be familiar with any technology, in addition, developing the cognitive potentials to be familiar with global changes, therefore, developing the required leading skills.

KYTC Courses

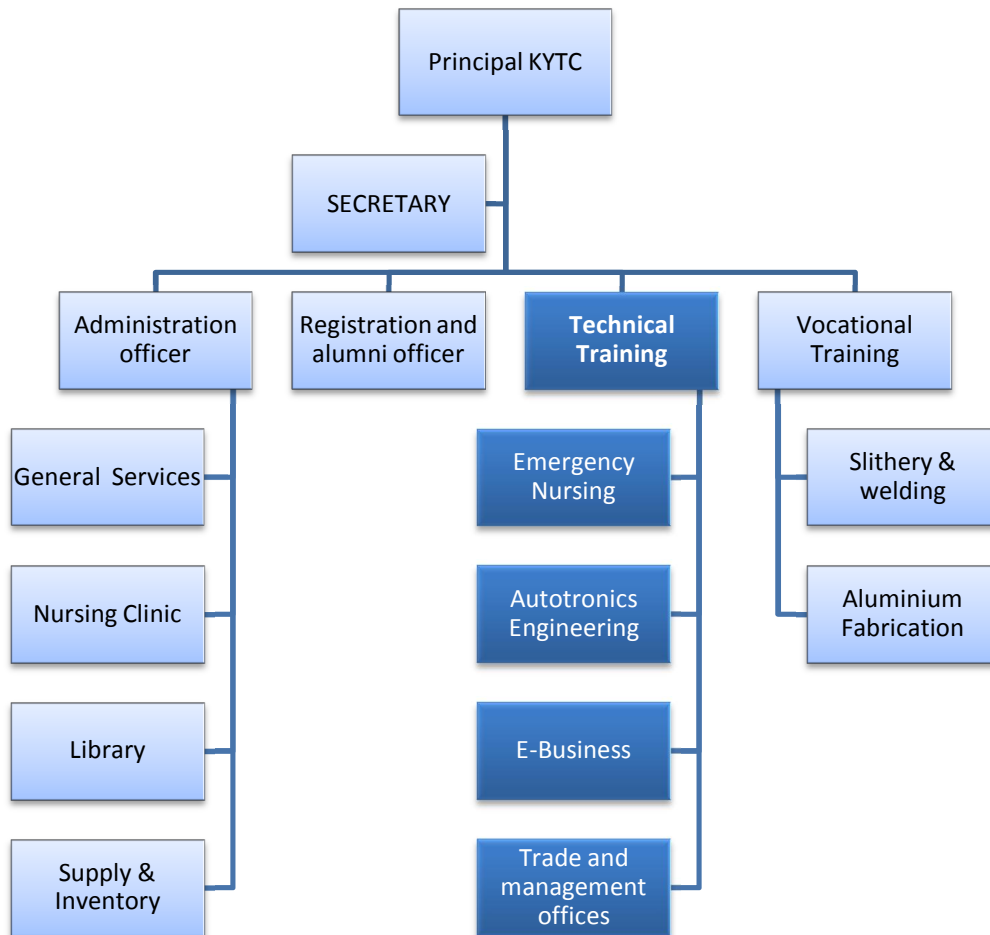
KYTC offers two Majors to serve the community, which are the Trade and Technical Courses

1. Vocational Training Courses (Trade courses)
 - a. Mechanical: Metal Works:
 - i Slithery & welding
 - ii Aluminium Fabrication
2. Semi Professional Courses (Technical Courses)
 - b. Administrative & Financial Sciences:
 - i Trade and management offices
 - ii E-Business
 - c. Para-Medical:
 - i Emergency Nursing
 - d. Automotive:
 - i Autotronics Engineering

KYTC Organization Structure

The following chart clarifies the centre's hierarchy, which shows the relationships between the different departments.

Figure 10: KYTC organizational Structure



Source: KYTC Directory, 2011

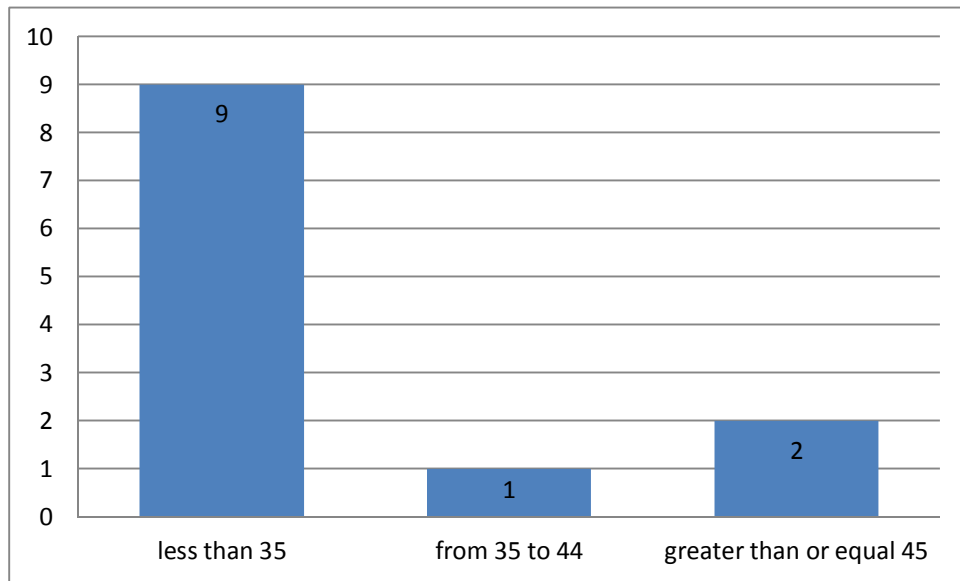
KYTC Staff

KYTC has an appropriate number of faculty members who are qualified in theoretical and practical issues, and they have significant culture of technical and vocational functions, as they are qualified to serve the local community, and do a pursuing search to keep up with what is new and modern in the area of specialization. They are hired in accordance with the policies of UNRWA.

The following figures show some characteristics about the technical staff, whose number is 12 trainers:

1. The figure below shows the number of technical staff over age periods

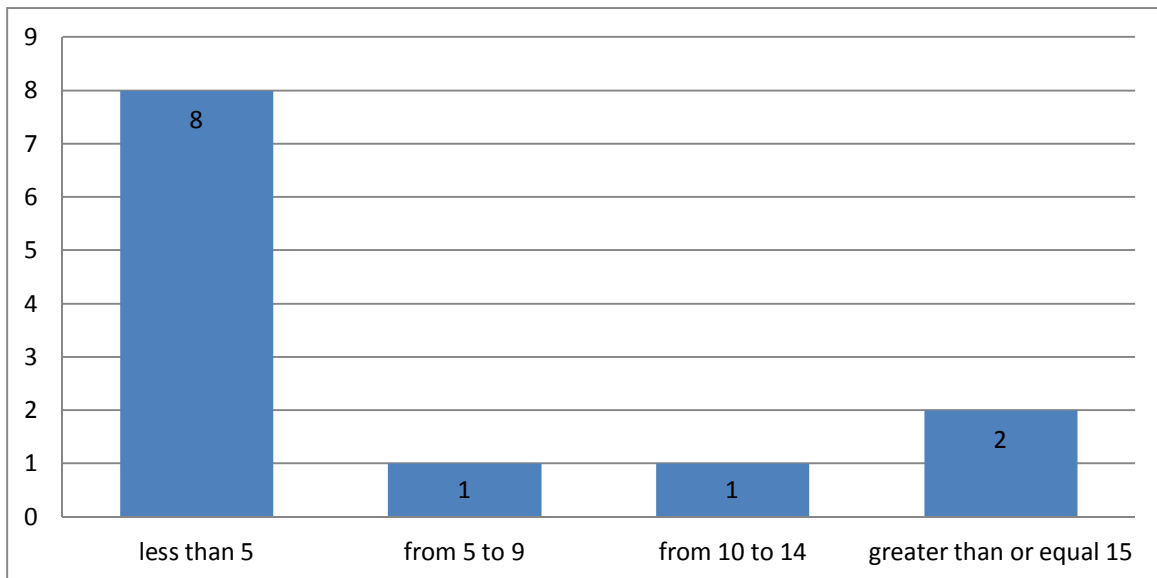
Figure 11: No of staff over age periods



Source: KYTC Secretary, 2012

2. The figure below shows the number of technical staff over experience periods.

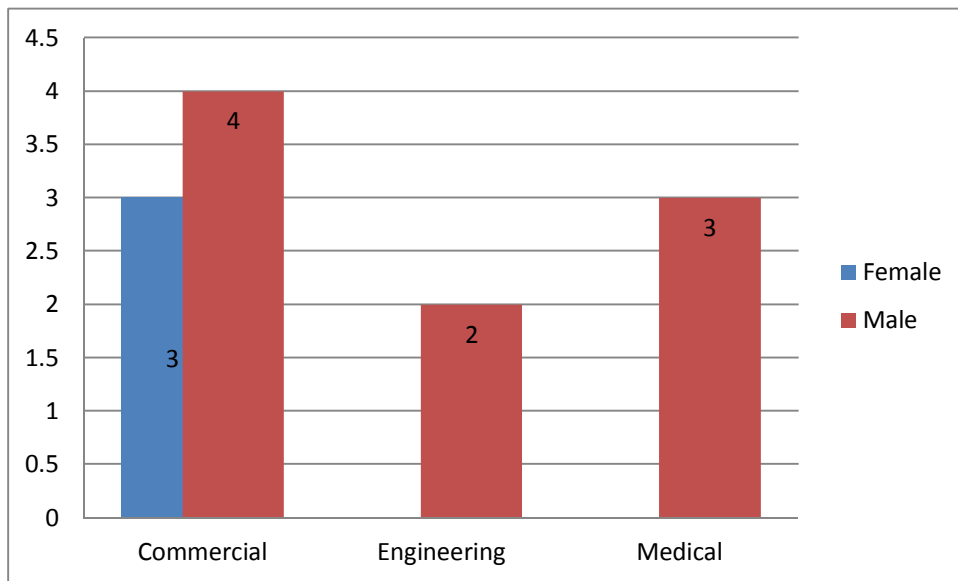
Figure 12: No of Staff over experience years



Source: KYTC Secretary, 2012

3. The figure below shows the number of technical staff distributed over the place of work and gender attributes.

Figure 13: No of Staff according to the place of work and gender.



Source: KYTC Secretary, 2012

Chapter Four

Previous Studies

Introduction

Local Studies

Arabic Studies

Foreign Studies

General commentary on the reviewed studies

Introduction

A number of published researches/papers in certified journals, and on the internet were viewed for the purpose of this research, focusing on computer based training roles and its effect in different disciplines. Few local studies cover the role of computer as no researches were found in regard to technical training.

The research depends on the 9 local studies focused on the role of technology and the computer in different organizations and firms inside Gaza strip, and how effectively that plays a vital role in increasing the productivity. Moreover, 7 Arabic studies focused on the role of technology in increasing performance, and its impact in making unique differences and how much technology differs from the traditional way, furthermore, 16 foreign studies conducted around the world in order to assess and measure the technology impact on different disciplines. These researches are shown below in descending format according to the delivering date.

Local Studies

1. Fourah T., 2012, “Effectiveness of enriching the education technology curriculum using social networks in developing computer and internet skills of pre-service teacher in IUG”.

The researcher used the experimental design according to the nature of the research. The research sample was limited to two classes of Technology Education course at IUG as control group consisted of (15) students, and the experimental group consisted of (16) students. In order to collect the research data, the researcher built the following tools: cognitive exam and observation card to evaluate final outcome of computer and internet skills.

The most important conclusions were:

- Building a list of the computer and internet skills to be developed for pre-service teachers.
- Preparing enriched curriculum for Education Technology course, in addition to preparing academic guide to explain in which way the enriched curriculum can be used in Facebook.

- There are statistical significant differences at ($\alpha \leq 0.01$) between the control group's marks averages and experimental group's marks averages at the post cognitive exam of computer and internet skills.
- There are any statistical significant differences at ($\alpha \leq 0.05$) between the control group's marks averages and experimental group's marks averages at the post practical exam of computer and internet skills.

The most important recommendations were:

- Using social networks at universities to improve students' computer and internet skills.
- Using social networks to adopt positive attitudes toward using new technologies in teaching by academic teachers.

2. Fragallah A., 2012, "The role of information technology investment in organizational performance in the Palestinian higher education organizations "an empirical study on universities in Gaza strip".

The descriptive analytical approach was used to achieve the objectives of the research, and the research sample consist of (294) employees from the staff with managerial positions in Palestinian universities operating in the Gaza Strip, who have been selected on the basis of stratified random sample. The questionnaire was used as main tool to collect data.

The most important conclusions were:

- Information technology investment contributes in improving the quality of decision and facilitates the tasks of the Manager.
- It also working on rapid and efficiency of the completion of transactions, as well as to improve the effectiveness of the elements of control, monitoring and transparency, and reducing the workload on the university employees through the simplification of work procedures.
- The research also revealed the existence of a statistically significant relationship at the significance level of ($\alpha \leq 0.05$) between the information technology investment with its four dimensions and the organizational performance on the Palestinian universities operating in the Gaza Strip.

The main recommendations of the research:

- Working on the development of software used in the universities to facilitate communication with the students and then the rapid of response to their desires and expectations.
- Forming specialized teams working on proposals for the development of work permanently.
- Working on preparing a long-term plan for information technology determines the desired goals of the usage.
- Make attention to training employees on how to take advantage of information technology and their uses in the performance of tasks and work assigned to them.

3. Shaheen A. (2012):"the factors influencing the level of effectiveness and efficiency of developing computerized accounting data systems of Palestinian commercial banks and the assessment of their financial performance".

This research aims at discussing and analysing the factors influencing the level of effectiveness and efficiency of developing computerized accounting data systems of Palestinian commercial banks and the assessment of their financial performance. 120 questionnaires distributed on sample of bank employees working in accounting, auditing and data systems, only 103 were returned.

The most important conclusions were:

- There were financial impacts of the different factors related to the legal environment, regulations and systems, professional organizational controls, and technological, cultural social and economic factors on the level of the effectiveness and efficiency of accounting data systems.
- The level of impact of such variables sometimes varies considerably in accordance with the level of attention and support which they receive from the bank administration.

The most important recommendations were:

- Upgrading the level of effectiveness and efficiency of the performance of such systems and developing the Palestinian banking sector.

4. Abu Mady S. (2011):"The effect of using computer simulations to gain electrical concepts and skills in technology of ninth grade students in Gaza".

To achieve the goal a knowledge test of electrical concepts and skills prepared with (53) paragraph, also notice card with (10) paragraphs, moreover, computer simulation program built. The sample of the research contains (82) students from the 9th primary school in Mrs. Roqia higher primary for girls in Gaza.

The most important conclusions were:

- There are statistical significant differences at ($0.05 \geq \alpha$) between the average of experimental group students and the average of controlling group students in knowledge test.
- There are statistical significant differences at ($0.05 \geq \alpha$) between the average of experimental group students and the average of controlling group students in notice card for electrical skills
- There is a positive correlation signal and medium-value (0.53) between the grade of the students in two groups in knowledge test for electrical concepts and skills and notice card for electrical skills.

The most important recommendations were:

- It was necessary for teachers and students to make value of this program.
- Deploying computer simulation method programs, which have an effect in developing different skills.

5. Naserallah H. (2010):"A Computerized program built on simulation techniques to develop some network skills of students of community college of applied sciences and technology"

To achieve the purpose of the research the researcher built Network skills observation card which consists of 18 items with 4 fields. The researcher also used an achievement test which consists of (30) multiple choice items. The sample is 23 Students from Network Department at Community College of Applied Sciences and Technology.

The researcher attempted three approaches: The Descriptive Analytical Approach to extract the Network skills items, the Constructive Approach to construct a computerized program, and The Experimental Approach to study the impact of the computerized program.

The most important conclusions were:

- There are statistical significant differences at ($\alpha \leq 0.05$) between average degrees of students before and after applying the achievement test.
- There are statistical significant differences at ($\alpha \leq 0.05$) between the experimental group degrees before and after applying the network skills observation card.

The most important recommendations were:

- The necessity of deploying simulator programs.
- The necessity of similar studies in different social and scientific fields.
- Applying similar studies to measure the direction toward the text book and achievement.

6. Abu Aziz Sh., 2009, “The quality standards of design, product educational aids and technology in education at production centers in Gaza”

The researcher built a research tool which is a list of standards converted to evaluating card of instructional aids produced in production centers in Gaza and Khan Youins, Made up of (95) paragraph by dividing into 4 fields. Descriptive analytical approach used to analyse 78 instructional aids of technology curriculum for the tenth grade.

The most important conclusions were:

- Diversity of instructional aids produced in Gaza centers was concentrated in the production instructional aids for physics and technology courses.
- The researcher developed a list of quality standards in design and production of instructional aids included (95) standard.
- Electrical and electronic instructional aids in the tenth grade curriculum evaluated according to quality standards.

The most important recommendation was:

- A lot of considerable standards of instructional aids should be taken.

7. Al-Omari A., (2009):” Impact of computerized management information systems on the performance of workers in the Palestinian telecommunications company”

To achieve the objectives of the research, a Questionnaire of (60) paragraphs was distributed to the sample of 360 employees.

The most important conclusions were:

- There is a statistically significant effect to the requirements of the operation and

management of computerized management information systems (physical, programmatic, human, and organizational) on the performance of workers in the Palestinian Telecommunications Company.

- There are statistically significant differences between the perceptions of respondents on the "Impact of computerized management information systems on the performance of workers in the Palestinian Telecommunications Company", due to the demographic variables (level of scientific, years of experience, place of work, functional level).

The most important recommendations were:

- The continuity of the need to keep abreast of technological developments in the field of management information systems and ensure the use of modern equipment, and development software.
- The attention to the availability of modern networks and work on solving the problems of network problems such as cuts and the slow pace of communication among the findings of the research.
- The sessions of the users related to information technology, software and operational applications to increase user awareness of the capabilities of hardware and software used and the lack of focus on how to use them only.
- The need to involve staff and users in the design of computerized management information systems and development, the importance of this to the psychological satisfaction, and reduce the causes of resistance, and morale, and employees' notice of their importance in the company.
- Working to provide information to users through the system in line with their careers and ensure their use in the area of employment only.

8. Abo Sabat S., (2005):"Evaluation the role of management information system in decision making process in Gaza universities-Palestine".

The study concentrated in exploring the range of difference between the contents of MIS in the universities (hardware- software- communication and data base- Level of organization of information systems department – employee proficiency); also evaluate the most important factors that impact on the efficiency of MIS use in decision making. That was applied on 195 decision makers in Gaza universities.

The most important conclusions were:

- There are different in MIS contents between Gaza universities.
- There is a direct positive relationship between the level of organization of MIS department and quality, the information use in decision making process.
- There is a direct relation between the existence of developed technology in the contents of MIS and the dependent on MIS system in decision making process.
- MIS in Gaza universities can't be considered as an expert systems due to the absence of giving solutions for problems and not giving an external statistical information and is not connected to internal or external statistical centers.

The most important recommendations were:

- There is a mass need to strengthen and support the role of MIS on decision making process in Palestinian universities in Gaza Strip.

9. Abed El-Menem R., (2003): “Recognizing the difficulties facing 10th grade students in computer usage in Gaza governorate, and their relationship with other variables”.

In this research four specific tools were used: Observation card composed of (14) items to determine difficulties facing the students’ usage of computer, Test of Computer literacy composed of (50) multiple choice questions in subjects, concepts, and skills among 10th level students, Observation card composed of (14) items to determine difficulties, and Attitudes scale composed of (30) items to measure students attitude towards computer usage. 60 male and female students were chosen for the research purpose.

The most important conclusions were:

- 46.7% of the research samples facing difficulties in using computer.
- Female students face more difficulties than males in using computer.
- Students who wish to join arts domain face more difficulties than those who wish to join science domain in using computer.
- Students who wish to join science have a higher performance than those of arts in computer literacy level.
- There is a strong negative relationship between students’ performance in computer literacy and in observation card.
- There is no relationship between students desire to use computer and difficulties in using computer.

The most important recommendations were:

- Provide enough computers to fit the number of students.
- Develop up to date curriculum asynchronous with technology updating.
- Develop a new teaching methodology by using computers as aid tool.
- Improving instruction means in the computer labs
- Provide enough time for using labs equipment in break time.
- Improving computer sets capacity and upgrading them to be more practical.
- Remove the worry and fear of using technology by building a positive concept towards it.

Arabic Studies

1. Abdelaziz M., Kamel S., Karam O., Abdelrahman A. (2011):"Evaluation of e-learning program versus traditional lecture instruction for undergraduate nursing students in a faculty of nursing"

The research was conducted on a group of (N=276) second-year nursing students from both gender at the Faculty of Nursing of Ain Shams University in Cairo, Egypt. A control group using traditional lectures included 186 students, and a study group of 90 students used e-learning. Data were collected through a student's knowledge assessment sheet, observation checklists, a 7-point semantic differential scale, and an opinionative sheet. This article reports knowledge gained, practice, attitudes, and opinions toward traditional lectures and E-learning.

The most important conclusions were:

- Lack of computer skills of students affected their abilities to communicate effectively with the instructor and failed to participate in a variety of online communication methods.
- Students in the study group were satisfied with the e-learning program as a teaching method, but they did not wish to take another e-learning program except if they had computer and Internet at home.

The most important recommendations were:

- It is better to use and tune a "blended learning environment" that integrates the strengths of both eLearning and lecture into nursing education to provide the most efficient and effective instruction and overcome the deficiency of limited skills and resources.

2. Al-Doub E., Goodwin R., Al-Hunaiyyan A. (2007): “Students’ attitudes toward e-learning in Kuwait’s higher education institutions”.

The investigation was conducted at the College of Business Studies (CBS), a government sector, at which e-learning had not been previously used, and at the Gulf University for Science and Technology (GUST), at which e-learning facilities in/outside the university, representing the private sector. Data was collected using a questionnaire which was applied for students in both sectors. The number of students who completed the survey at GUST was 85, 40 female and 45 male, their ages between 18 and 26.

The most important conclusions were:

- The research results indicated that the students in both sectors were keen to use e-learning.
- There are some significant differences between male and female students in their attitudes to and use of e-learning materials.
- The results indicated that culture appears to be an issue in both sectors in students’ attitudes to and use of e-learning materials.
- The result indicated that the female students use and value e-learning more than the male students.
- Female students use e-learning resources on campus more than male students whether by stand-alone PC’s at CBS or by the wireless network at GUST.
- Female students spend their free time using the e-learning materials at the college/university but male students are free to leave the campus and spent less time using the e-learning materials.

The most important recommendations were:

- In the private sector e-learning materials should be provided via the Internet.
- Future researches should take into consideration the significant cultural and gender issues.
- In the public sector e-learning materials must be provided in Arabic and cultural issues must be taken into account.

3. Al-khashab (2007): “Attitudes toward e-learning, an empirical study in Kuwait”.

The main goal of this research is to find out about the Kuwaiti society’s attitudes toward e-learning held by a sample of 276 volunteers. A questionnaire based on the newly developed e-learning scale was used to gather the data. The research proves the scale in an Arab non-western context.

The most important conclusions were:

- Significant differences in the attitudes toward e-learning based on educational level.
- No differences in the attitudes toward e-learning based on volunteers’ gender.
- Kuwaiti students generally have good attitudes towards e-learning.
- The research deeply discusses factors associated with the attitudes toward e-learning in Kuwait.
- This research contributes to the literature on e-learning studies by systematically measuring the attitudes towards e-learning in Kuwait.

The most important recommendations were:

- Future researchers using e-learning scale may use other form of validity such as discrimination validity or predictive/concurrent validity.
- The validity of e-learning scale should continue to be tested by new researchers because the e-learning attitudes in Kuwait may change over a period of time.
- Further researches would continue to make the field of e-learning alive and strong and make education grow into all directions with a new e-learning light for all of those who have learning for it.
- New researchers should investigate new areas or variables that affect the attitudes towards e-learning that was not investigated before in the Arab world such as relationship between culture and e-learning attitudes.

4. Al-Soudi M., (2006):” The effect of management information systems on raising the level of job performance at the social security corporation”

This research aims at measuring the level of job performance and the management information systems used at the social security corporation. To achieve the above mentioned goals, a questionnaire was developed and distributed to a sample of (400) respondents.

The most important conclusions were:

- The perceptions of users toward the necessary system requirements were high.
- The perceptions of users toward job performance were medium.
- There was a significant effect of the necessary system requirements on job performance.
- There were significant statistical differences among respondents towards the necessary system requirements related to (sex, age, qualification, experience, and job level).
- There were significant statistical differences among respondents towards job performance related to (sex, age, qualification, experience, and job level).

The most important recommendations were:

- Increasing the support of high level management for the users, trying to understand their needs and problems, providing them with high quality equipment, and encouraging the users to enter training courses related to their jobs.

5. Aldhafeeri al. (2006): “Teachers’ expectations of the impact of e-learning on Kuwait’s public education system”

This research was done in Kuwait within the Kuwait teachers from randomly selected public schools. 600 questionnaires were sent out with an 83%. The research discussed that E-learning not having a statistically significant effect on making students competent in the areas of: Basic operations and computer concepts, the ethical and human issues of technology, productivity tools, research tools, problem-solving and decision-making tools, communication tools.

The most important conclusions were:

- The results show the gender differences in communication where male school teachers scored higher than female school teachers.
- The research revealed that the personnel involved in the educational system in Kuwait ought to consider the e-learning competency areas upon implementing e-learning in Kuwait’s educational system.

The most important recommendations were:

- The Kuwait Ministry of Education (MOE) should have the basic infrastructure in place and support from Political areas and adequate funding.
- E-Learning should be recognized as a guide to standard learning in curriculum developments.

- The requirements of the e-learning competency should be identified when implementing e-learning on Kuwaiti Public Schools.

6. Alghazo (2006): "Student attitudes toward web-enhanced instruction in an educational technology course"

This research conducted in the College of Education at the United Arab Emirates University within a student sample with an age range between 19 and 21 of female gender totalling to 66 students. 88% of them own a personal computer, 74% prefer reading from paper and 26% prefer reading from a screen.

The most important conclusions were:

- They have positive attitudes toward Web-enhanced instruction and it seems to enrich the conventional face-to-face classroom environment
- 26% preferred reading from screen, 74% preferred reading from papers,
- 42% had previous experience with Web-enhanced instruction, and 58% did not have such experience
- Students see many advantages of Web-enhanced instruction such as obtaining grades, communication with instructors, discussing course contents, easy access to course related materials, submitting assignments and enhancement of course understanding and communication with classmates.
- The difficulties perceived were in accessing the course from home, limited computers in the labs and poor internet bandwidth.

The most important recommendations were:

- This style of instruction should be encouraged among faculty members.
- Colleges of Education should take initiatives to implement web-enhanced instruction to its conventional courses. Of course, this will need planning professional development programs for faculty members that address critical issues such as the design of web components, their content, and the style of communication among students and between students and instructors.
- Also, it is important to improve the quality of internet access and provide faculty members with the proper technical support.

7. Abouchedid and Eid (2004):"E-learning challenges in the Arab world: revelations from a case study profile"

This research demonstrates the problems and possibilities of implementing e-learning in Arab educational institutions through analysing the attitudes of 294 university professors in Lebanon that follows the US credit-system of education, towards e-learning fields. The research population is 73.7% were males and 25% were females from various faculties.

The most important conclusions were:

- The overall response showed a positive attitude towards e-learning.
- The research revealed that males registered a significantly higher mean ranking than their female in their belief that e-learning will help faculty members disseminate information through e-learning more rapidly than traditional approaches to learning.
- Males have also registered favourable views on the benefits of e-learning by agreeing more than females.
- Considerable variations were found between males and females as well as between daily and occasional users of computers on their mean ranking of the effectiveness of e-learning field.
- No significant differences were found between daily and occasional users.

The most important recommendations were:

- Future research on attitudes towards eLearning should take into consideration not only the assessment of views on e-learning, but also psychological and social aspects relating to inter-group attitudes and relationships in organizations, in particular during the process of change.

Foreign Studies

1. Serin o., (2011): “The effects of the computer – based instruction on the achievement and problem solving skills of the science and technology students”.

This research investigated based on the pre-test/post-test control group design. The participants of the research consist of 52 students; 26 in the experimental group, 26 in the control group. The experimental group received the technology instruction three hours a week during three weeks.

The most important conclusions were:

- The result of the research reveals that there is a statistically significant increase in the achievements and problem solving skills of the students in the experimental group that received the computer-based science and technology instruction.
- The presentations of topics by means of rich visual materials increase the achievements of the students.
- The use of CBI has positive effects on the learners’ problem solving skills.
- The use of the interactive learning package assists the learners in increasing their achievements and developing their problem solving skills in the fifth year science and technology course.

The most important recommendations were:

- Similar research can be carried out on different topics in different classes.
- Quantitative and qualitative studies can be carried out on the achievements and problem solving skills of high achievers and low achievers in the other school subjects.
- Qualitative studies can be carried with the students who have weak problem solving skills and with those who have strong problem solving skills.
- Considering the effectiveness of the teaching package used with the experimental group, teachers can be asked to take part in-service training and can be taught how to use the programs, and then they can be encouraged to develop the computer-based science and technology software.
- Similar research can be conducted in different primary and secondary classes.

2. Ahmadia G., Abdolmaleki Sh., Khoshbakht M. (2010):"Effect of computer-based training to increase creativity and achievement science, students in fourth grade of elementary"

The necessary data were collected through a pre and post-test design with a control group utilizing Abedi test of creativity .the Sample consisted 80 grade students fourth grade (40 boys (20 experimental and 20 control) and 40 females (20 experimental and 20 control) comparative randomized multi-stage were selected. Necessary software was prepared to be used in teaching the fourth grade school science then two classes of Science in two different schools in one of the educational of sanandaj were selected and the two methods utilized.

The most important conclusions were:

- Computer based teaching method increases the creativity and achievement of both boys and girls.
- The effect of computer based training on initiative, fluidity and flexibility components among the boys and one fluidity and elaboration components among the girls was statistically significant.

The most important recommendations were:

- Identify appropriate computer systems and basic requirements for school education and future viewing.
- A good teacher with a computer based training course can reduce their teaching effort along with the latest advances in science and technology information and explosions adjusted.

3. Chia-Pin K. (2009):"Teachers' attitudes toward web-based professional development, with relation to internet self-efficacy and beliefs about web-based learning".

This research was conducted to explore the relationships between teachers' Internet self-efficacy, beliefs about web-based learning and attitudes toward web-based professional development. The sample of this research included 421 teachers, coming from 20 elementary schools in Taiwan. The three instruments used to assess teachers' Internet Self-Efficacy (ISE), beliefs about Web-Based Learning (BWL), and Attitudes toward Web-Based Professional Development (AWPD) revealed high reliability.

The most important conclusions were:

- The results supported that teachers' Internet self-efficacy and beliefs about web-based learning were important predictors of their attitudes toward web-based professional development.
- The belief for the positive consequences of web-based learning is very important for the favourable attitudes toward web-based professional development.

The most important recommendations were:

- Future research is encouraged to use confirmatory factor analysis approach (Rainer & Miller, 1996) to further examine its validity and reliability, rather than exploratory factor analysis, which applied in this research in order to verify the structure of a new attitude survey toward web-based professional development.

4. Hermans R. (2008): "The impact of primary school teachers' educational beliefs on the classroom use of computers, computers & education".

This research focus on teachers' educational beliefs (constructivist beliefs, traditional beliefs) as antecedent of computer use, while controlling for the impact of technology-related variables (computer experience, general computer attitudes) and demographical variables (sex, age). In order to identify differences in determinants of computer use in the classroom, multilevel modelling was used (N=525).

The most important conclusions were:

- The teacher beliefs there are significant determinants in explaining why teachers adopt computers in the classroom, related to the impact of computer experience, general computer attitudes and gender,
- The results show a positive effect of constructivist beliefs on the classroom use of computers.
- Traditional beliefs have a negative impact on the classroom use of computers.

The most important recommendations were:

- ICT must be studied within a broader context.
- In-depth studies are needed to identify how teachers respond to innovative ICT-curricula and give meaning to these new classroom practices.
- A clear understanding belief is a first step in the development of this deeper understanding of innovations in complex classroom realities.

5. Smarkola C. (2007):"Efficacy of a planned behaviour model: beliefs that contribute to computer usage intentions of student teachers and experienced teachers",

Examine beliefs contributing to student teachers' and experienced teachers' intentions to use computer applications in their curricula. The secondary purpose was to investigate the efficacy of the decomposed theory of planned behaviour for predicting such intentions. A purposeful sample of 19 teachers participated in semi-structured interviews. Also 160 student teachers and 158 experienced teachers from classes within a large urban university participated in survey questionnaire.

The most important conclusions were:

- Both student and experienced teachers were motivated to use computers to prepare students for real world experiences.
- Both groups reported high computer confidence; they expressed limitations in their usage.
- Student teachers focused on use of the Internet and not on using a variety of computer applications as tools for teaching and learning.
- Experienced teachers depended on both equipment resources and personal support from school administrators to successfully integrate technology into their classroom.
- Both teacher groups expressed the need for more computer-integrated training.
- This research provided support for using the decomposed theory of planned behaviour to predict computer intentions and usage for teachers.
- Assessment of computer usage within any profession should be based upon a behaviour model that complements the profession's cultural environment.

The most important recommendations were:

- To properly assess computer acceptance within an organization is important that organizational behaviour be thoroughly evaluated so that an appropriate model can be used to best measure employees' computer behaviour.
- It is recommended that future studies take into consideration that assessment of computer usage within any profession be based upon a behaviour model that complements the profession's cultural environment.

6. Erik S. Wallen, Karen B. Mulloy (2006):"Computer-based training for safety: comparing methods with older and younger workers"

In this research three versions of computer-based respiratory safety training were shown to older and younger workers who then took a high and a low level learning test. Therefore, Computer based training with pictures and audio narration may be beneficial for workers over 45 years of age.

The most important conclusions were:

- Younger workers did better overall.
- Aging Results in a number of changes that make it more difficult to learn from certain types of computer-based training.
- Both older and younger workers did best with the version containing text with pictures and audio narration.

The most important recommendations were:

- Safety programs should be well designed, programmed, and selected based on target group ability to effectively train older as well as younger learners.
- Designs that incorporate instructional pictures and that utilize audio narration are better than text only or text plus pictures.
- Instructional designs derived from cognitive learning theories may overcome some of aging difficulties.

7. Downey S., Wentling R., Wentling T. and Wadworth A. (2005). "The relationship between national culture and the usability of an e-learning system"

The research was done to find out the usability and culture variables that might influence the relationship between national culture and the usability of an e-learning system. The population for this research was composed of thirty attendees in an international workshop on training improvement held in Penang, Malaysia. These people were selected for this research because of the attendees' diverse cultural backgrounds and their underlying interest in all forms of training and instructional delivery.

The most important conclusions were:

- The higher an individual's power distance score (e.g. greatest acceptance of unequal distribution of power), the higher their time and clicks in the e-learning tasks.
- Individuals from collectivist societies found the system more satisfying to use

versus those from individualistic societies.

- With regard to the femininity/masculinity factor, there was no significant relationship with any of the three usability variables. For all the three variables the relationship was negative but very small.
- Participants who were least likely to accept risk were also the ones who made the most errors in navigating the e-learning system.

The most important recommendations were:

- Training and e-Learning activities in more individualistic societies might give the learners greater freedom in terms of creativity and expression of knowledge gained or possibly employ more competitive learning environments.
- In today's increasingly global market, functional global e-Learning systems should reflect the cultural orientation of its users and not just be a translation of an American interface.

8. Wang X., Munro M. (2004), "Computer-based training for learning english vowel contrasts"

In this investigation, they applied training techniques from previous work in a pedagogically oriented approach in which participants had some control over lesson content and worked at a self-determined pace. The participants were assigned to one of two groups: 16 (13 Mandarin, 3 Cantonese) to a trainee group, and five (four Mandarins, one Cantonese) to a control group. They had lived in Canada between 6 months and 5 years.

The most important conclusions were:

- In comparison with an untrained control group, trainees showed improved perceptual performance, transferred their knowledge to new contexts.
- Trained group maintained their improvement three months after training.
- These findings support the feasibility of computer-based learning programs for second language pronunciation instruction.

The most important recommendations were:

- The completion of such a project requires collaboration between pedagogical specialists and those with the technical expertise to develop appropriate speech stimuli and an advanced user interface.

9. Eckerman D., Abrahamson K., Ammerman T., Fercho H., Rohlman D., Anger K. (2004):” Computer-based training for food services workers at a hospital”

Interactive computer-based safety instruction (CBI) was given to 73 workers in the food services department of an urban hospital.

The most important conclusions were:

- Post-test accuracy (95%) improved significantly from the pre-test (74.5 %). Generalization was confirmed by increased accuracy in answering questions, posed on-the-job, that required application of knowledge to the work setting.
- Problematic kitchen conditions such as puddles increased slightly after training, but adjustment for increasing production/workload revealed an overall post-training decline in problems.
- Work practice Improvement was seen in 79% of workers.
- Effect sizes of knowledge, location, and work practice improvements are large and demonstrate that the benefits of CBI extend to the workplace floor.
- Further, the decrease between knowledge and behavior change is less than reported following other forms of training.

The most important recommendations were:

- In addition, the training materials were made highly specific to the actual work situation, with photographs and videos taken from the actual work area and depicting co-workers.
- Further research will confirm the importance of these factors and thereby support the use of a training development approach that makes easy the inclusion of these local topics.

10. Harrington S., Walker B.(2004):”The effects of computer-based training on immediate and residual learning of nursing facility staff”

This research discussed the effectiveness of computer-based training compared with the traditional instructor-led format. The computer-based and instructor-led versions of a fire safety training program were presented to staff of nine nursing facilities. Participants (N = 1,294) were randomly assigned to the computer-based or instructor-led groups.

The most important conclusions were:

- Both groups significantly increased their scores from pre-test to post-test.
- The computer-based group significantly outperformed the instructor-led group on

the knowledge subtest at post-test.

- Participants reported that they enjoyed the computer-based training and had no difficulty using the computers.

The most important recommendations were:

- Computer-based training can be an effective and efficient alternative training technique.

11. Gupta B., White D.& Walmsley A., 2004: "The attitudes of undergraduate students and staff to the use of electronic learning"

A questionnaire was used to obtain the opinions from third year dental students about the e-course website. The research sample was 65 students, also Qualitative; semi-structured interviews were carried out with four members of staff, representing contributors and non-contributors to the e-course, to get their opinions and attitudes towards the e-course website.

The most important conclusions were:

- There is a growing interest in the use of web-based teaching to support the dental curriculum, especially as a means of self-directed learning.
- Communication, interactivity and displaying clinical images are the main strengths of web-based teaching.
- Web-based teaching appears to be more accepted by students than teachers.
- Both students and staff see web-based teaching as a means to supplement rather than replace traditional methods of learning in the dental undergraduate program.

The most important recommendations were:

- Considering E-course as a positive method of supplementing traditional methods of learning.

12. Newton R., (2003): "Staff attitudes to the development and delivery of e-learning"

The paper deals with the using technology in teaching and learning within the academic staff community working in higher education in the UK. The empirical data was gathered using questionnaires distributed to 300 academic employees in the Information Technology sector of UK. The questionnaire was divided into three main sections: (1) teaching experience using technology; (2) staff perception on usefulness of technology; (3) additional comments and suggestions. This research focused primarily in the

Information Technology field.

The most important conclusions were:

- A virtual learning environment does not necessarily mean that they do not feel that these initiatives are important.
- Although a lack of clarity is evident in distance learning, yet this shows that there is a willingness to participate in this activity which reflects the intrinsic values played by academic staff on teaching and learning.
- Virtual learning environment barriers are not related to institutional support.
- Organizational encouragement is important towards the progression of innovation.
- Organization should ensure that effective strategies are in place prior to implementing web based distance learning.

The most important recommendations were:

- There is a willingness of academic staff to participate in the activity and this willingness appears due to intrinsic values of teaching and learning.
- It would seem common sense that if the academic institutions wish to develop web-based distance learning initiatives that must be receptive to putting in place effective strategies to support this.

13. Barbara B. (2001). “Multimedia computer based training environment”

This research investigated the effects of adding an audio instruction component to an existing multimedia computer lab exercise containing text and graphics. The experiment was conducted at a Midwestern University. Treatment and control group participants were administered a pre-test during the lecture before their assigned lab period and post-test during the lecture period immediately following the data collection week. Treatment groups also were asked to provide feedback as to their likes and dislikes of the newly added media.

The most important conclusions were:

Major Conclusions of this research are listed as follows:

- There were no significant differences in the performance among students who received audio instructions and students who did not.
- There were no significant differences in the attitudes and perceptions of students who received audio instruction and students who did not.
- There were no significant differences in the performance between males and

females.

- There were no significant differences in the performance among students in different age groups.

The most important recommendations were:

- Multimedia CBT could enhance the learning experience in the laboratory.

14. T. Craig and Hyder Zahed (1996):” Computer-based training versus traditional lecture: effect on learning and retention”

The research was conducted at a large pharmaceutical manufacturing site located in Eastern North Carolina. One treatment group completing the course via a self-directed computer program (n=27) and one completing the course via traditional instructor-led sessions (n=27). Both delivery formats were identical relative to learning objectives and content. Level of learning was assessed via a 33 item pretest and posttest. Subjects were also administered a 33-item retention test one month following completion of the program.

The most important conclusions were:

- Both groups demonstrated significant learning following training.
- There was no significant difference in level of learning between the two groups.
- Retention after one month was significantly higher in the CBT groups.
- There was no correlation between educational level or computer anxiety and learning.
- There was no significant difference between the two groups on satisfaction with the training experience.

The most important recommendations were:

- Institutions and organization should train their staff using technology in age of computing and telecommunication.

15. Kearsley G., Seidel J. (1985):”Automation in training and education human factors”

Computer-based training and education are becoming increasingly prevalent and important. This article discusses the history of automated instruction, current applications, issues and problems, and future prospects. Current applications include such traditional uses of computers as testing, drills, tutorials, games, simulations, and student

management. New applications include embedded training, computer literacy, interactive videodisc, and electronic lectures.

The most important conclusions were:

- The most important issue in automated instruction at present is the time and costs associated with the development of courseware.
- Other important problems include the difficulty of implementing individualized instruction in organizations accustomed to classroom teaching, the scarcity of educators who are computer literate, and the evaluation of courseware.
- Microcomputers have greatly accelerated the growth of computer-based instruction in all domains.

The most important recommendations were:

- Intelligent CAI, authoring systems, hand-held computers, speech processing, and telecommunication technologies such as videotext are seen as shaping the future direction of automated instruction.

16. Loyd, Brenda H.; Gressard, Clarice (1984):"Effects of sex, age, and computer experience on computer attitudes"

This research examined the effects of computer experience, age, and sex on attitudes toward computers among 142 high school language arts students, 107 community college mathematics students, and 105 students living in dormitories at a small liberal arts college. The instrument provides three subscales of 10 items each and presents positively and negatively worded statements with a four-point response scale.

The most important conclusions were:

- The students, as a whole, had fairly positive attitudes toward computers.
- Computer experience was significantly related to more positive attitudes on all three subscales.
- Significant age effects were found for the subscale "computer liking," but no clear trend for age was demonstrated.
- Sex was not significantly related to computer attitudes on any of the three subscales.

The most important recommendations were:

- The need to investigate and address the level of confidence of female.

General commentary on the reviewed studies

In the previous section entitled “Previous Studies”, 32 evaluative studies have been reviewed. These studies covered Computer Based Training from different perspectives, aspects, approaches, patterns and practices. 20 studies were conducted in a period between 2006 and 2012, 10 studies ranged from 2000 to 2005, and only 2 studies in 1996 and 1985.

These studies classified into three categories: firstly, CBT role in enhancing and improving human beings performance and skills. Secondly, as education technology and techniques, thirdly, as distance learning resource or learning via Internet.

There are few studies in the local and Arabic community since the subject relies on different issues such as computer systems requirements, limitations, and cultures toward technology; moreover the computer skills of the target group play a significant role.

Indeed, the studies discussed the subject with different titles, and aspects such as web-based development, E-Learning, and computer-based training. Furthermore, Information system administration should ensures that the media and content should meet the culture and socio-demographic variables, and plans well for a professional development programs that address the critical issues such as the design of web components, their content, and the style of communication, also it is important to improve the quality of internet access. As mentioned in Abedlaziz (2011), Al-Doub (2007), Al-Khashab (2007), Aldhafeeri (2006), Alghazo (2006), Abouchedid (2004), Chia-Pin (2009), Downey (2005), Gupta (2004), Newton (2003).

Furthermore, other researches discussed Education Technology and how to use CBT in-classroom and out-of-classroom and effectively, deploy it besides traditional ways, such as: Abu Mady (2011), Abu Aziz (2009), Hermans (2008), Wang (2004), Barbara (2001), Criag (1996).

So far the studies focused on the attitude toward the computer-based training with its variations and its impact on human beings training and development in different fields. Thus, all of the studies found a great attitude toward the computer-based training with respect to the age, gender and experience in developing competencies and skills. As covered Fourah (2012), Faragallah (2012), Shaheen (2012), Naserallah (2010), Al-Omari (2009), Al-Wehdi (2009), Abo Sabat (2005), Abed EL-Menem (2003), Al-Soudi (2006), serin o.,(2011), Ahmadia (2010), Smarkola (2007).

Some studies focused on significant determinants that impact on the abilities to communicate effectively with E-learning topics related to the computer experience, culture, and gender and how that will impact on the attitude toward IT issues for example the electronic material should be well designed, formatted, and arranged with professionals in programming fields as much as the specialists in the field of the subject. Moreover, some studies highlighted the training retention by technology over the traditional way and recommend using both of them together in training delivery.

Further to the researches tools used which varied according to the nature of the topic and the objective, so some of them used questionnaire to measure the attitude and viewpoints of respondents such as Faragallah (2012), Shaheen (2012), Al-Omari (2009), Chia-Pin (2009), Hermans (2008), Al-Doub (2007), Al-Khashab (2007), Smarkola (2007), Aldhafeeri (2006), Alghazo (2006), Al-Soudi (2006), Abo Sabat (2005), Downey (2005), Abouchedid (2004), Gupta (2004), Newton (2003) and others used the experimental design to measure the differences before and after conducting the research such as Fourah (2012), Abedlaziz (2011), Serin (2011), Naserallah (2010), Ahmadia (2010), Abu Aziz (2009), Al-Wehdi (2009), Smarkola (2007), Abed EL-Menem (2003), Wang (2004), Barbara (2001), Criag (1996).

These researches mentioned agree with this research result, where there is a relation between CBT requirements and technical instructors' performance.

This research attempt to reconcile the limitations that existed in some previous researches by measuring how much CBT can improve technical instructors' performance and figure out some essential requirements needed to apply and manage training delivery. It may be noteworthy that this research may be the first attempt to apply study to examine the impact of CBT on Technical training in Palestine.

Chapter Five

Research Design and Methodology

Section one: Methodology and Procedures

Introduction

Research Methodology

Research Design and Procedure

Data Sources

Research Population and Sample

Questionnaire Design

Section Two: Testing of Research Tool

Introduction

Data Analysis

Validity of Questionnaire

Reliability of the Questionnaire

Section one

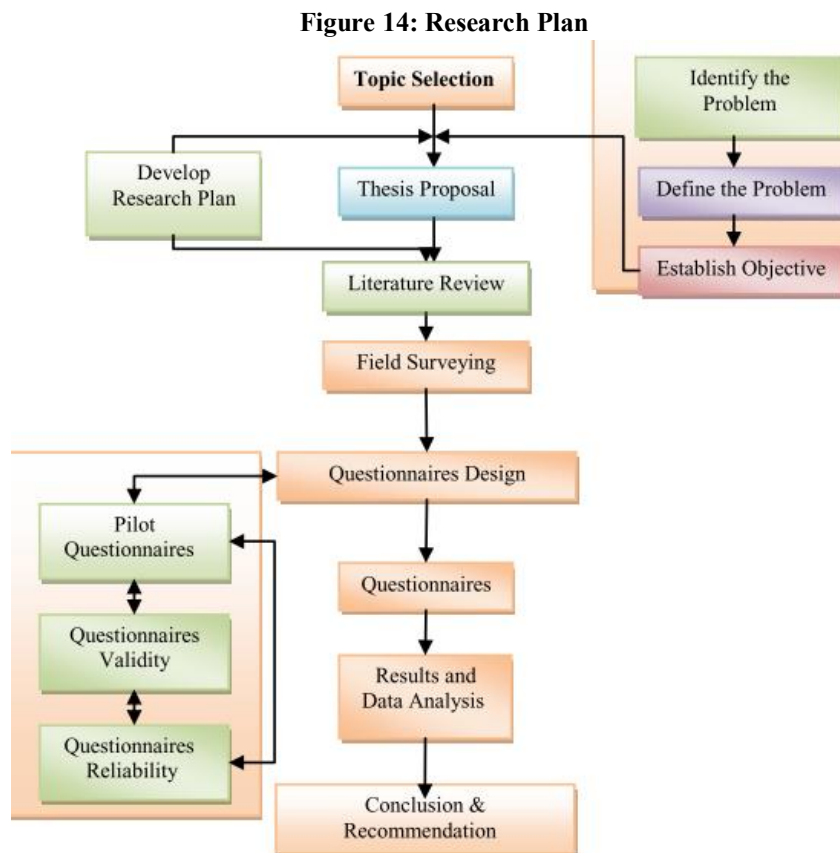
Methodology and Procedures

Introduction

This chapter describes the methodology that is used in this research. The adopted methodology to accomplish this research uses the combination techniques of descriptive approach and information about the research design, research conceptual model, population, research setting, questionnaire design, statistical data analysis, content validity, pilot research and ethical aspects of the research

Research Plan

This Research uses the quantitative analysis. The research relies on secondary data such as books and specialized studies and journals. Due to the novelty of the topic in Palestine, the research relies on the primary data collected by questionnaire distributed for relevant target group. The research follows the descriptive methodology approach to describe the basic features of the data in a research.



Articulated by the researcher

Descriptive methodology is the best methodology to be used because it is non-experimental in that it deals with the relationships existed between non-manipulated variables in a natural, rather than artificial setting. Since the events or conditions of the research interest have already existed and practiced, the researcher focuses and selects the relevant variables for an analysis the relationships in the hypotheses.

Research Design and Procedure

The followings are the steps the researcher followed in the research design and implementation:

1. The research thesis started by preparing a proposal that included identifying and defining the problems and establishing objectives of the research and developing the research plan.
2. After receiving approval on the proposal, the researcher began to review the literature on Computer-based Training (CBT).
3. The researcher prepared the survey on CBT requirements and the impact on technical performance for UNRWA-Technical Centers –KYTC and GTC-, the survey was reviewed and evaluated by a group of academic and professional staff (see Appendix 3), then their notes were taken carefully to overcome the deficit and weaknesses of unrelated paragraphs in the questionnaire.
4. After that; testing the questionnaire design was done by distributing the questionnaire in a pilot study. The purpose of the pilot research was to test and prove that the questionnaire questions are clear and answered in a way that helped to achieve the target of the research.
5. The data collection for the research focused on distributing questionnaire. This questionnaire was used to collect the required data in order to achieve the research objective. A total of 60 questionnaires were distributed to the research population and 56 questionnaires were received.
6. Most of the UNRWA-technical instructors participated in the research is about 93.3%, the survey was distributed. Each received survey was examined carefully to assure it meet the selection criteria and the surveys that did not meet the criteria were excluded before the analysis stage using SPSS.
7. The final phase of the research was data analysis and discussion. Statistical Package for the Social Sciences, (SPSS) was used to perform the required analysis, based on the results; conclusions and recommendations were driven.

Figure (14) shows the methodology flowchart, which leads to achieve the research objective.

Data Sources

The respondents were asked to fill the questionnaire forms which were distributed to them in their working place and during their working hours. There was no duplication because distribution was performed according to list of names for the firms in the year 2012 which was delivered to the researcher from UNRWA human resources office.

The data was completely collected by the researcher, and some parts were collected by the help of some friends. There were two types of data:

1. **Secondary Data:** It was obtained from journals on CBT practices, and management. They were retrieved through databases such as Emerald, Science Direct, Wiley InterScience, Business Source Premier, JSTOR, and Springer Link. Also, many thesis and dissertations were accessed through universities Electronic Thesis and Dissertations (ETD). Some textbooks were available.
2. **Primary Data:** This data was collected from the field by questionnaire. Questionnaire was designed and distributed to get responses from target group of the research. Respondents were asked to provide opinions on the variables of this research, such as hardware, software, human resources and organizational requirements of the UNRWA Technical centers.

Research Population and Sample

The research population includes all working technical instructors at UNRWA Vocational and Technical Training Centres, Gaza Training Centre (GTC) and KhanYounis Training Centre (KYTC), in which they are about 60 instructors divided into 48 and 12 respectively to the centres. A total of 60 questionnaires have been distributed to sampling plan 93.3% of them were received.

Questionnaire Design

A survey Questionnaire was designed to collect the research's primary data. The questionnaire was included close-ended questions to facilitate the data collection process. The questionnaire composed of six sections to accomplish the aim of the research, as follows:

1. Section one focused on the personal data about the respondents (sex, age, experience, educational level, the department in which they are working).
2. Section two focused on Hardware requirements such Computers and networks specifications as they form the foundations for implementing the CBT.
3. Section three focused on Software requirements such software applications used in conducting and archiving training.
4. Section four focused on Human Resources and their performance, as they are working in setting up and troubleshooting the problems related to the Information Technology System.
5. Section five focused on Organization structure requirements, such as hierarchy, delegation, reporting, following up, and privileges belong the centres.
6. Section six focused on to what extent CBT can impact on the instructor performance.

The Questionnaire was drawn in Arabic version to be understood by the entire sample when was surveyed. The questions were arranged in logical order, proper sequencing starting with personal data to break the ice.

Section Two

Testing of Research Tool

Introduction

In order to be able to select the appropriate method of analysis, the level of measurement must be understood. For each type of measurement, there is/are an appropriate method/s that can be applied and not others. In this research, ordinal scales were used based on Likert scale (1-5), so non-parametric tests will be used to analysis data. The rating scale consists of 5 degrees, where number 5 represents strongly agree, while 1 shows your completely disagreement with the item.

Table 5.1: Likert scale

Item	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
Scale	5	4	3	2	1

The variable represents the respondents' answers of each paragraph is ordinal as shown above, but the answer is a weight, so the weight average should be found out as 4 periods/ 5 degrees, where 4 periods are as following:

Table 5.2: Periods clarification

Periods	4 th Period	3 rd Period	2 nd Period	1 st Period
Scale	5 – 4	4 – 3	3 - 2	2 - 1

Finally, the period length is $4/5 = 0.80$, so the periods of respondents' answers will be classified based on the following:

Table 5.3: Weighted Average

Item	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
Weighted Average	5.0 – 4.20	4.19 – 3.40	3.39 – 2.60	2.59 - 1.80	1.79 - 1

Data Analysis

The Data analyses were made utilizing (SPSS 15). The researcher utilized the following statistical tools:

1. Pearson Rank correlation coefficients for measuring validity.
2. Cronbach's Alpha for reliability statistics.
3. Descriptive statistical analysis is used to illustrate frequencies, means, and standard deviation of every research construct.
4. Sign test is used just to investigate the trends among sample respondents (target group).
5. Regression analysis is used to analyse the relationships between a single independent variable and several dependent variables to investigate the impact of CBT on Technical Instructor performance.
6. Kruskal-Wallis test is used to examine if there is statistical significant difference between several means among the respondents toward research constructs due the personal information.

Validity of Questionnaire

Validity refers to the degree to which an instrument measures what it is supposed to be measuring (**Pilot and Hungler, 1985**). Validity has a number of different aspects and assessment approaches. Statistical validity is used to evaluate instrument validity, which include internal validity and structure validity.

1. External (Pre-Pilot) validity of the Questionnaire:

It is essential to pre-pilot the questionnaire to identify any ambiguities in the questions and to identify the potential problems for each question. The pre-pilot is a procedure by which potential problems can be identified. Since the researcher had to develop a new questionnaire for the purposes of this research, revision for the tool is needed to ensure its relevance and stability. In order to assure high level of reliability for the developed tool, the researcher had taken the approval of the supervisor to review the tool on academic and professional levels. Review of questionnaire with academic, technical and business people who have had long-time experiences in business and technology practice environment, were conducted in order to ensure logic:

- a) On the Academic level, eight of academic staff from local Universities reviewed the tool see (Appendix 3).
- b) On the Professionals level, eight of professionals in the Information System and Training fields reviewed the tool; see (Appendix 3). The reason for including

professional was to assure that the statement truly addressed the critical areas from the professional perspective thus attaining technological and cultural sensitivity of the tool.

2. Statistical Validity of the Questionnaire

Statistical validity is used to evaluate instrument validity, which includes criterion-related validity and construct validity. To insure the validity of the questionnaire two statistical tests were applied. The first test is internal validity test (Pearson test), which measures the correlation coefficient between each paragraph in one field and the whole field. The second test is structure validity test (Pearson test) that used to test the validity of the questionnaire structure by testing the validity of each field and the validity of the whole questionnaire. It measures the correlation coefficient between one filed and all the fields of the questionnaire that have the same level of similar scale.

In below tables * means correlation is significant at the 0.05 level (2-tailed), but ** means correlation is significant at the 0.01 level (2-tailed).

a) Internal validity of the Questionnaire

Internal validity of the questionnaire is measured by a scouting sample (pilot test), which was measured by a random explorative sample, which consisted of 18 questionnaires through measuring the correlation coefficients between each paragraph in one field and the mean of whole filed. The researcher assessed the fields' internal validity by calculating the correlation coefficients between each paragraph in one field.

i. Hardware requirements field validity.

Table 5.4: Correlation coefficient of hardware requirements paragraphs and the field.

No.	Paragraph	coefficient	(Sig.)
1.	The computers specifications fit the requirements of the work required.	.784(**)	.000
2.	Data input devices fit the requirements of the work required.	.644(**)	.005
3.	Data show devices fit the requirements of the work required.	.444	.074
4.	Data Printing devices fit the requirements of the work required.	.756(**)	.000
5.	There are data storage devices with enough spaces to store the data of the work required	.649(**)	.005
6.	Permanently, computers upgraded to fit the requirements of work required.	.823(**)	.000
7.	The computers network capabilities fit the requirements of work required.	.754(**)	.000
8.	There is a suitable environment for the nature of training.	.858(**)	.000
9.	Training environment meet the needs of the health and safety.	.621(**)	.006

Table (5.4) clarifies the correlation coefficient for each paragraph of this field and the mean of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to measure what it was set for. It is good to be mentioned here that although Item 3 is positive, but its significance is more than 0.05, which means this item has no content related validity. So, paragraph no. 3 will be dropped from the questionnaire. Finally, for hardware field there are only 8 items for the real questionnaire survey.

ii. Software requirements field validity.

Table 5.5: Correlation coefficient of software requirements paragraphs and the field

No.	Paragraph	coefficient	(Sig.)
10.	The available software is easy to use.	.618(**)	.008
11.	The Used software meets the nature of work.	.677(**)	.003
12.	Software is updating to fit the nature of work.	.769(**)	.000
13.	The used software serves all the activities of the department.	.643(**)	
14.	There is data protection software to protect the data from lost or damage.	.866(**)	.000
15.	The software documentations and instructions for operating the programs to do my work are available.	.834(**)	.000
16.	The maintenance of the software is fast.	.740(**)	.001
17.	There is control over the used programs to ensure the data protections and copyrights.	.767(**)	.000
18.	The internet service fits the requirements of the work required.	.687(**)	.002
19.	There are applications of E-Learning.	.489(*)	.047
20.	The Information Technology system of the centre helps in facilitating the work.	.596(*)	.012
21.	There are archiving program for the required work records.	.742(**)	.001

Table (5.5) clarifies the correlation coefficient for each paragraph of this field and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to measure what it was set for.

iii. Human resources requirements field validity.

Table 5.6: Correlation coefficient of human resources paragraphs and the field

No.	Paragraph	coefficient	(Sig.)
22.	Information Technology department's services meet staff needs.	.857(**)	.000
23.	The number of Information Technology technicians meets the load of the work.	.849(**)	.000
24.	The communication with the Information Technology staff is done with the required speed.	.782(**)	.000
25.	The Information Technology technicians repair the troubleshooting that I face in doing the work.	.817(**)	.000
26.	The Information Technology staff own the required skills.	.716(**)	.001
27.	The technical instructors own the required skills to use the Information system.	.453	.068
28.	The Information Technology staff train the technical instructors to improve their competencies.	.765(**)	.000
29.	Training courses are conducted for teaching how to use the new programs.	.571(*)	.017
30.	The Information Technology staff disseminates training materials in the Information Technology field.	.779(**)	.000

Table (5.6) clarifies the correlation coefficient for each paragraph of this field and the mean of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to measure what it was set for. It is good to be mentioned here that although Item 27 is positive, but its significance is more than 0.05, which means this item has no content related validity. So, item 27 will be dropped from the questionnaire. Finally, for human resources field there are only 8 items for the real questionnaire survey.

iv. Organizational requirements field validity.

Table 5.7: Correlation coefficient of organizational requirements paragraphs and the field.

No.	Paragraph	coefficient	(Sig.)
31.	The report of the required work is prepared to the administration regularly and periodically.	.607(*)	.010
32.	The administration keeps the training records.	.701(**)	.002
33.	The privileges meet the organizational level.	.765(**)	.000
34.	The coordination among the instructors and administration is cooperative and hierarchy.	.886(**)	.000
35.	The management interests in my opinions and suggestions about the training.	.676(**)	.003
36.	The administration discusses the work decision with instructors.	.666(**)	.004
37.	The management provides the basic requirements to improve the training process.	.871(**)	.000
38.	The available information meets the functional requirements.	.735(**)	.001
39.	You can get the available information from the administration easily.	.700(**)	.002
40.	Coaches are hired to participate in the process of training.	.670(**)	.003
41.	The administration delegates the trainers to make plans of training programs.	.600(*)	.011
42.	The administration evaluates the effectiveness of training programs.	.560(*)	.019
43.	The administration disseminates the reports of the training programs.	.544(*)	.024
44.	The administration disseminates the reports of the training programs.	.765(**)	.000
45.	The administration follows the work progress of Information system.	.467	.059
46.	The administration is interested in updating the operating Information system.	.666(**)	.003
47.	The administration conducts CBT courses.	.400	.112

Table (5.7) clarifies the correlation coefficient for each paragraph of this field and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to measure what it was set for. It is good to be mentioned here that although Item 45 and 47 are positive, but its significance is more than 0.05, which means these two items have no content related validity. Finally, for organizational requirements field there are only 15 items for the real questionnaire survey.

v. Performance field validity.

Table 5.8: Correlation coefficient of technical performance paragraphs and the field.

No.	Paragraph	coefficient	(Sig.)
48.	Contributes to increase the efficiency of functional performance.	.586 *	.011
49.	Contributes to increase the speed of decision making.	.633 **	.005
50.	Contributes to decrease the effort of accomplishing the duty.	.827 **	.000
51.	Contributes to increase the control over productivity.	.755 **	.000
52.	Leads to increase the capability of problem solving.	.856 **	.000
53.	Leads to education pursuing via E-learning.	.738 **	.000
54.	Leads to increase the desire and getting interested in training.	.746 **	.000
55.	Leads to increase the speed of observation and understanding	.611 **	.007
56.	Improves the preparation of the training material.	.804 **	.000
57.	Helps in training plans according to the required quality standard.	.881 **	.000
58.	Helps in designing of training contents according to the required quality standard.	.794 **	.000
59.	Helps in preparation of training curriculums according to the required quality standard.	.764 **	.000
60.	Facilitates the delivery of the training materials.	.666 **	.003
61.	Facilitates the follow up of the training.	.779 **	.000
62.	Helps in evaluation of training outcomes.	.771 **	.000
63.	Helps in developing of training package according to the required quality standard.	.669 **	.002
64.	Helps in increasing the communication skills.	.645 **	.004
65.	Facilitates the guides and leads process.	.618 **	.006

Table (5.8) clarifies the correlation coefficient for each paragraph of this field and the total of the field. The p-values (Sig.) are less than 0.05, so the correlation coefficients of this field are significant at $\alpha = 0.05$, so it can be said that the paragraphs of this field are consistent and valid to measure what it was set for.

b) Structure Validity

The researcher assessed fields' structure validity by calculating the correlation coefficients of each field of the questionnaire and the whole of questionnaire.

Table 5.9: Correlation coefficients of each field and the whole of questionnaire

Field	Coefficient	P-Value (Sig.)
Hardware requirements	.707(*)	.002
Software requirements	.899(**)	.000
Human resources requirements	.774(**)	.000
Organizational requirements	.893(**)	.000
Performance	.532(*)	.028

Table (5.9) clarifies the correlation coefficient for each field and the whole of the fields. The p-values (Sig.) are less than 0.05, so the correlation coefficients of all the fields are significant at $\alpha = 0.05$, so it can be said that each field is valid to measure what it was set for to achieve the main aim of the research.

Reliability of the Questionnaire

The reliability of an instrument is the degree of consistency which measures the attribute; it is supposed to be measuring. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The less variation an instrument produces in repeated measurements of an attribute, the higher its reliability. Reliability can be equated with the stability, consistency, or dependability of a measuring tool. The test is repeated to the same sample of people on two occasions and then compares the scores obtained by computing a reliability coefficient (Polit & Hunger, 1985).

Cronbach's coefficient alpha is used to measure the reliability of the questionnaire between each field and the mean of the whole fields of the questionnaire. The normal range of Cronbach's coefficient alpha value between 0.0 and + 1.0, and the higher values reflects a higher degree of internal consistency. The Cronbach's coefficient alpha was calculated for each field of the questionnaire.

Table 5.10: Cronbach's Alpha for each filed and the entire questionnaire.

Field	Cronbach's Alpha
Hardware requirements	.816
Software requirements	.720
Human resources requirements	.793
Organizational requirements	.727
Instructors Performance	.846
Total	.821

Table (5.10) shows the values of Cronbach's Alpha for each filed and the entire questionnaire. For each field, Cronbach's Alpha ranges between 0.720 and 0.846. This range is considered high; the result ensures the reliability of each field of the questionnaire. Cronbach's Alpha equals 0.821 for the entire questionnaire which indicates an excellent reliability of the entire questionnaire. Thereby, it can be said that the researcher proved that the questionnaire was valid, reliable, and ready for distribution.

Chapter Six

Data Analysis and Hypothesis Testing

Introduction

Descriptive Analysis of the Sample Statistics

Data Analysis

Hypotheses Test

Introduction

This research was designed to explore the questions, and to test hypotheses stated in chapter one. In this chapter, the findings that respond to these questions and objectives will be discussed and compared to previous findings in other studies.

Descriptive Analysis of the Sample Statistics

1. Gender distribution

Table 6.1: Gender distribution of respondents

Gender	Frequency	Percentage
Male	40	71.4
Female	16	28.6
Total	56	100.0

Table (6.1) shows the respondents in the sample as (71.4%) male and (28.6%) female. This indicates male number is about double of female number, but recently UNRWA technical training centres got hired new female staff upon gender equity, particularly UNRWA is employer equal opportunity, for further information see figure 8 which shows the number of hired male and female instructors over the years.

2. Age distribution

Table 6.2: Age distribution of respondents

Age	Frequency	Percentage
Less than 35 years	26	46.4
35 years to 45 years	19	33.9
More than 45 years	11	19.6
Total	56	100.0

Table (6.2) shows whose age is under 45 years represents the majority (80.4%). The result indicates that respondents are experienced enough to perform their duties and within the past decade UNRWA had hired new young staff since it had established new departments since 2006.

3. Education qualification distribution

Table 6.3: Educational qualification distribution of respondents

Education	Frequency	Percentage
Diploma	0	0
Bachelor	34	60.71
Master	20	35.71
PhD	2	3.57
Total	56	100.0

Table (6.3) shows that the highest percentage of the respondents possesses Bachelor's (60.71%) due to the centres are technical and vocational not in need for high degrees, but now days UNRWA - technical centers begins to promote who have, so there are two of PHD. This result indicates the fact that most of instructors have the proper education qualifications, means UNRWA - technical centers are recruiting educated employees.

4. Experience distribution

Table 6.4: Experience distribution of respondents

Experience	Frequency	Percentage
Less than 5 years	12	21.4
5 years to less than 10 years	21	37.5
10 years to less than 15 years	8	14.3
More than 15 years	15	26.8
Total	56	100.0

Table (6.4) shows that the experience group less than 10 years represents the majority with (58.9 %) which indicates that respondents possess the experience required to perform their duties and responsibilities, means there are a large number of newer instructors hired in the past ten years.

5. Department distribution

Table 6.5: Department distribution of respondents

Department	Frequency	Percentage
Commerce	15	26.8
Engineering	19	33.9
Medical	8	14.3
Applied Science	3	5.4
Computer	11	19.6
Total	56	100.0

Table (6.5) shows that (16.7%) of the respondents are in commercial department, (38.9%) are in engineering department, and (11.1%) are in Medical, (5.6%) are in applied science department, and (27.7%) are in computer department. It is noted that there are extended collection of departments, moreover engineering and computer departments group represent the majority, which indicates that there is a mass need for Information technology systems and it's a significant factor in accomplishing duties.

Data Analysis

The following analysis was used just to attain deeper understanding for Computer-based training requirements (Hardware, Software, Human Resources, and Organization) and the technical performance in UNRWA-technical centers in Gaza strip. In this part of analysis the trend among respondents would be illustrated, that would reflect some facts about the current situation of CBT requirements and practices in the UNRWA technical centers.

Sign test was conducted, to examine the direction of respondents' response on the questions of the questionnaire. To test the hypothesis using the sign test, for example \ to know what if the average (median) degree of the response is equal to a certain value in the case. In this case, the following statistical hypothesis tests:

- The null hypothesis: test result that the average degree equal to 3 ($H_0: \mu = 3$)
- The alternative hypothesis: test result that the average degree is not equal to 3 ($H_1: \mu \neq 3$)

If Sig. (P-value) is greater than the significance level, $\alpha = 0.05$, we don't reject the null hypothesis and in this case the average views of respondents about the phenomenon under study does not differ significantly from the degree of neutrality 3. If the Sig. (P-value) less than the significance level $\alpha = 0.05$, we reject the null hypothesis and accept the alternative hypothesis that means the average views of the sample is significantly different from the degree of neutrality, in this case we can determine if the average views of respondents increase or decrease significantly on the degree of neutrality. Through the value of the test If the average views of respondents is positive it means that the arithmetic average of the response over the degree of neutrality and vice versa.

1. The following statistical analysis clarifies the results of the technical performance of the instructors.

This field is tested first since the other fields depend on it in correlations, also in testing and analysing the other hypothesizes. This is testes based on the respondents' answers about the statements of technical performance, and to investigate the trends of respondents (target group).

Table 6.6: Percentages of each item alternatives, Average, Weight, Sign Test and significance of each item of technical performance field

No.	Paragraph	Average	Weight %	Rank	Disagree%	Agree%	Sig. value%	Sign
1	Contributes to increase the efficiency of functional performance.	4.29	85.7	4	10.7	89.3	0.000	+
2	Contributes to increase the speed of decision making.	4.09	81.8	11	16.1	83.9	0.000	+
3	Contributes to decrease the effort of accomplishing the duty.	4.30	86.1	3	7.1	92.9	0.000	+
4	Contributes to increase the control over productivity.	4.05	81.1	14	17.9	82.1	0.000	+
5	Leads to increase the capability of problem solving.	4.00	80.0	17	23.2	76.8	0.000	+
6	Leads to education pursuing via E-learning.	4.02	80.4	16	26.8	73.2	0.000	+
7	Leads to increase the desire and getting interested in training.	4.14	82.9	8	14.3	85.7	0.000	+
8	Leads to increase the speed of observation and understanding	4.02	80.4	15	19.6	80.4	0.000	+
9	Improves the preparation of the training material.	4.38	87.5	2	10.7	89.3	0.000	+
10	Helps in training plans according to the required quality standard.	4.27	85.4	5	10.7	89.3	0.000	+
11	Helps in designing of training contents according to the required quality standard.	4.14	82.9	9	16.1	83.9	0.000	+
12	Helps in preparation of training curriculums according to the required quality standard.	4.11	82.1	10	17.9	82.1	0.000	+
13	Facilitates the delivery of the training materials.	4.39	87.9	1	8.9	91.1	0.000	+
14	Facilitates the follow up of the training.	4.16	83.2	7	17.9	82.1	0.000	+
15	Helps in evaluation of training outcomes.	4.21	84.3	6	12.5	87.5	0.000	+
16	Helps in developing of training package according to the required quality standard.	4.09	81.8	12	14.3	85.7	0.000	+
17	Helps in increasing the communication skills.	4.07	81.4	13	17.9	82.1	0.000	+
18	Facilitates the guide and instruction process.	3.95	78.9	18	17.9	82.1	0.000	+
All paragraphs of the technical performance field		4.15	83.0	-	3.6	96.4	0.000	+

Table (6.6) shows the average of the paragraph which had the lowest result “Facilitates the guide and instruction process” 3.95 (Total score of 5), means that the proportional mean

equal 78.9 %, P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 82.1% of respondents agree with this paragraph while only 17.9% of respondents disagree on it.

This result shows that few numbers of technical instructors are not fully aware of how the CBT can help them on problem solving or even making their duties easier in guidance and leading their trainees.

The average of the paragraph which got the highest result "Facilitates the delivery of the training materials" equal 4.39 (Total score of 5), P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 91.1% of respondents agree with this paragraph while only 8.9% of respondents disagree on it. The result illustrates that most of respondents agree strongly on this, and shows the extent to which technical instructors are convinced how much CBT is important in enhancing their skills and increasing their performance of preparing curriculum materials.

The average of the overall technical performance equals 4.15 (83.0%), P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 96.4% of respondents agree with this paragraph while only 3.6% of respondents disagree on it. this result illustrates that respondents agree on how much CBT is important in accomplishing their duties efficiently and further improve performance and productivity.

Generally, the results reveal that the technical instructors believe in the effective role of CBT in improving their administrative and training skills, further on the technical performance, because most of them are using technology in duties inside the training environment.

The finding is supported by the research conducted by (Shaheen, 2012) which revealed that the factors influencing the level of effectiveness and efficiency of developing computerized accounting data systems of Palestinian commercial banks.

Also, the finding is supported by the research conducted by (Naserallah, 2010) which revealed that CBT has an impact on the students' achievement.

In addition, the results are consistent with the research conducted by (Serin, 2011) who revealed that increase in the achievements and problem solving skills of the students received the computer-based science and technology instruction.

Moreover, the finding is supported by (Harrington, 2004) which revealed that computer-based group significantly outperformed the instructor-led group on the knowledge subtest at post-test.

Furthermore, the results are consistent with the research conducted by (Gupta, 2004) which revealed there is a growing interest in the use of web-based teaching to support the dental curriculum, especially as a means of self-directed learning.

Computer – Based Training (CBT) contributions

From the above table, Computer – Based Training (CBT) contributes to improve Technical Instructors' performance in different perspectives and fields as follow:

1. Contributes to increase the efficiency of functional performance whether in managerial, academic, curriculum designing and preparing duties.
2. Contributes to increase the efficiency of decision making of conducting training by forecasting and statistical computer applications.
3. Contributes to decrease the effort of accomplishing the duty of training process through computer applications.
4. Contributes to increase the control over the outcome of training, and follow-up issues.
5. Leads to increase the capability of problem solving of training process as the world become small village so the instructors can discuss the problems with professionals and experts around the world.
6. Leads to education pursuing via E-learning and Internet.
7. Leads to increase the desire of instructors for getting interest in training, since CBT is tireless and they can gain it any time.
8. Leads to increase the speed of observation, understanding the training variables, and keeping training profiles and records.
9. Improves preparation and displaying training material in interesting style.
10. Helps in preparing training plans according to the required quality standard.
11. Helps in designing of training contents according to the required quality standard using word processing applications.
12. Helps in preparation of training curriculums according to the required quality standard.
13. Facilitates the delivery of the training materials by using slide show and E-Learning websites.
14. Facilitates the follow up of the training procedures and outcomes via electronic media instead of traditional way.
15. Helps in evaluation of training outcomes and getting feedback for future training programs.
16. Helps in developing of training package according to the required quality standard and

archiving them.

17. Helps in increasing the communication skills via Internet and email applications.

18. Facilitates the guide and instruction process among the instructors from one side and between them and administration staff from other side.

Finally, we conclude that CBT impact and contribute to technical instructors' performance.

2. The following statistical analysis clarifies the results of hardware requirements:

Table 6.7: Percentages of each item alternatives, Average, Weight, Sign Test and significance of each item of hardware requirements field

No.	Paragraph	Average	Weight %	Rank	Disagree %	Agree%	Sig. value%	Sign
1	The computers specifications fit the requirements of the work required.	3.80	76.1%	3	27.3	72.7	0.004	+
2	Data input devices fit the requirements of the work required.	3.91	78.2%	1	25.0	75.0	0.001	+
3	Data Printing devices fit the requirements of the work required.	3.82	76.4%	2	31.8	68.2	0.023	+
4	There are data storage devices with enough spaces to store the data of the work required	3.59	71.8%	6	36.4	63.6	0.006	+
5	Permanently, computers upgraded to fit the requirements of work required.	3.41	68.2%	7	47.7	52.3	0.880	0
6	The computers network capabilities fit the requirements of work required.	3.38	67.5%	8	50.0	50.0	1.000	0
7	There is a suitable environment for the nature of training.	3.59	71.8%	5	37.7	62.3	0.040	+
8	Training environment meet the needs of the health and safety.	3.75	75.0%	4	31.8	68.2	0.023	+
All paragraphs of the hardware requirements field		3.66	73.1%		22.7	0.000	+	77.3

Table (6.7) shows that the average of the paragraph which had the lowest result " The computers network capabilities fit the requirements of work required" 3.38 (Total score of 5), means that the proportional mean equal 67.5%, P-value (Sig.) is equal to 1.000 which is greater than the level of significance $\alpha = 0.05$, the sign test illustrates the respondents are completely indifferent, and the majority of technical instructors are not confused about network service provided in general due to there is no enough bandwidth and variety of connections media, also the network needs differ from one to another department according to the nature of duties.

The average of the paragraph which got the highest result " Data input devices fit the requirements of the work required." equal 3.91 (Total score of 5), means that the proportional mean equal 78.2%, P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 75.0% of respondents agree with this paragraph while only 25.0% of respondents disagree on it. The result illustrates the

respondents agree with this paragraph, and shows the extent support of technical training centres to computer specifications and updating them regularly.

The average of the overall hardware requirements equals 3.66 (73.1%), P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 77.3% of respondents agree with this paragraph while only 22.7% of respondents disagree on it. Also, the result illustrates that the respondents agree on requirements of the hardware facilities in their departments as whole. Also, the results reveal and the respondents agree on that the UNRWA-technical training centres provide hardware fits the requirements of the work required.

The finding is supported by (Al-Soudi M, 2006) who found that perceptions of users toward the necessary system requirements were high at the social security corporation in Jordan.

3. The following statistical analysis clarifies the results of software requirements:

Table 6.8: Percentages of each item alternatives, Average, Weight, Sign Test and significance of each item of software requirements field

No.	Paragraph	Average	Weight %	Rank	Disagree%	Agree%	Sig. value%	Sign
1	The available software is easy to use.	3.84	76.8	1	25.0	75.0	0.001	+
2	Used software meets the nature of work.	3.75	75.0	2	25.0	75.0	0.001	+
3	Software is updating to fit the nature of work.	3.34	66.8	3	56.8	43.2	0.451	-
4	The used software serves all the activities of the department.	3.23	64.6	4	70.5	29.5	0.010	-
5	There is data protection software to protect the data from lost or damage.	2.89	57.9	8	86.4	13.6	0.000	-
6	The software documentations and instructions for operating the programs are available.	3.09	61.8	5	77.3	22.7	0.000	-
7	The maintenance of the software is fast.	2.80	56.1	9	77.3	22.7	0.000	-
8	There is control over the used programs to ensure the data protections and copyrights.	2.68	53.6	10	79.5	20.5	0.000	-
9	The internet service fits the requirements of the work required.	3.04	60.7	7	72.7	27.3	0.004	-
10	There are applications of E-Learning.	2.61	52.1	11	81.8	18.2	0.000	-
11	The Information Technology system of the centre helps in facilitating the work.	3.04	60.7	6	75.0	25.0	0.001	-
12	There are archiving program for the required work records.	2.50	50.0	12	93.2	6.8	0.000	-
All paragraphs of the software requirements field		3.07	61.3		70.5	29.5	0.010	-

Table (6.8) shows that the average of the paragraph which had the lowest result "There are archiving program for the required work records" 2.50 (Total score of 5), means that the proportional mean equal 50.0%, P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 6.8% of respondents agree with this paragraph while only 93.2% of respondents disagree on it, the result illustrates the respondents are disagree with this paragraph, and shows that the majority of technical instructors are unsatisfied on the software service provided related to archiving duties also it lack the copyright protections, in addition the result clarifies that instructors lack the distance learning applications, which could help them in raising their productivity and enlarging their experience.

The average of the paragraph which got the highest result "The available software is easy to use" equal 3.84 (Total score of 5), means that the proportional mean equal 76.8 %, P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 75.0% of respondents agree with this paragraph while only 25.0% of respondents disagree on it, the result illustrates the respondents agree with this paragraph, and shows the extent to which technical training centres try to match between the nature of duties and the used software to assure which is easy to use. The average of the overall software requirements equals 3.07(Total score of 5), means that the proportional mean equal (61.3%), P-value (Sig.) is equal to 0.010 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 70.5% of respondents agree with this paragraph while only 29.5% of respondents disagree on it the result illustrates the respondents are struggling with the software requirement, since the technical training centres provide minimum number of software applications, which lack the support, moreover there is no archiving document software in addition no manuals of how to use these software.

The finding is consistent with (Aldhafeeri al., 2006) that emphasize on considering e-learning competency areas upon implementing e-learning in Kuwait's educational system.

4. The following statistical analysis clarifies the results of human resources requirements:

Table 6.9: Percentages of each item alternatives, Average, Weight, Sign Test and significance of each item of human resources requirements field

No.	Paragraph	Average	Weight %	Rank	Disagree%	Agree%	Sig. value%	Sign
1	Information Technology department's services meet staff needs.	2.57	51.4	5	79.5	20.5	0.000	-
2	The number of Information Technology technicians meets the load of the work.	2.02	40.4	8	93.2	6.8	0.000	-
3	The communication with the Information Technology staff is done with the required speed.	2.48	49.6	6	90.9	9.1	0.000	-
4	The Information Technology technicians repair the troubleshooting that I face in doing the work.	2.89	57.9	2	79.5	20.5	0.000	-
5	The Information Technology staff own the required skills.	2.23	44.6	7	40.5	59.5	0.042	+
6	The Information Technology staff train the technical instructors to improve their competencies.	3.39	67.9	1	77.3	22.7	0.000	-
7	Training courses are conducted for teaching how to use the new programs.	2.82	56.4	3	65.9	34.1	0.049	-
8	The Information Technology staff disseminates training materials in the Information Technology field.	2.71	54.3	4	95.5	4.5	0.000	-
All paragraphs of the human resources requirements field		2.64	52.8		86.4	13.6	0.000	-

Table (6.9) shows that the average of the paragraph which had the lowest result "The number of Information Technology technicians meets the load of the work." 2.02 (Total score of 5), means that the proportional mean equal 40.4%, P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 6.8% of respondents agree with this paragraph while only 93.2% of respondents disagree on it. This result shows that the majority of technical instructors are unsatisfied on the human resources requirements related to Information system staff, since they lack the responding on their technical troubleshooting, in general result comes as there is no Information System department established, but the work is done by commitment of skilled staff as volunteers.

The average of the paragraph which got the highest result "The Information Technology staff train the technical instructors to improve their competencies " equal 3.39 (Total score of 5), means that the proportional mean equal 67.9 %, P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 59.5% of respondents agree with this paragraph while only 40.5% of respondents disagree on it.

The average of the overall human resources requirements equal 2.64 (Total score of 5), means that the proportional mean equal (52.8%) P-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 13.6% of

respondents agree with this paragraph while only 86.4% of respondents disagree on the requirements of the human resources in the centre.

The results reveal that the UNRWA-technical training centres have not enough technical human resources to manage and operate CBT and Information Technology system, moreover there is no Information system department established.

5. The following statistical analysis clarifies the results of organizational requirements:

Table 6.10: Percentages of each item alternatives, Average, Weight, Sign Test and significance of each item of organizational requirements field

No.	Paragraph	Average	Weight %	Rank	Disagree%	Agree%	Sig. value%	Sign
1	The report of the required work is prepared to the administration regularly and periodically.	3.23	64.6%	9	68.2	31.8	0.023	-
2	The administration keeps the training records.	3.32	66.4%	5	65.9	34.1	0.049	-
3	The privileges meet the organizational level.	3.27	65.4%	7	75.0	25.0	0.001	-
4	The coordination among the instructors and administration is cooperative and hierarchy.	3.34	66.8%	3	54.5	45.5	0.652	0
5	The management interests in my opinions and suggestions about the training.	3.16	63.2%	11	65.9	34.1	0.049	-
6	The administration discusses the work decision with instructors.	2.77	55.4%	13	79.5	20.5	0.000	-
7	The management provides the basic requirements to improve the training process.	3.20	63.9%	10	65.9	34.1	0.049	-
8	The available information meets the functional requirements.	3.30	66.1%	6	68.2	31.8	0.023	-
9	You can get the available information from the administration easily.	3.11	62.1%	12	70.5	29.5	0.010	-
10	Coaches are hired to participate in the process of training.	2.73	54.6%	15	84.1	15.9	0.000	-
11	The administration delegates the trainers to make plans of training programs.	3.80	76.1%	2	27.3	72.7	0.004	+
12	The administration encourages on using the technology in doing the duties.	3.98	79.6%	1	25.0	75.0	0.001	+
13	The administration evaluates the effectiveness of training programs.	3.34	66.8%	4	63.6	36.4	0.096	-
14	The administration disseminates the reports of the training programs.	2.77	55.4%	14	79.5	20.5	0.000	-
15	The administration is interested in updating the operating Information system.	3.23	64.6%	8	68.2	31.8	0.023	-
All paragraphs of the organizational requirements field		3.24	64.7%		38.0	62.0	0.652	0

Table (6.10) shows that the average of the paragraph which had the lowest result "Coaches are hired to participate in the process of training" 2.73 (Total score of 5), means that the proportional mean equal 54.6%, p-value (Sig.) is equal to 0.000 which is smaller than the

level of significance $\alpha = 0.05$, the sign test illustrates that 15.9% of respondents agree with this paragraph while only 84.1% of respondents disagree on it. The result illustrates that the respondents disagree with this paragraph, and shows that the majority of technical instructors are unsatisfied on behaviour of the administration of discussing and sharing the staff with job decision, moreover it doesn't provide support through hiring assistant staff or coaches.

The average of the paragraph which got the highest result "The administration evaluates the effectiveness of training programs" equal 3.98 (Total score of 5), the proportional mean equal 79.6%, p-value (Sig.) is equal to 0.001 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 75.0% of respondents agree with this paragraph while only 25.0% of respondents disagree on it, that shows the extent to which technical training centres try to evaluate the training process.

The average of the overall organizational requirements equals 3.24 (64.7%), p-value (Sig.) is equal to 0.652 which is greater than the level of significance $\alpha = 0.05$, the sign test is not significance, the result illustrates the respondents are indifferent about the organizational requirements, due to the UNRWA-technical training centres in Gaza suffering from unclear organizational hierarchy.

The findings agree with (Shaheen A. 2012), who revealed that the level of impact varies according to the level of attention and support which they receive from the bank administration.

6. The following statistical analysis clarifies the results of CBT requirements:

Table 6.11: Percentages of each item alternatives, Average, Weight, Sign Test and significance of each requirement of CBT

No.	Field	Average	Weight %	Rank	Disagree%	Agree%	Sig. value%	Sign
1.	Hardware requirements	3.67	73.1%	1	22.7	77.3	0.000	+
2.	Software requirements	3.07	61.3%	3	70.5	29.5	0.010	-
3.	Human resources requirements	2.64	52.8%	4	86.4	13.6	0.000	-
4.	Organizational requirements	3.24	64.7%	2	45.5	54.5	0.652	0
CBT requirements		3.15	63.0%		45.5	54.5	0.49	0

Table (6.11) shows that the average of the field which had the lowest result "Human resources requirements" 2.64 (Total score of 5), means that the proportional mean equal 52.8 %, p-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha =$

0.05, the sign test illustrates that 13.6% of respondents agree with this paragraph while only 86.4% of respondents disagree on it, The result illustrates that the respondents are disagree with HR requirements, and shows that the majority of technical instructors are unsatisfied on the services supplied by human resources, moreover it doesn't provide a qualified support and lack enough staff to do the duties properly with time manner.

The average of the fields which got the highest result "Hardware requirements " equal 3.67(Total score of 5), means that the proportional mean equal 73.1%,p-value (Sig.) is equal to 0.000 which is smaller than the level of significance $\alpha = 0.05$, the sign test illustrates that 77.3% of respondents agree with this paragraph while only 22.7% of respondents disagree on it and illustrates that the respondents agree with this paragraph, this result shows the extent to which technical training centres try to provide and support training program with the required logistics and physical devices.

The average of the CBT requirements equals 3.15, means that the proportional mean equal 63.0 %, p-value (Sig.) is equal to 0.49 which is greater than the level of significance $\alpha = 0.05$, That illustrates the respondents are indifferent about the software and organizational requirements, in addition they disagree with human resources.

In general, the results reveal that the UNRWA-technical training centres of Gaza strip are suffering from unclear organizational hierarchy, also they lack the enough number of qualified staff, and up of date software in the same time.

The finding agrees with (Alghazo, 2006), which revealed that The difficulties perceived were in accessing the course from home, limited computers in the labs and poor internet bandwidth.

Also, (Newton, 2003) revealed Organization should ensure that effective strategies are in place prior to implementing web based distance learning.

Moreover, findings agree with research done by (Abed El-Menem R., 2003), that revealed 46.7% of the 10th grade students facing difficulties in using computer.

Finally, The CBT requirements in UNRWA-technical training centres are not convincing and don't meet the modern needs for conducting training based technology either as a tool or got knowledge through it.

Hypotheses Test

According to the research model, and to make the analyses easy and avoid confusing state, this research conducts three appropriate statistical tests for analysing the data:

First, correlation analysis is a statistical technique. Correlation is primarily concerned with finding out whether a relationship exists and with determining its magnitude and direction. It is used to find out the magnitude and the direction of the relation between CBT requirements and technical performance.

Second, regression analysis is used to see the impact of CBT requirements on technical performance; regression analysis is a statistical technique that is widely used for research. Regression analysis is used to determine how much variation in the dependent variables is explained by the independent variables. In other words, it is used to explain the strength of the relationship of the dependent variables, based on the set of independent variables. All factors were included into one regression analysis (multiple regressions) to see the overall effect of CBT requirements on technical performance.

Third, Kruskal–Wallis Test is used to investigate if there are statistical differences in the response of the research respondents related to personal traits.

Checking Normality of a distribution

Normality of the distribution of a variable is very important because regression tests require the normality as a prerequisite. Because the research sample size is greater than 50, Kolmogorov Smirnov test (Non-parametric Goodness of fit test) has been used to check the normality of the distribution. The results show that Sig-value greater than 0.05 for all research constructs. We can conclude that the all research constructs is normally distributed, therefore, Parametric Tests could be used for hypotheses test See (Appendix 4).

The Central Limit Theorem states that for sample sizes sufficiently large (greater than 30), the shape of the distribution of the sample means obtained from any population (distribution) will approach a normal distribution (**Bajpai, 1971, p.271**). So, if we are making inferences on arithmetic means, we can use parametric statistics to do the computations.

1. H1: There is significant statistical relation (at the .05 level) between hardware requirements and technical instructors' performance.

Table 6.12: Correlations between hardware requirements and technical performance

No.	Paragraph	Correlation value	P-value (Sig.)
1	The computers specifications fit the requirements of the work required.	0.758	0.000
2	Data input devices fit the requirements of the work required.	0.573	0.000
3	Data Printing devices fit the requirements of the work required.	0.676	0.000
4	There are data storage devices with enough spaces to store the data of the work required	0.581	0.000
5	Permanently, computers upgraded to fit the requirements of work required.	0.823	0.000
6	The computers network capabilities fit the requirements of work required.	0.812	0.000
7	There is a suitable environment for the nature of training.	0.695	0.000
8	Training environment meet the needs of the health and safety.	0.446	0.000
All paragraphs of the hardware requirements field		0.803	0.000

Correlation analysis is used for data analysis in the research to observe respondents' perceptions and points out for relationship between hardware requirements and technical performance.

Table (6.12) shows that correlation coefficient between hardware requirements and the Technical Performance equals 0.803 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between hardware requirements and the technical performance.

The finding shows that all paragraphs of hardware requirements have positive and significant relationship with technical performance. Therefore, hypotheses H1 is accepted. The finding is consistent and agrees with (Al-Omari A., 2009) who revealed the positive correlations between physical requirements and performance of workers in the Palestinian telecommunications company.

We can conclude that hardware requirements significantly correlated to technical performance.

2. H2: There are significant statistical relation (at the .05 level) between software requirements and technical instructors' performance.

Table 6.13: Correlations between software requirements and technical performance

No.	Paragraph	Correlation value	P-value (Sig.)
1	The available software is easy to use.	0.621	0.000
2	The Used software meets the nature of work.	0.681	0.000
3	Software is updating to fit the nature of work.	0.703	0.000
4	The used software serves all the activities of the department.	0.655	0.000
5	There is data protection software to protect the data from lost or damage.	0.803	0.000
6	The software documentations and instructions for operating the programs to do my work are available.	0.803	0.000
7	The maintenance of the software is fast.	0.669	0.000
8	There is control over the used programs to ensure the data protections and copyrights.	0.583	0.000
9	The internet service fits the requirements of the work required.	0.587	0.015
10	There are applications of E-Learning.	0.601	0.000
11	The Information Technology system of the centre helps in facilitating the work.	0.759	0.000
12	There are archiving program for the required work records.	0.697	0.000
All paragraphs of the software requirements field		0.886	0.000

Correlation analysis is used for data analysis in the research to observe respondents' perceptions and points out for relationship between software requirements and technical performance.

Table (6.13) shows the following results: The correlation coefficient between software requirements and the technical performance equals 0.886 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between software requirements and the technical performance.

The finding shows that all paragraphs of software requirements have positive and significant relationship with technical performance. Therefore, hypotheses H2 is accepted. The finding is supported by (Abo Sabat, 2005) who found that there are positive correlations between software requirements and the process of decision making in Gaza Universities.

We can conclude that software requirements significantly correlated to technical performance.

3. H3: There are significant statistical relation (at the .05 level) between human resources requirements and Technical Instructors' performance.

Table 6.14: Correlations between human resources requirements and technical performance

No.	Paragraph	Correlation value	P-value(Sig.)
1	There is an Information Technology department.	0.690	0.000
2	The number of Information Technology technicians meets the load of the work.	0.811	0.000
3	The communication with the Information Technology staff is done with the required speed.	0.816	0.000
4	The Information Technology technicians repair the troubleshooting that I face in doing the work.	0.740	0.000
5	The Information Technology staff own the required skills.	0.714	0.000
6	The Information Technology staff train the technical instructors to improve their competencies.	0.595	0.000
7	Training courses are conducted for teaching how to use the new programs.	0.357	0.002
8	The Information Technology staff disseminates training materials in the Information Technology field.	0.658	0.000
All paragraphs of the human resources requirements field		0.688	0.000

Correlation analysis is used for data analysis in the research to observe respondents' perceptions and points out for relationship between human resources and technical instructors' performance.

Table (6.14) shows the correlation coefficient between human resources requirements and the Technical Performance equals 0.688 and the P-value (Sig.) equals 0.00. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between human resources requirements and the technical performance.

The finding shows that all paragraphs of human resources requirements have positive and significant relationship with technical performance. The finding is supported by (Abu Aziz Sh., 2009).

We can conclude that human resources requirements significantly correlated to technical performance.

4. H4: There are significant statistical relation (at the .05 level) between organizational requirements and technical instructors' performance.

Table 6.15: Correlations between organizational requirements and technical performance

No.	Paragraph	Correlation value	P-value(Sig.)
1	The report of the required work is prepared to the administration regularly and periodically.	0.553	0.003
2	The administration keeps the training records.	0.554	0.002
3	The privileges meet the organizational level.	0.686	0.000
4	The coordination among the instructors and administration is cooperative and hierarchy.	0.856	0.000
5	The management interests in my opinions and suggestions about the training.	0.800	0.000
6	The administration discusses the work decision with instructors.	0.837	0.000
7	The management provides the basic requirements to improve the training process.	0.786	0.000
8	The available information meets the functional requirements.	0.700	0.000
9	You can get the available information from the administration easily.	0.812	0.000
10	Coaches are hired to participate in the process of training.	0.637	0.000
11	The administration delegates the trainers to make plans of training programs.	0.534	0.000
12	The administration encourages on using the technology in doing the duties.	0.501	0.001
13	The administration evaluates the effectiveness of training programs.	0.761	0.000
14	The administration disseminates the reports of the training programs.	0.501	0.000
15	The administration is interested in updating the operating Information system.	0.641	0.001
All paragraphs of the organizational requirements field		0.885	0.000

Correlation analysis is used for data analysis in the research to observe respondents' perceptions and points out for relationship between organizational requirements and technical performance.

Table (6.15) shows the correlation coefficient between organizational requirements and the Technical Performance equals 0.885 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between organizational requirements and the Technical Performance.

The finding shows that all paragraphs of organizational requirements have positive and significant relationship with Technical Performance. Therefore, hypotheses H4 is accepted.

The finding is consistent and agrees with (Shaheen, 2012), who revealed the financial impacts of the professional organizational controls, and technological factors on the level

of the effectiveness and efficiency of accounting data systems of Palestinian commercial banks.

We can conclude that organizational requirements significantly correlated to Technical Performance.

5. Correlation between CBT requirements and technical performance.

Correlation analysis is used for data analysis in the research to observe respondents intentions and outpoints for relationship between CBT requirements and technical instructors performance.

Table 6.16: Correlations between CBT requirements and technical performance

No.	Paragraph	Correlation value	P-value (Sig.)
1	Hardware requirements	0.803	0.000
2	Software requirements	0.886	0.000
3	Human resources requirements	0.688	0.000
4	Organizational requirements	0.885	0.000
All requirements of the CBT		0.815	0.000

Table (6.16) shows the following results:

The correlation coefficient between hardware requirements and the technical performance equals 0.803 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between hardware requirements and the technical performance.

The correlation coefficient between software requirements and the technical performance equals 0.886 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between software requirements and the technical performance.

The correlation coefficient between human resources requirements and the technical performance equals 0.688 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between human resources requirements and the technical performance.

The correlation coefficient between organizational requirements and the technical performance equals 0.885 and the P-value (Sig.) equals 0.000. The P-value (Sig.) is less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between organizational requirements and the technical performance.

The finding shows that all four fields of CBT requirements have positive and significant relationship with technical performance. Therefore, hypotheses H1 through H4 were accepted. In general, the P-values (Sig.) of the correlation coefficients between CBT requirements and technical performance are less than 0.05, so the correlation coefficient is statistically significant at $\alpha = 0.05$. So it can be said that there exists a significant relationship between CBT requirements and technical performance.

Finding is supported by many researches (Shaheen, 2012); (Serin o., 2011); (Ahmadia, 2010); (Naserallah ,2010); (Gupta, 2004); (Harrington, 2004) ; (Eckerman, 2004); (Wang, 2004) which revealed that CBT has an impact on different majorities and disciplines.

6. H5: There are significant statistical differences (at the .05 level) in the response of the research sample due to socio-demographic variables (gender, age, education, specialization, and experience).

Mann-Whitney test is a nonparametric test, which is used to compare two groups of sample data (ordinal level), which is gender.

The Kruskal-Wallis test is a nonparametric test, which is used to compare three or more groups of sample data (ordinal level). It is used to investigate the statistical differences in the response of the research population related to socio-demographic variables (age, education, specialization, and experience).

- a) Mann-Whitney test for gender

Table 6.17: Mann-Whitney test and their p-values for gender.

Field	Test Value	Sig. (P-value)
Hardware requirements	218.5	0.07
Software requirements	237.5	0.13
Human resources requirements	319.5	0.99
Organizational requirements	312.0	0.88
CBT requirements	274.0	0.40
Technical Performance	273.5	0.40

Mann-Whitney test was used to measure the interaction between the technical performance of instructors and CBT requirements as part and (gender) as another at 0.05 level of significant. Table (6.17) shows that Test value, while the sig (P-value) is more than 0.05.

From table (6.16), There is no statistical differences in means of CBT requirements and its impact on technical performance of instructors related to gender at the level of significance $\alpha=0.05$.

The finding is consistent and agrees with (Ahmadia G., Abdolmaleki Sh., Khoshbakht M., 2010), who revealed that computer based teaching method increases the creativity and achievement of both boys and girls.

Also, the finding is consistent and agrees with (Al-khashab, 2007), who revealed No differences in the attitudes toward e-learning based on volunteers' gender.

Moreover, the finding is consistent and agrees with (Loyd, Gressard, 1984), who revealed sex was not significantly related to computer attitudes.

b) Kruskal-Wallis test for age

Table 6.18: Kruskal-Wallis test and their p-values for age

Field	Test Value	Sig. (P-value)
Hardware requirements	3.29	0.19
Software requirements	6.77	0.03
Human resources requirements	2.26	0.32
Organizational requirements	7.30	0.03
CBT requirements	7.35	0.03
Technical Performance	1.06	0.59

Kruskal-Wallis Test was used to measure the interaction between the technical performance of instructors and CBT requirements as part and (age) as another at 0.05 level of significant. Table (6.18) shows that Test value, while the sig (P-value) is more than 0.05.

From table (6.18), there is no statistical differences in means of CBT requirements and the technical performance of instructors related to age at the level of significance $\alpha=0.05$.

The finding is consistent and agrees with (Wallen, 2006) who revealed both older and younger workers did best with the version containing text with pictures and audio narration.

Also, the finding is consistent and agrees with (Loyd, Gressard, 1984), who revealed age was not significantly related to computer attitudes.

c) Kruskal-Wallis test for education qualification

Table 6.19: Kruskal-Wallis test and their p-values for education qualification

Field	Test Value	Sig. (P-value)
Hardware requirements	3.06	0.22
Software requirements	1.57	0.46
Human resources requirements	5.06	0.08
Organizational requirements	3.16	0.21
CBT requirements	3.98	0.14
Technical Performance	1.27	0.53

Kruskal-Wallis Test was used to measure the interaction between the technical performance of instructors and CBT requirements as part and (education qualification) as another at 0.05 level of significant. Table (6.19) shows that Test value, while the sig (P-value) is more than 0.05. From table (6.19), There is no statistical differences in means of the technical performance of instructors and CBT requirements related to education qualification at the level of significance $\alpha=0.05$.

Finding consistent and agrees with (Gupta, 2004) that found both students and staff see web-based teaching as a means to supplement rather than replace traditional methods of learning in the dental undergraduate program.

But, the finding is disagrees with (Al-Omari A., 2009) who revealed that there are statistically significant differences between the perceptions of respondents due to level of scientific. Also, disagree with (Al-khashab, 2007) who revealed that significant differences in the attitudes toward e-learning based on educational level.

This may revealed since the higher degree holder number is too small with comparison to BS. degree in UNRWA centers, and the majority is BSc.

d) Kruskal-Wallis Test for experience

Table 6.20: Kruskal-Wallis test and their p-values for experience

Field	Test Value	Sig. (P-value)
Hardware requirements	3.47	0.32
Software requirements	3.80	0.28
Human resources requirements	1.71	0.63
Organizational requirements	3.10	0.38
CBT requirements	2.81	0.42
Technical Performance	0.05	1.00

Kruskal-Wallis test was used to measure the interaction between the technical performance of instructors and CBT requirements as part and (experience) as another at 0.05 level of significant. Table (6.20) shows that Test value, while the sig (P-value) is more than 0.05. From table (6.20), There is no statistical differences in means of the technical performance of instructors related to experience at the level of significance $\alpha=0.05$.

The finding is consistent and agrees with (Claudia, 2007), who experience was not significantly related to computer attitudes and usage.

Moreover, the finding is consistent and agrees with (Loyd, Gressard, 1984), who revealed experience was not significantly related to computer attitudes.

e) Kruskal-Wallis test for department

Table 6.21: Kruskal-Wallis test and their p-values for department (specialization).

Field	Test Value	Sig. (P-value)
Hardware requirements	2.82	0.59
Software requirements	0.74	0.95
Human resources requirements	3.71	0.45
Organizational requirements	3.35	0.50
CBT requirements	1.59	0.81
Technical Performance	1.56	0.82

Kruskal-Wallis test was used to measure the interaction between the technical performance of instructors and CBT requirements as a part and (department) as another at 0.05 level of significant. Table (6.21) shows that Test value, while the sig (P-value) is more than 0.05. From table (6.21), There is no statistical differences in means of the technical performance of instructors related to department at the level of significance $\alpha=0.05$, but There is statistical differences in means of the hardware requirements related to department at the level of significance $\alpha=0.05$.

The finding agrees with (Wang, 2004) that the findings support the feasibility of computer-based, learner centered programs for second language pronunciation instruction. Also, agrees with (Eckerman, 2004) findings which is work practice improvement was seen in 79% of food services workers at a hospital.

Moreover, the finding is supported by (Harrington S., Walker B., 2004), who revealed that participants of nursing facility staff reported that they enjoyed the computer-based training and had no difficulty using the computers.

We can conclude that there are no significant statistical differences (at the .05 level) in the response of the research sample due to socio-demographic variables (gender, age, education qualification, experience, and specialization (place of work)).

Regression Analysis between CBT requirements and Technical Performance

In order to explore the relationship between dependent variable and independent variables, multiple regression analysis was conducted to see the impacts. One of the objectives of this research is to find out the relationships and the impact between CBT requirements and instructors' performance, so regression analysis is the best suitable tool for the purpose.

This research combined all four CBT requirements into one regression to see the overall impact on technical performance. Stepwise Multiple Regression with technical performance as the dependent variable indicates that hardware, software, and organizational requirements contributed significantly toward technical performance at the 0.05 level of significance. The prediction model indicated that 20.8% of the variation in "Technical Performance" is explained by hardware, software, and organizational requirements.

Table 6.22: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.515	.286	.208	.50124	2.274

Table (6.22) shows Analysis of Variance for the regression model assesses the overall significance of the model, as $p < 0.05$, the model is significant.

Table 6.23: ANOVA

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.632	4	1.158	4.609	.003(a)
Residual	12.813	51	.251		
Total	17.445	55			

Table (6.23) shows the ANOVA for the regression model. Sig. = 0.003, so there is a significant relationship between the dependent variable Technical Performance and the independent variables: hardware, software, and organizational requirements.

Table 6.24: The Regression Coefficients

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta	B	Std. Error
(Constant)	2.907	0.390		4.957	.000
Hardware	0.101	0.135	.118	.681	.011
Software	0.265	0.180	.433	3.117	.003
organizational	0.256	0.122	.459	3.352	.002

The Unstandardized Beta Coefficients give a measure of the contribution of each variable to the model. A large value indicates that a unit change in this predictor variable has a large impact on the dependent (criterion variable). The t and Sig (p) values give a rough indication of the impact of each predictor variable – a big absolute t value and small p value suggests that a predictor variable is having a large impact on the criterion variable (Hair et al, 2010).

Table (6.24) shows the final regression model coefficients and their P-values (Sig.).

The data analyses presented in Table (5.18) revealed that hardware, software and organizational variables of predictors have P-value for their coefficient (beta, β) are significant: ($\beta= 0.118$, $\beta= 0.433$, $\beta= 0.459$, $p \leq 0.05$).

Hardware, software and organizational requirements significantly contributed to the model, but human resources requirements failed to fulfil the requirements (it was deleted at any step of stepwise regression, where it no longer contributes significantly to the regression model). Also, Based on T test, the most significant variable is hardware, software and organizational requirements. The result shows that out of the four CBT requirements, only three items of these requirements impact on the technical performance.

When combined CBT requirements into system, only hardware, software, and organizational variable still keep status quo. These results are aligned with many of researches in which the same multiple regressions were used as a main testing tool.

Based on the above results, a model can be derived to be:

Overall Model: (adjusted R square= 0.286, F= 4.609, P-value= 0.000).

We can conclude, decision makers should give more attention to the HR requirements, and look again with strategic vision to the vital role of HR, which manage and operate CBT system, so Information system should be established with full enforcement for the qualified technicians with varying majorities to serve well, also hiring enough number to meet the needs required in time of manner professionally.

$$\text{Technical Performance} = 2.907 + 0.101(\text{Hardware requirements}) + .265 (\text{Software requirements}) + 0.256 (\text{Organizational requirements}).$$

Chapter Seven

Conclusion and Recommendations

Introduction

Conclusions

Recommendations

Future researches

Chapter Seven

Conclusion and Recommendations

Introduction

After presenting and discussing the findings of the research, this chapter discuss the key findings and recommendations that the researcher suggests to enhance and promote the strengths of the CBT system and overcome the areas in which system falls short. It is hoped this research will provide a reference to senior instructors and principals in the technical and vocational centers to develop effective CBT practices in order to enhance technical performance. Especially, the objective of this research is to identify to what extent CBT requirements can improve performance of the technical instructors in UNRWA- Technical and Vocational training centres in Gaza Strip.

The conclusions of this research are as follows:

Conclusions

1. There exists a significant improvement on technical performance through CBT as a result of respondents' imaginations toward the CBT role, may be the reason of that agreement due to the most of the technical instructors have a desire to deal, and use computers inside the training class and out-of-class, or they had got knowledge through it, so the CBT is important factor in improving their performance.
2. There is an extremely positive attitude toward the role of CBT in increasing the efficiency of the functional performance, since it leads to getting interested in training and increase the speed of observation and understanding.
3. There is an extremely positive attitude toward the role of CBT in decreasing the effort of accomplishing the duty, since it helps in designing of the training contents and preparing the training curriculums according to the required quality standard.
4. There is a positive attitude toward the role of CBT in increasing the speed of decision making, and the control over productivity, since it leads to increase the capability of problem solving through using special applications.
5. There is positive attitude toward the role of CBT in leading to education pursuing via E-learning and distance learning, since that keep them in touch with what changed rapidly around the world of technical issues and concerns.
6. There is an extremely positive attitude toward the role of CBT in developing the training package according to the required quality standard because of improving the preparation of the training material and the training plans.

7. There is an extremely positive attitude toward the role of CBT in facilitating the delivery of the training materials, due to it helps in developing of training package according to the required quality standard and facilitating the follow up of the training delivery.
8. There is an extremely positive attitude toward the role of CBT in helping the staff in the evaluation of the training outcomes, since that help them to follow the result and correct the mistakes and deficits through software and statistics applications.
9. The findings as a whole suggest that the attitude of technical instructors toward hardware requirements is positive, since a variety of devices meet their needs.
10. The attitude toward the computer specification is positive, since that help them to do their duties fast and efficiently.
11. The attitude toward the devices of data input, data output, and data printing is positive, due to that meet the needs of the work required.
12. The result shows there is a positive attitude toward the health and the safety requirements, since UNRWA- TVET centers provide a suitable environment that meets the training nature.
13. The result shows the positive linkage between hardware requirements and technical instructor performance.
14. The viewpoints of the technical instructors towards software requirements as whole are negative, since the software is not licenced, but the viewpoints towards the software used are positive, because it is easy to use and meets the nature of the work.
15. The viewpoints towards software applications provided is negative since it lack the copyright protections.
16. Moreover, the result shows there is a negative attitude toward the archiving software since there are no archiving applications for saving profiles of training, courses materials and reports that could help to enhance the productivity and training outcome.
17. Furthermore, the result shows a negative viewpoint toward software quality, because there is no way and media to protect training information from loss.
18. Furthermore, the result shows a negative viewpoint toward Internet quality, because Internet bandwidth doesn't serve the work load with no wireless connections.
19. The result shows a negative viewpoint toward distance learning applications since there is no E-Learning applications and no partnerships with other educational centers locally or overseas.

20. The result shows the positive linkage between software requirements and technical performance, the correlation findings show that the centres provide a moderate level of software applications needed to match the nature of duties and assure it is easy to use.
21. The viewpoints of technical instructors towards human resources requirements are negative, as there is no Information system department established, but the duties done by skilled staff as volunteers.
22. The viewpoints towards troubleshooting service is negative since there is no enough staff to meet the load of the work, so the instructors miss the responding on their needs just in time.
23. The viewpoints toward staff qualification are positive, due to they work all day to serve the needs as much as they can.
24. The viewpoints toward training courses conducted for upgrading competencies are negative due to there is no scheduled training courses conducted to help the technical instructors to use the new software, in addition they didn't disseminate training materials.
25. The result shows the positive linkage between human resources requirements and technical performance, the correlation findings show that the centers have to ensure there are qualified technicians, who are capable of accomplishing the work assigned professionally.
26. The result shows a negative attitude toward the administration behaviour of following the works reports, since the report isn't prepared regularly and training records isn't archived.
27. The result shows a negative attitude toward the administration policy of the communication methods since they don't discuss the instructors the work assigned as much as the information provided doesn't meet the functional requirements.
28. The result shows a negative attitude toward the administration viewpoint of the instructors since it is not interested in the instructors' participations and opinions.
29. Indeed, the result shows a negative attitude toward that the privileges don't meet the organizational levels, and the coordination is not cooperative, because the work decisions taken from administration side.
30. On the other side, the viewpoint is positive toward the administration behaviours, since encourage the technical instructors to use technology and delegate them for conducting training plans.
31. The result shows the positive linkage between organizational requirements and technical performance, the correlation findings show that the administration delegation policy for conducting training courses, so that encourage them to improve their performances.

32. As a result of this research, there is no significant difference between the respondents' answers toward the hardware, software, human resource, organizational requirements and technical performance across the gender, because both of them use the same requirements to do the same duties.
33. As a result of this research, there is no significant difference between the respondents' answers toward the hardware, software, human resource, organizational requirements and technical performance across the age, because the administration deals with the instructors according to their positions not to their ages. Moreover, the administration conducts vocational and technical training course for new hired instructors, in the same the way older instructors have the required experience.
34. As a result of this research, there is no significant difference between the respondents' answers toward the hardware, software, human resource, organizational requirements and technical performance across the experience, this might be due to that the computer system had entered to the centre not so long ago, so this issue is the same for either who have a long term experience or not. Moreover, the majority of the staff educational qualification is engineering or technology.
35. As a result of this research, there is no significant difference between the respondents' answers toward the hardware, software, human resource, organizational requirements and technical performance across the education, due to the majority of instructors are holding a bachelor, and this might be due that they are working in the same environment with the same electronic and computerized conditions in the same department.
36. As a result of this research, there is no significant difference between the respondents' answers toward the hardware, software, human resource, organizational requirements and technical performance across the department (specialization), because the whole of departments use the same logistics and labs, and all of them are identical.
37. The result of the regression analysis shows that three requirements form together a collection, which has a significant impact on technical instructor performance, which is the organizational, software, and hardware requirements respectively, but the human resources don't form a weight, due to there is no Information system department besides there are a few number of technicians.

Recommendations

It is clear that in order to enhance and improve instructor technical performance, UNRWA- Technical and vocational training centres should understand the need for the adoption and implementation of suitable Computer-based Training requirements and practices.

In this regard, I would like to list the following recommendations:

1. Emphasize on the need that UNRWA - Technical training centres should adopt and implement the Computer technology in training process as a tool in-class or out-of-class and provide training course on how to use it since it impact on the performance directly and facilitate the work required.
2. The continuity of the need to keep abreast of technological developments in the field of training to increase the quality of the work.
3. Ensuring the use of the modern physical devices to support the whole training activities.
4. The continuity of upgrading the computer specification regularly to meet the needs of the work required.
5. The continuity of supplying the variety of physical devices to meet the needs of the work required.
6. More attention should be given to upgrade the network capabilities to meet the duties needs and overcome the cut and the break down.
7. Pursuing the meet of the health and the safety needs of training environment to ensure the safety of human beings.
8. Ensuring the use of the updated software to support the whole training activities.
9. The continuity of supplying software applications that meet the needs of the work required and easy to use to increase the efficiency and the quality of the productivity.
10. Special attention should be given to the copyright of software to guarantee the continuity of software operation and service.
11. Emphasize on providing archiving applications for training activities to save the training profiles, courses materials and reports in order to keep them available.
12. Emphasize on providing quality of Internet service for easily navigating the website and for holding seminars and conferences of the modern technical issues.
13. Emphasize on providing distance Learning and participations with other technical centers around the world as E-Learning is a positive method of supplementing the traditional methods of learning.

14. More attention should be given to protect information from loss and save data privacy.
15. Urgently, Information Technology department should be established with enough qualified staff to meet the work needs.
16. More attention should be given to hire more technicians to meet the load of the work required according to the quality standard.
17. Pursuing hiring qualified staff to raise the level of the productivity and quality of service.
18. Emphasize on disseminating materials of Information Technology updates to the concerned staff in order to make an environment of awareness of technology used and how it can improve their career.
19. Special attention should be devoted for organizational requirements and corporations between administration and technical instructors in a manner of discussing the decision to increase the loyalty and job satisfaction.
20. Special attention should be devoted for communication between administration and operational staff to discuss the work assigned in order to decrease the change resistance.
21. Special attention should be devoted for the information provided should meet the functional requirements to guarantee the quality of the job and the efficiency of outputs also, ensure instructors understand goals, specifications, and expectations.
22. More attention should be given to the instructors' participations and opinions and coordination should be cooperative. Since that reduce the causes of resistance, and morale.
23. More attention should be given to the privilege of each position and the organization structure to monitor and control the business process while facilitating the relationships of staff from top to bottom.
24. Pursuing the delegation policy for conducting plans and training programs to increase the loyalty and commitment.
25. Keep encouraging the instructors to use technology and keeping them in touch with the modern updates to escalate the scope of awareness.

Future researches:

1. Escalating the research scope to involve other variables and plotting factors may impact on implementing Computer-based Training inside the society organizations and research its impact in other disciplines
2. Future research should cover the challenges and limitation of the implementation Computer-based Training.
3. Future research should continue to examine attitude and acceptance factors for Computer-based learning.
4. E-Learning systems should reflect the cultural orientation of the organization.

Appendixes

Appendix 1: Questionnaire in English

Appendix 2: Questionnaire in Arabic

Appendix 3: Questionnaire Referees

Appendix 4: Ordinary Least Square Assumption

Appendix 1: Questionnaire in English

Islamic University
Graduates Studies Deanery
.Business Administration dept
College of Commerce



.Questionnaire No

Date

Dear Colleague,

To be submitted in partial fulfilment of requirements for master degree in business administration, I do a research title by **”Improving Technical Instructor Performance through conducting Computer Based - Training”**.

Therefore, please fill in the attached questionnaire after carefully reading for each sentence, then put (x) in the proper place that expresses the degree of your agreement according to your position.

The truth of the results that the research will find depends on the accuracy of your answers.

You are kindly reminded that submitted information will be of major concern to us.

Thank you for your sincere cooperation

Researcher

Mahmoud Omar Hassouna

First: Personnel Information

Please, put (X) at front of the correct answer

- Sex** Male Female
- Age** less than 35 years from 35 to 45 years
 more than 45 years or equal
- Education qualification** Diploma BSc
 MSc Ph.D.
- Experience** less than 5 years from 5 to less than 10 years
 from 10 to less than 15 years from 15 years or more
- Department (Place of Work)** Commercial professions Engineering professions
 Medical professions Applied Arts professions
 Communication & Computer professions

Second: The requirements of operating and managing CBT

Please, In the following there are some sentences and at front of each there are 5 degrees, put (x) in the suitable choice.		5	4	3	2	1
		Strongly agree	agree	indifferent	disagree	Strongly disagree
(1) hardware requirements						
1.	The computers specifications fit the requirements of the work required.					
2.	Data input devices fit the requirements of the work required.					
3.	Data Printing devices fit the requirements of the work required.					
4.	There are data storage devices with enough spaces to store the data of the work required					
5.	Permanently, computers upgraded to fit the requirements of work required.					
6.	The computers network capabilities fit the requirements of work required.					
7.	There is a suitable environment for the nature of training.					
8.	Training environment meet the needs of the health and safety.					
(2) software requirements						
9.	The available software is easy to use.					

Please, In the following there are some sentences and at front of each there are 5 degrees, put (x) in the suitable choice.		5	4	3	2	1
		Strongly agree	agree	indifferent	disagree	Strongly disagree
10.	The Used software meets the nature of work.					
11.	software is updating to fit the nature of work.					
12.	The used software serves all the activities of the department.					
13.	There is data protection software to protect the data from lost or damage.					
14.	The software documentations and instructions for operating the programs to do my work are available.					
15.	The maintenance of the software is fast.					
16.	There is control over the used programs to ensure the data protections and copyrights.					
17.	The internet service fits the requirements of the work required.					
18.	There are applications of E-Learning.					
19.	The Information Technology system of the center helps in facilitating the work.					
20.	There are archiving program for the required work records.					
(3) human resources requirements						
21.	Information Technology department's services meet staff needs.					
22.	The number of Information Technology technicians meets the load of the work.					
23.	The communication with the Information Technology staff is done with the required speed.					
24.	The Information Technology technicians repair the troubleshooting that I face in doing the work.					
25.	The Information Technology staff own the required skills.					
26.	The Information Technology staff train the technical instructors to improve their competencies.					
27.	Training courses are conducted for teaching how to use the new programs.					
28.	The Information Technology staff disseminates training materials in the Information Technology field.					
(4) organizational requirements						
29.	The report of the required work is prepared to the administration regularly and periodically.					
30.	The administration keeps the training records.					
31.	The privileges meet the organizational level.					
32.	The coordination among the instructors and administration is cooperative and hierarchy.					
33.	The management interests in my opinions and suggestions about the training.					

Please, In the following there are some sentences and at front of each there are 5 degrees, put (x) in the suitable choice.		5	4	3	2	1
		Strongly agree	agree	indifferent	disagree	Strongly disagree
34.	The administration discusses the work decision with instructors.					
35.	The management provides the basic requirements to improve the training process.					
36.	The available information meets the functional requirements.					
37.	You can get the available information from the administration easily.					
38.	Coaches are hired to participate in the process of training.					
39.	The administration delegates the trainers to make plans of training programs.					
40.	The administration encourages on using the technology in doing the duties.					
41.	The administration evaluates the effectiveness of training programs.					
42.	The administration disseminates the reports of the training programs.					
43.	The administration is interested in updating the operating Information system.					
<u>Third: The Functional Performance</u>						
Please, fill the following in order to assess the impact of CBT						
44.	Contributes to increase the efficiency of functional performance.					
45.	Contributes to increase the speed of decision making.					
46.	Contributes to decrease the effort of accomplishing the duty.					
47.	Contributes to increase the control over productivity.					
48.	Leads to increase the capability of problem solving.					
49.	Leads to education pursuing via E-learning.					
50.	Leads to increase the desire and getting interested in training.					
51.	Leads to increase the speed of observation and understanding					
52.	Improves the preparation of the training material.					
53.	Helps in training plans according to the required quality standard.					
54.	Helps in designing of training contents according to the required quality standard.					
55.	Helps in preparation of training curriculums according to the required quality standard.					
56.	Facilitates the delivery of the training materials.					
57.	Facilitates the follow up of the training.					
58.	Helps in evaluation of training outcomes.					
59.	Helps in developing of training package according to the required quality standard.					
60.	Helps in increasing the communication skills.					
61.	Facilitates the guides and leads process.					

Thanks for your sincere cooperation.

Appendix 2: Questionnaire in Arabic

بسم الله الرحمن الرحيم

الأخ/الأخت الفاضل/الفاضلة

السلام عليكم ورحمة الله وبركاته،

بغرض استكمال متطلبات الحصول على درجة الماجستير من الجامعة الإسلامية في إدارة الأعمال، فإنني أقوم بإجراء دراسة تطبيقية بعنوان:

" تحسين أداء المدربين الفنيين من خلال عقد التدريب المعتمد على الحاسب"

يرجى التكرم بتعبئة الاستبانة المرفقة، بعد قراءة كل عبارة من عبارات الاستبانة قراءة متأنية ووضع علام (X) في الخانة التي تعبر عن مدى موافقتكم عليها بحسب الواقع الذي تعملون به. إذ أن اجابتم بدقة تتوقف عليها صحة النتائج التي ستتوصل إليها الدراسة.

علماً بأن إجاباتكم لن تستخدم إلا لأغراض البحث العلمي فقط.

شاكرين لسيادتكم تعاونكم الصادق

الباحث:

م. محمود عمر حسونة

أولاً: المعلومات الشخصية:

يرجى وضع إشارة (X) أمام الإجابة المناسبة

- الجنس: ذكر أنثى
- العمر: أقل من 35 سنة من 35 إلى أقل من 45 سنة من 45 سنة فأكثر
- المؤهل العلمي: دبلوم و ما دون بكالوريوس ماجستير دكتوراه
- سنوات الخبرة: أقل من 5 سنوات من 5 إلى أقل من 10 سنوات من 10 إلى أقل من 15 سنة من 15 سنة فأكثر
- القسم (مكان العمل): مهن تجارية مهن هندسية مهن طبية مهن فنون تطبيقية مهن الحاسب و الاتصالات

ثانياً: مستلزمات إدارة وتشغيل التدريب باستخدام الحاسب

1	2	3	4	5	فيما يلي مجموعة من العبارات وأمام كل عبارة خمس درجات للإجابة يرجى وضع إشارة (X) في المكان المناسب
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	
(1) المستلزمات المادية					
					1. تتناسب مواصفات الحاسب مع احتياجات العمل المطلوب.
					2. تتناسب وسائل إدخال البيانات مع احتياجات العمل المطلوب.
					3. تتناسب وسائل طباعة البيانات مع احتياجات العمل المطلوب.
					4. تتوفر أجهزة تخزين معلومات بمساحات كافية للعمل المطلوب.
					5. تُطور أجهزة الحاسب لتتوافق مع احتياجات العمل المطلوب.
					6. تتناسب امكانيات شبكة الحاسب مع احتياجات العمل المطلوب.
					7. تتوفر بيئة ملائمة لطبيعة التدريب.
					8. تتوافق بيئة التدريب مع احتياجات السلامة و الصحة المهنية.
(2) المستلزمات البرمجية					
					9. تمتاز البرمجيات المتوفرة بسهولة الاستخدام.
					10. تتوافق البرمجيات المستخدمة مع احتياجات العمل.

1	2	3	4	5	
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	فيما يلي مجموعة من العبارات وأمام كل عبارة خمس درجات للإجابة يرجى وضع إشارة (X) في المكان المناسب
					11. تُحدث البرمجيات بما يتناسب مع احتياجات العمل.
					12. تُغطي البرمجيات المستخدمة كافة الأنشطة.
					13. تتوافر برمجيات لحماية البيانات من الضياع و التلغف.
					14. تتوافر جميع التعليمات اللازمة لتشغيل البرمجيات التي احتاجها في عملي.
					15. يتم صيانة البرمجيات المستخدمة بسرعة.
					16. تُطبق حقوق الطبع والنسخ على البرمجيات المستخدمة.
					17. تتلاءم خدمة الانترنت مع احتياجات العمل المطلوب.
					18. تتوافر تطبيقات لاستخدام التعليم الالكتروني.
					19. يُساعد نظام تكنولوجيا المعلومات الخاص بالكلية على تسهيل العمل.
					20. تتوافر برمجيات لأرشفة سجلات العمل المطلوب.
(3) المستلزمات البشرية					
					21. خدمات قسم نظام تكنولوجيا المعلومات تناسب احتياجات المدربين.
					22. يتناسب عدد فنيي نظام المعلومات مع حجم العمل.
					23. يتم الاتصال مع الطاقم الفني لنظام المعلومات بالسرعة المطلوبة.
					24. يُعالج الطاقم الفني لنظام المعلومات المشاكل التي تواجهني في أداء العمل.
					25. يمتلك فنيو نظام المعلومات المهارات الكافية.
					26. يُدرب فنيو نظام المعلومات المدربين على رفع كفاياتهم.
					27. تُعقد دورات تدريبية لاستخدام البرمجيات الجديدة.
					28. يُصدر فنيو نظام المعلومات نشرات تدريبية في مجال تكنولوجيا المعلومات.
(4) المستلزمات التنظيمية					
					29. تُعد تقارير العمل للإدارة بشكل دوري.
					30. تحتفظ الإدارة بسجلات التدريب.
					31. تتناسب الصلاحيات مع المستوى التنظيمي.
					32. تتواصل الإدارة مع المدربين بشكل فاعل تبعا للهيكل التنظيمي.
					33. تهتم الإدارة بما أبدية من آراء واقتراحات حول التدريب.
					34. تُشرك الإدارة المدربين بالقرارات المتعلقة بالعمل المطلوب.
					35. تُوفر الإدارة المتطلبات اللازمة لتحسين التدريب.
					36. تتناسب المعلومات المتاحة مع الاحتياجات الوظيفية.
					37. يمكن الحصول على المعلومات المتوفرة لدى الإدارة بسهولة.
					38. يتم الاستعانة بمدربين خارجين للمشاركة بالعملية التدريبية.
					39. تُفوض الإدارة المدربين بأجراء خطط تدريبية.
					40. تُشجع الإدارة على استخدام الحاسب بالعمل.
					41. تُقيم الإدارة فاعلية البرامج التدريبية.
					42. تنشر الادارة تقارير البرامج التدريبية.
					43. تهتم الإدارة بتطوير أنظمة المعلومات الخاصة بالكلية.

1	2	3	4	5	
غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	فيما يلي مجموعة من العبارات وأمام كل عبارة خمس درجات للإجابة يرجى وضع إشارة (X) في المكان المناسب
ثالثاً: الأداء الوظيفي					
يرجى تعبئة الفقرات التالية للتعرف على أثر التدريب باستخدام الحاسب.					
					44. يسهم في رفع كفايات المدربين الوظيفية.
					45. يسهم في سرعة اتخاذ القرارات.
					46. يقلل بذل الجهد لإنجاز العمل اليومي.
					47. يسهم في زيادة الرقابة على اجراءات العمل.
					48. يزيد القدرة على حل مشكلات العمل.
					49. يؤدي إلى مواصلة التعلم عن طريق التعلم عن بُعد.
					50. يوفر الدافعية في التدريب.
					51. يؤدي إلى زيادة سرعة الملاحظة والفهم.
					52. يحسن من عملية إعداد المادة التدريبية.
					53. يسهم في التخطيط للتدريب طبقاً لمعايير الجودة المطلوبة.
					54. يسهم في تصميم المحتوى التدريبي طبقاً لمعايير الجودة المطلوبة.
					55. يساعد في اعداد المناهج التدريبية طبقاً لمعايير الجودة المطلوبة.
					56. يسهل عملية عرض المادة التدريبية.
					57. يسهل عملية متابعة التدريب.
					58. يسهم في عملية تقييم نتائج التدريب.
					59. يسهم في تطوير المحتوى التدريبي طبقاً لمعايير الجودة المطلوبة.
					60. يسهل عملية التواصل الجيد مع الآخرين.
					61. يسهل عملية التوجيه والإرشاد.

شكراً لتعاونكم

Appendix 3: Questionnaire Referees

List of Academic and Professional Referees' Names

No.	Referee	Place of Work
.1	Dr. Samir Safi	Islamic University
.2	Dr. Waseem Al-Habeel	Islamic University
.3	Dr. Nafez Barakat	Islamic University
.4	Dr. Esam Al-Bahasi	Islamic University
.5	Dr. Yousif Bahar	Islamic University
.6	Eng. Imad Kuhail	Islamic University
.7	Eng. Mohammed Skaik	Islamic University
.8	Eng. Osama Qanoo'	Islamic University
.9	Dr. Wael Thabiet	Al-Azhar University
.10	Mr. Jamel Hammed	Gaza Training Center
.11	Mr. Mohammed Abo Zaida	Gaza Training Center
.12	Mr. Nabel Salaha	Gaza Training Center
.13	Mr. Wajdi Muhassen	Gaza Training Center
.14	Eng. Iham Ibaid	Gaza Training Center
.15	Eng. Darweesh Al-Heloo	UNRWA – Information System Office
.16	Eng. Rami Negim	UNRWA – Information System Office

Appendix 4:
Ordinary Least Square Assumption
(MULTIPLE REGRESSION ANALYSIS)

To pursue regression technique some assumption must be considered in using OLS:

No.	Regression Assumptions	Diagnostic Tests for the Regression Assumptions
1.	Linear relationship	Based on the previous theories and empirical researches (previous researches)
2.	There is normal distribution.	Kolmogorov-Smirnov Test
3.	There is no multicollinearity between the independent variables or no exact correlation between the independent variable.	Tolerance test and Variance inflation factor (VIF)
4.	There is no autocorrelation	Durbin-Watson
5.	Residuals have constant variance	Scatterplot

1. Checking Normality of a distribution

Normality of the distribution of a variable is very important because regression tests require the normality as a prerequisite. Because the research sample size is greater than 50, KolmogorovSmirnov test (Non-parametric Goodness of fit test) has been used to check the normality of the distribution. Kolmogorov-Smirnov Test and Normal Probability plot have been used to check the assumption that the disturbances are normally distributed. The results from table (A) show that Sig-value is greater than 0.05 for all research constructs. We can conclude that the all research constructs is normally distributed.

Table (A): Test of normality

No.	Field	Number of Paragraphs	Z-value	Sig-value
1.	Hardware	8	0.097	0.200
2.	Software	12	0.110	0.087
3.	Human Resources	8	0.091	0.200
4.	Organization structure	15	0.080	0.200
5.	Technical Performance	18	.110	.088

2. Checking for Autocorrelation

Durbin-Watson test was used to check if the disturbances are independent, the test statistic (DW) is scaled so that it is around 2 if no autocorrelation is present and near 0 if it is very strong Autocorrelation.

Table (B) shows for technical performance relation.

Table (B): Checking for Autocorrelation

	Technical Performance
Durbin-Watson test value	2.274

By using Durbin-Watson table, $d_L = 1.73$, $d_U = 1.81$, since DW is greater than d_U , we conclude there is no autocorrelation.

3. Multicollinearity

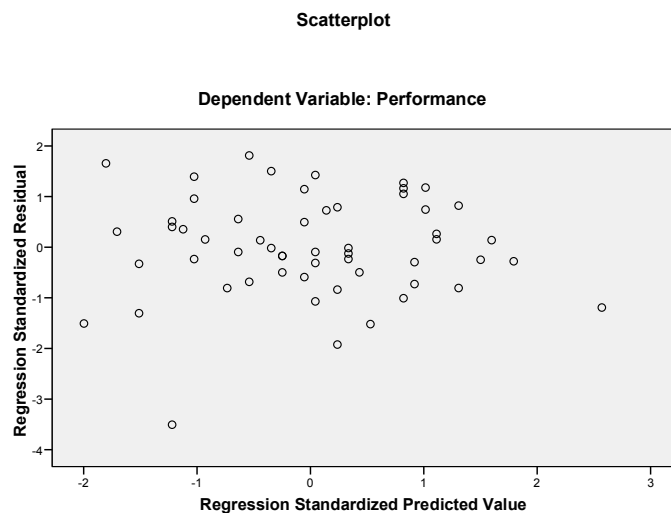
The term multicollinearity describes the situation when a high correlation is detected between two or more predictor variables. Such high correlations cause problems when trying to draw inferences about the relative contribution of each predictor variable to the success of the model. (Brace, Kemp, & Snelgar, 2000). We use Variance Inflation factor (VIF) to check the Multicollinearity among the independent variables. Multicollinearity exists if VIF is greater than 10 which indicate a strong relationship between predictor variables. Table (C) shows that the value of VIF for each independent variable is smaller than 10, so the problem of Multicollinearity does not exist.

Table (C): VIF results

	Constant	Hardware	Software	Human Resources	Organization structure
Technical Performance	-	2.003	3.361	1.603	2.488

4. The Residuals have constant variance

The figures plot the standardized residuals versus fitted values. The plot shows that there is no systematic pattern (values are consistently spread out), and then we conclude that the disturbances have constant variance.



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